

Bioimpedance measurement based evaluation of wound healing

Objective: Our group has developed a bipolar bioimpedance measurement-based method for determining the state of wound healing. The objective of this study was to assess the capability of the method. **Methods:** To assess the performance of the method, we arranged a follow-up study of four acute wounds. The wounds were measured using the method and photographed throughout the healing process. **Results:** Initially the bioimpedance of the wounds was significantly lower than the impedance of the undamaged skin, used as a baseline. Gradually, as healing progressed, the wound impedance increased and finally reached the impedance of the undamaged skin. **Conclusion:** The clinical appearance of the wounds examined in this study corresponded well with the parameters derived from the bioimpedance data. **Significance:** Hard-to-heal wounds are a significant and growing socioeconomic burden, especially in the developed countries, due to aging populations and to the increasing prevalence of various lifestyle related diseases. The assessment and the monitoring of chronic wounds are mainly based on visual inspection by medical professionals. The dressings covering the wound must be removed before assessment; this may disturb the wound healing process and significantly increases the work effort of the medical staff. There is a need for an objective and quantitative method for determining the status of a wound without removing the wound dressings. This study provided evidence of the capability of the bioimpedance based method for assessing the wound status. In the future measurements with the method should be extended to concern hard-to-heal wounds.

General information

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Organisations: Faculty of Biomedical Sciences and Engineering, Research group: Personal Electronics Group, Research group: Physiological Measurement Systems and Methods Group, BioMediTech

Authors: Kekonen, A., Bergelin, M., Eriksson, J., Vaalasti, A., Ylänen, H., Viik, J.

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Scopus rating (2007): SJR 0.892 SNIP 1.402

Scopus rating (2006): SJR 0.797 SNIP 1.3

Scopus rating (2005): SJR 0.59 SNIP 1.13

Scopus rating (2004): SJR 0.501 SNIP 1.047

Scopus rating (2003): SJR 0.591 SNIP 0.958

Scopus rating (2002): SJR 0.592 SNIP 0.975

Scopus rating (2001): SJR 0.36 SNIP 1.016

Scopus rating (2000): SJR 0.355 SNIP 0.882

Scopus rating (1999): SJR 0.428 SNIP 0.901

Original language: English

Keywords: Acute wound, Bioimpedance, Bipolar measurement, Chronic wound, Evaluation, Skin, Wound healing

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Research output: Scientific - peer-review › Article

Method for Evaluation of Surgical Wound Healing: A Case Study

We arranged a case study in order to examine whether tetrapolar bioimpedance measurement could be applied for evaluating the healing of a surgical wound. We measured the donor site surgical wound of a patient who had undergone a breast reconstruction surgery. The measurements were conducted three times in a nine days period, starting from the first

postoperative day. As a reference, the impedance of an unaffected site was also measured. The electrodes were placed at equal distances, four centimetres apart in a parallel formation. The results show that, at low frequencies, the impedance of the wound increases with time. At higher frequencies, the situation is opposite; the impedance of the wound is initially higher than the reference and decreases with time. Both ends seem to approach the reference impedance as the healing proceeds. Our results are in accordance with the normal course of surgical wound healing and more specifically appear to be related to the diminishing swelling around the wound site. We conclude that the obtained results are interesting in a level that calls for further investigation.

General information

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Ministry of Education publication type: A4 Article in a conference publication

Organisations: Faculty of Biomedical Sciences and Engineering, Research group: Physiological Measurement Systems and Methods Group, BioMediTech, Turku Univ Hosp, University of Turku, Åbo Akademi, Tampere University Hospital

Authors: Kekonen, A., Bergelin, M., Eriksson, J., Kaartinen, I., Viik, J.

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Editors: Eskola, H., Väisänen, O., Viik, J., Hyttinen, J.

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Keywords: Bioimpedance, Tetrapolar, Surgical, Wound, Monitoring, Healing, Assessment, Method

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Bibliographical note

jufoid=58152

Research output: Scientific - peer-review › Conference contribution

Geometry-based Computational Modeling of Calcium Signaling in an Astrocyte

In the last two decades, astrocytes have gained more interest due to the realization that they are involved not only in information processing and memory formation but are also linked with several neurodegenerative disorders and brain diseases. Communicating indirectly with synapses via released gliotransmitters such as glutamate, astrocytes take part in the neuronal activity by propagating intracellular and intercellular waves of calcium (Ca^{2+}). However, it is not clear what effect does the astrocyte geometry have on these Ca^{2+} wave dynamics. In this study, we present a geometry-based computational model of an astrocyte that is used to simulate the stimulation and propagation of intracellular astrocytic Ca^{2+} waves. To our best knowledge, this is the first computational model to study the effect of the single astrocyte geometry on the Ca^{2+} wave propagation, while taking into account the intricate biological pathways that regulate internal Ca^{2+} dynamics. By simulating theoretical astrocyte geometries with a fixed glutamate stimulus, we found that narrower astrocyte processes lead to stronger Ca^{2+} wave dynamics, in comparison to wider processes. From this study, we concluded that the geometry does have a visible effect on the overall intracellular Ca^{2+} dynamics.

General information

State: E-pub ahead of print

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Faculty of Biomedical Sciences and Engineering, Research group: Computational Biophysics and Imaging Group, BioMediTech

Authors: Uzair Khalid, M., Tervonen, A., Korkka, I., Hyttinen, J., Lenk, K.

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Bibliographical note

jufoid=58152
Research output: Scientific - peer-review › Conference contribution

Sensitivity Distribution of Electrical Impedance Epithelial Measurement Systems

Epithelia are essential tissues that separate body compartments from each other and are affected by a plethora of diseases and conditions. Electrical properties are a convenient method to study the state of these tissues. There are various measurement setups for studying these properties. However, there has been no studies on how the setup of the electrodes affects the sensitivity distribution of the measurement system. We created a computational model of 4-electrode electrical impedance measurement system to study how the placement of the electrode as well as defects in the epithelium affect the sensitivity distribution. Our results show that the sensitivity is highly dependent on the frequency as well as on the distance between the electrodes and the epithelium. The sensitivity become more concentrated to areas between the electrodes when they were moved closer to the epithelium. The sensitivity should be taken into account when developing measurement systems to study localized phenomena with the electrodes placed close to the epithelium.

General information

State: E-pub ahead of print
Ministry of Education publication type: A4 Article in a conference publication
Organisations: Faculty of Biomedical Sciences and Engineering, Research group: Computational Biophysics and Imaging Group, BioMediTech
Authors: Tervonen, A., Hyttinen, J.
Number of pages: 4
Pages: 623-626
Publication date: Jun 2017

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Title of host publication: EMBEC & NBC 2017 : Joint Conference of the European Medical and Biological Engineering Conference (EMBEC) and the Nordic-Baltic Conference on Biomedical Engineering and Medical Physics (NBC), Tampere, Finland, June 2017
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Research output: Scientific - peer-review › Conference contribution

Engineering and Characterization of Bacterial Nanocellulose Films as Low Cost and Flexible Sensor Material

Some bacterial strains such as *Komagataeibacter xylinus* are able to produce cellulose as an extracellular matrix. In comparison to wood-based cellulose, bacterial cellulose (BC) holds interesting properties such as biodegradability, high purity, water-holding capacity, and superior mechanical and structural properties. Aiming toward improvement in BC production titer and tailored alterations to the BC film, we engineered *K. xylinus* to overexpress partial and complete bacterial cellulose synthase operon that encodes activities for BC production. The changes in cell growth, end metabolite, and BC production titers from the engineered strains were compared with the wild-type *K. xylinus*. Although there were no significant differences between the growth of wild-type and engineered strains, the engineered *K. xylinus* strains

demonstrated faster BC production, generating 2–4-fold higher production titer (the highest observed titer was obtained with K. xylinus-bcsABCD strain producing 4.3 ± 0.46 g/L BC in 4 days). The mechanical and structural characteristics of cellulose produced from the wild-type and engineered K. xylinus strains were analyzed with a stylus profilometer, in-house built tensile strength measurement system, a scanning electron microscope, and an X-ray diffractometer. Results from the profilometer indicated that the engineered K. xylinus strains produced thicker BC films (wild type, 5.1 μm , and engineered K. xylinus strains, 6.2–10.2 μm). Scanning electron microscope revealed no principal differences in the structure of the different type BC films. The crystallinity index of all films was high (from 88.6 to 97.5%). All BC films showed significant piezoelectric response (5.0–20 pC/N), indicating BC as a promising sensor material.

General information

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Ministry of Education publication type: A1 Journal article-refereed

Organisations: Chemistry and Bioengineering, Faculty of Biomedical Sciences and Engineering, Materials Science, Research group: Plastics and Elastomer Technology, Research group: Plastics and Elastomer Technology, Research group: Industrial Bioengineering and Applied Organic Chemistry, Research group: Bio- and Circular Economy, Research area: Microsystems, Research area: Measurement Technology and Process Control, Research group: Sensor Technology and Biomeasurements (STB), BioMediTech

Authors: Mangayil, R., Rajala, S., Pammo, A., Sarlin, E., Luo, J., Santala, V., Karp, M., Tuukkanen, S.

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Publication date: 18 May 2017

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Journal: ACS Applied Materials & Interfaces

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Scopus rating (2015): SJR 2.299 SNIP 1.568

Scopus rating (2014): SJR 2.126 SNIP 1.64

Scopus rating (2013): SJR 1.979 SNIP 1.543

Scopus rating (2012): SJR 2.18 SNIP 1.309

Scopus rating (2011): SJR 2.017 SNIP 1.396

Scopus rating (2010): SJR 1.571 SNIP 0.931

Original language: English

DOIs:

10.1021/acsami.7b04927

Bibliographical note

INT="Luo, Jin"

INT="Pammo, Arno"

Source: RIS

Source-ID: urn:9654BBA35A6BF054571845C06F06F5D9

Research output: Scientific - peer-review > Article

Collagen-immobilized polyimide membranes for retinal pigment epithelial cell adherence and proliferation

Degenerative retinal diseases are a leading cause of visual loss and irreversible blindness, particularly in the developed world. Retinal pigment cell (RPE) transplantation is nowadays considered the most promising therapeutic approach for certain retinal diseases, and the presence of a supportive scaffold has been considered essential to ensure the success of the implant. In this work, collagen IV was covalently immobilized to the surface of polyimide membranes, with the purpose of developing scaffold materials for RPE cell culture. The covalent modification method involved four steps: argon-plasma treatment, acrylic acid graft polymerization, surface activation, and finally immobilization of collagen type IV. Collagen-modified membranes did not become more rough but became significantly more hydrophilic than the unmodified and dip-coated controls. ARPE-19 cell morphology and attachment were studied by immunofluorescence staining and confocal microscopy. Covalently modified surfaces showed cell attachment and cell properties comparable to the uncoated and dip-coated controls. This work demonstrated the potential of collagen IV-immobilized polyimide membranes as substrates for the growth of ARPE-19 cells.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Faculty of Biomedical Sciences and Engineering, Research group: Biomaterials and Tissue Engineering Group, BioMediTech, University of Tampere, BioMediTech

Authors: Teymouri, S., Calejo, M. T., Hiltunen, M., Sorkio, A. E., Juuti-Uusitalo, K., Skottman, H., Kellomäki, M.

Publication date: 6 Mar 2017

Peer-reviewed: Yes

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Journal: Cogent Chemistry

Volume: 3

Issue number: 1

ISSN (Print): 2331-2009

Original language: English

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Collagen immobilized polyimide membranes for retinal pigment epithelial cell adherence and proliferation

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Research output: Scientific - peer-review > Article

Investigation of the structural anisotropy in a self-assembling glycinate layer on Cu(100) by scanning tunneling microscopy and density functional theory calculations

Self-assembling organic molecule-metal interfaces exhibiting free-electron like (FEL) states offers an attractive bottom-up approach to fabricating materials for molecular electronics. Accomplishing this, however, requires detailed understanding of the fundamental driving mechanisms behind the self-assembly process. For instance, it is still unresolved as to why the adsorption of glycine ($[\text{NH}_2(\text{CH}_2)\text{COOH}]$) on isotropic Cu(100) single crystal surface leads, via deprotonation and self-assembly, to a glycinate ($[\text{NH}_2(\text{CH}_2)\text{COO}^-]$) layer that exhibits anisotropic FEL behavior. Here, we report on bias-dependent scanning tunneling microscopy (STM) experiments and density functional theory (DFT) calculations for glycine adsorption on Cu(100) single crystal surface. We find that after physical vapor deposition (PVD) of glycine on Cu(100), glycinate self-assembles into an overlayer exhibiting $c(2 \times 4)$ and $p(2 \times 4)$ symmetries with non-identical adsorption sites. Our findings underscore the intricacy of electrical conductivity in nanomolecular organic overlayers and the critical role the structural anisotropy at molecule-metal interface plays in the fabrication of materials for molecular electronics.

General information

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Ministry of Education publication type: A1 Journal article-refereed

Organisations: Photonics, Research group: Surface Science, Department of Physics and Astronomy, Russian Acad Sci, Ioffe Physical Technical Institute, Russian Academy of Sciences, Ioffe Phys Tech Inst

Authors: Kuzmin, M., Lahtonen, K., Vuori, L., Sánchez-de-Armas, R., Hirsimäki, M., Valden, M.

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Scopus rating (2015): SJR 0.914 SNIP 1.3 CiteScore 3.13

Scopus rating (2014): SJR 0.958 SNIP 1.477 CiteScore 2.96

Scopus rating (2013): SJR 0.965 SNIP 1.488 CiteScore 2.78

Scopus rating (2012): SJR 0.918 SNIP 1.373 CiteScore 2.26

Scopus rating (2011): SJR 0.908 SNIP 1.402 CiteScore 2.27

Scopus rating (2010): SJR 0.924 SNIP 1.141

Scopus rating (2009): SJR 0.842 SNIP 1.023

Scopus rating (2008): SJR 0.899 SNIP 1.087

Scopus rating (2007): SJR 0.795 SNIP 0.945

Scopus rating (2006): SJR 0.852 SNIP 1.052

Scopus rating (2005): SJR 0.679 SNIP 0.946

Scopus rating (2004): SJR 0.964 SNIP 1.126

Scopus rating (2003): SJR 0.988 SNIP 1.027

Scopus rating (2002): SJR 0.921 SNIP 0.954

Scopus rating (2001): SJR 0.841 SNIP 0.796

Scopus rating (2000): SJR 0.866 SNIP 0.772

Scopus rating (1999): SJR 1.064 SNIP 0.907

Original language: English

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ASJC Scopus subject areas: Surfaces and Interfaces, Condensed Matter Physics, Metals and Alloys

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Research output: Scientific - peer-review > Article

Langmuir-Schaefer film deposition onto honeycomb porous films for retinal tissue engineering

Age-related macular degeneration (AMD) is the leading cause of vision loss in senior citizens in the developed world. The disease is characterised by the degeneration of a specific cell layer at the back of the eye – the retinal pigment epithelium (RPE), which is essential in retinal function. The most promising therapeutic option to restore the lost vision is considered to be RPE cell transplantation. This work focuses on the development of biodegradable biomaterials with similar properties to the native Bruch's membrane as carriers for RPE cells. In particular, the breath figure (BF) method was used to create semi-permeable microporous films, which were thereafter used as the substrate for the consecutive Langmuir-Schaefer (LS) deposition of highly organised layers of collagen type I and collagen type IV. The newly developed biomaterials were further characterised in terms of surface porosity, roughness, hydrophilicity, collagen distribution, diffusion properties and hydrolytic stability. Human embryonic stem cell-derived RPE cells (hESC-RPE) cultured on the biomaterials showed good adhesion, spreading and morphology, as well as the expression of specific protein markers. Cell function was additionally confirmed by the assessment of the phagocytic capacity of hESC-RPE. Throughout the study, microporous films consistently showed better results as cell culture materials for hESC-RPE than dip-coated controls. This work demonstrates the potential of the BF-LS combined technologies to create biomimetic prosthetic Bruch's membranes for hESC-RPE transplantation.

General information

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Organisations: Faculty of Biomedical Sciences and Engineering, Research group: Biomaterials and Tissue Engineering Group, Chemistry and Bioengineering, Research group: Supramolecular photochemistry, BioMediTech, BioMediTech, University of Tampere, BioMediTech, University of Tampere

Authors: Calejo, M. T., Ilmarinen, T., Vuorimaa-Laukkanen, E., Talvitie, E., Hakola, H. M., Skottman, H., Kellomäki, M.

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ISSN (Print): 1742-7061

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Scopus rating (2014): SJR 1.814 SNIP 2.324 CiteScore 6.53

Scopus rating (2013): SJR 1.963 SNIP 2.269 CiteScore 6.41

Scopus rating (2012): SJR 1.904 SNIP 2.125 CiteScore 5.51

Scopus rating (2011): SJR 1.808 SNIP 1.91 CiteScore 5.15

Scopus rating (2010): SJR 1.794 SNIP 1.964

Scopus rating (2009): SJR 1.399 SNIP 1.662

Scopus rating (2008): SJR 1.404 SNIP 1.981

Scopus rating (2007): SJR 1.199 SNIP 1.493

Scopus rating (2006): SJR 0.837 SNIP 1.131

Original language: English

Keywords: Biomaterials, Tissue Engineering, Films, Retinal pigment epithelial cell, Langmuir-Schaefer film

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Research output: Scientific - peer-review > Article

Multi-wavelength mid-IR light source for gas sensing

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Photonics, Research group: Semiconductor Technology and Applications, VTT Technical Research Ctr. of Finland Ltd., Institute of Electronic Materials Technology, Vaisala Oyj, GasSecure AS, VIGO System S.A.

Authors: Karioja, P., Alajoki, T., Cherchi, M., Ollila, J., Harjanne, M., Heinilehto, N., Suomalainen, S., Viheriälä, J., Zia, N., Guina, M., Buczyński, R., Kasztelaniec, R., Kujawa, I., Salo, T., Virtanen, S., Kluczynski, P., Sagberg, H., Ratajczyk, M., Kalinowski, P.

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Research output: Scientific - peer-review › Conference contribution

Combining finger and toe photoplethysmograms for the detection of atherosclerosis

General information

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Organisations: Department of Automation Science and Engineering, Research area: Microsystems, Research area: Measurement Technology and Process Control

Authors: Peltokangas, M., Vehkaoja, A., Huotari, M., Verho, J., Mattila, V. M., Röning, J., Ronsi, P., Lekkala, J., Oksala, N.

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Scopus rating (2015): SJR 0.815 SNIP 1.371 CiteScore 2.24

Scopus rating (2014): SJR 0.59 SNIP 1.388 CiteScore 2.2

Scopus rating (2013): SJR 0.751 SNIP 1.678 CiteScore 2.25

Scopus rating (2012): SJR 0.576 SNIP 1.285 CiteScore 2

Scopus rating (2011): SJR 0.654 SNIP 1.252 CiteScore 2.19

Scopus rating (2010): SJR 0.619 SNIP 1.544

Scopus rating (2009): SJR 0.622 SNIP 1.445

Scopus rating (2008): SJR 0.675 SNIP 1.342

Scopus rating (2007): SJR 0.892 SNIP 1.402

Scopus rating (2006): SJR 0.797 SNIP 1.3

Scopus rating (2005): SJR 0.59 SNIP 1.13

Scopus rating (2004): SJR 0.501 SNIP 1.047
Scopus rating (2003): SJR 0.591 SNIP 0.958
Scopus rating (2002): SJR 0.592 SNIP 0.975
Scopus rating (2001): SJR 0.36 SNIP 1.016
Scopus rating (2000): SJR 0.355 SNIP 0.882
Scopus rating (1999): SJR 0.428 SNIP 0.901

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Research output: Scientific - peer-review › Article

Comparison of Simple Algorithms for Estimating Respiration Rate from Electrical Impedance Pneumography Signals in Wearable Devices

Respiration rate (RR) is considered as a useful parameter in characterizing the health condition of a person. Among the methods used for respiration measurement, Electrical Impedance Pneumography (EIP) can be easily obtained in wearable applications due to the possibility of using the electrocardiography (ECG) electrodes for the EIP measurement. In the fast growing field of wearable devices, having clinically valuable and reliable information along with providing the convenience of the user, is probably the most important and challenging issue. To address the need of small sized devices for ECG (and EIP) measurements, EASI electrode configuration is an acceptable solution. The signals from EASI system not only provide useful information by themselves when directly used for cardiological analyses, but can also be converted to the standard 12-lead ECG information. With aforementioned advantages of EASI system, the question then arises how suitable the electrode locations of the system are for EIP measurements and what algorithms perform better for respiration rate derivation. In this work, we evaluated eight methods for deriving respiration rate from EIP signals measured from 15 subjects (10 males +5 females) in three conditions: standing, walking slowly, and walking fast. The algorithms were autoregressive (AR) modeling (three different approaches), Fast Fourier Transform (FFT), autocorrelation, peak detection and two counting algorithms. Our results show that advanced counting method is the most promising approach among the ones studied in this work. For this algorithm, the concordance correlation coefficients of the respiration rate estimates between EIP and the reference measurement were 0.96, 0.90 and 0.97 for standing, walking with 3 km/h speed, and walking with 6 km/h speed, respectively.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Automation Science and Engineering, Department of Electronics and Communications

Engineering, Research group: Laboratory for Future Electronics, Research area: Microsystems, Research area:

Measurement Technology and Process Control

Authors: Jeyhani, V., Vuorinen, T., Mäntysalo, M., Vehkaoja, A.

Number of pages: 11

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Scopus rating (2014): SJR 0.243 SNIP 0.85 CiteScore 1.06

Scopus rating (2013): SJR 0.225 SNIP 0.653 CiteScore 0.89

Scopus rating (2012): SJR 0.107 SNIP 0 CiteScore 0.2

Original language: English

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Links:

<http://rdcu.be/nD3E>

Research output: Scientific - peer-review › Article

The Impact of Galileo Open Service on Location Based Services Markets

Many Location Based Services (LBS), such as navigation and tracking services, are using Global Satellite-based Navigation Systems (GNSS). GNSS is the most widely used positioning solution for LBS outdoors, therefore any improvement in the quality of GNSS positioning services will directly improve the quality of LBS and therefore it will generate more revenue and attract more users. One of the upcoming satellite navigation systems is Galileo, which is being deployed by the European Union (EU). Beside all political motivations behind Galileo, the availability of more satellites in view and a more accurate, reliable and continuous positioning service are some of the technological motivations of having yet another of GNSS on sky. Such improvement in positioning service and, as a result, in LBS applications will develop the market and attract more users. However, due to long delays, current powerful competitors which are making the GNSS market increasingly crowded, and also the cost of Galileo being covered by EU taxpayers only, there is a question if another of GNSS is really required and it is able to return all its cost in near future. This chapter assesses the financial aspects of Galileo at the time of writing the book, including increasing costs and impact of losing some parts of market and also its potential revenue and the economic impact of positioning and timing service improvement by Galileo, and finally the impact of Galileo on future markets of LBS is estimated.

General information

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Ministry of Education publication type: A3 Part of a book or another research book

Organisations: Department of Electronics and Communications Engineering, Research group: Wireless Communications and Positioning

Authors: Basiri, A., Lohan, E., Moore, T.

Pages: 269-281

Publication date: 2017

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Editors: Nurmi, J., Lohan, E. S., Wymeersch, H., Seco-Granados, G., Nykänen, O.

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Research output: Scientific - peer-review › Chapter

Biomaterials for Electronics

Challenges of climate change, ecological scarcity and depletion of natural resources form a global push towards a bioeconomy, which means shifting from fossil to renewable raw materials. Wood biomass will likely get a significant role in the Finnish bioeconomy. Finnish economy has conventionally focused on bulk products, while the challenge in the future is to bring high added value to the fibre based components and products. Cellulose based nanomaterials are low-cost, strong, porous, lightweight, solution processable, biocompatible, biodegradable and piezoelectric biomaterials, which have obvious applications for example in biomedical and electronic applications.

Piezoelectric sensors are widely applicable for various healthcare and well-being applications. We have recently studied flexible piezoelectric sensors made from commercial PVDF films and printable PVDF-TrFE ink, as well as biodegradable films from wood-based cellulose nanofibrils (CNF) [1] and bacterial cellulose (BC).

The high porosity of CNF makes it also a promising material for supercapacitors, also known as electrochemical double-layer capacitors (EDLC). We have recently demonstrated the fabrication of supercapacitor electrodes from a mixture of CNF and dandelion using high temperature pyrolysis.

References:

[1] S. Rajala, T. Siponkoski, E. Sarlin, M. Mettänen, M. Vuoriluoto, A. Pammo, J. Juuti, O. J. Rojas, S. Franssila, and S. Tuukkanen. "Cellulose nanofibril film as a piezoelectric sensor material". ACS Appl. Mater. Interfaces 8(24) (2016) 15607.

General information

State: Published

Organisations: Faculty of Biomedical Sciences and Engineering, Department of Automation Science and Engineering, Research area: Microsystems, Research area: Measurement Technology and Process Control, University of Twente, Faculty of Biomedical Sciences and Engineering, Tampere University of Technology

Authors: Pammo, A., Schouten, M., Virtanen, J., Tuukkanen, S.

Number of pages: 1

Pages: 1-1

Publication date: 25 Nov 2016

Peer-reviewed: Unknown

Event:

ASJC Scopus subject areas: Biomaterials, Materials Science(all), Electrical and Electronic Engineering

Keywords: biomaterial, piezoelectric sensor, nanocellulose, bacterial cellulose, supercapacitor, PVDF-TrFE

Research output: Scientific › Paper, poster or abstract

Direction as a vibration loading parameter in bone tissue engineering

General information

State: Published

Organisations: Department of Electronics and Communications Engineering, Research group: Computational Biophysics and Imaging Group

Authors: Halonen, H., Kyllönen, L., Ihalainen, T. O., Miettinen, S., Hyttinen, J.

Publication date: 25 Nov 2016

Peer-reviewed: Unknown

Event: Paper presented at BioMediTech Research Day 2016, Tampere, Finland.

Keywords: HMHF vibration loading, Adipose stem cells, Osteogenic differentiation

ASJC Scopus subject areas: Biotechnology, Cell Biology, Biomedical Engineering

Links:

http://www.biomeditech.fi/RD2016/abstract_book_2016.pdf

Research output: Scientific › Paper, poster or abstract

Suppressing Functional Electrical Stimulation Artifact from Facial Surface EMG Measurements

Methods for suppressing the electrical artifact that functional electrical stimulation introduces to surface electromyography (EMG) measurements are demonstrated. The methods are targeted for facial pacing for people who suffer from unilateral facial paralysis. The pacing includes the measurement of EMG signals from the healthy side of the face as a control signal to simultaneously activate the paralysed side with functional electrical stimulation.

Facial EMG signals typically have amplitudes up to a few hundreds of microvolts. The activation of facial muscles with functional electrical stimulation may require stimulation voltages that are more than 10^6 times larger. When electrical stimulation is fed to the paralysed one side of the face, the introduced voltage will also couple to the EMG measurements on the healthy side. This coupling is called the stimulation artifact. In the worst case, the EMG measurement inputs will saturate leaving it impossible to correctly detect facial muscle activations and their activation intensities. Additionally, the stimulation artifact may be erroneously detected as a muscle activation.

The presented methods for suppressing the stimulation artifact from EMG measurements include filtering implemented in the hardware and software, manipulating the stimulation waveform to help removing it with filtering, and sample-and-hold functionality implemented in the hardware of the EMG signal measurement chain to prevent amplifier saturation and to allow faster recovery from the artifacts. The methods are demonstrated with experimental results.

General information

State: Published

Organisations: Department of Automation Science and Engineering, Research area: Microsystems, Research area: Measurement Technology and Process Control

Authors: Rantanen, V., Vehkaoja, A., Verho, J.

Publication date: 25 Nov 2016

Peer-reviewed: Unknown

Event: Paper presented at BioMediTech Research Day 2016, Tampere, Finland.

ASJC Scopus subject areas: Biomedical Engineering

Keywords: electromyography, facial pacing, functional electrical stimulation, prosthetic technology, stimulation artifact, unilateral facial paralysis

Research output: Scientific › Paper, poster or abstract

Fabrication of Ion-Shaped Anisotropic Nanoparticles and their Orientational Imaging by Second-Harmonic Generation Microscopy

Ion beam shaping is a novel and powerful tool to engineer nanocomposites with effective three-dimensional (3D) architectures. In particular, this technique offers the possibility to precisely control the size, shape and 3D orientation of metallic nanoparticles at the nanometer scale while keeping the particle volume constant. Here, we use swift heavy ions of xenon for irradiation in order to successfully fabricate nanocomposites consisting of anisotropic gold nanoparticle that are oriented in 3D and embedded in silica matrix. Furthermore, we investigate individual nanorods using a nonlinear optical microscope based on second-harmonic

generation (SHG). A tightly focused linearly or radially-polarized laser beam is used to excite nanorods with different orientations. We demonstrate high sensitivity of the SHG response for these polarizations to the orientation of the nanorods. The SHG measurements are in excellent agreement with the results of numerical modeling based on the boundary element method.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Physics, Research area: Optics, Research group: Nonlinear Optics, Optoelectronics Research Centre, Research group: Nanophotonics, Ecole Polytechnique, Laboratoire de Photonique et Nanostructures; CNRS, Marcoussis, France., 5Laboratoire de Physique des Solides CNRS/UMR8502, Bâtiment 510, University Paris-Sud, Orsay, 91405, France, 3Laboratoire des Solides Irradiés, Ecole Polytechnique, CEA/DRF/IRAMIS, CNRS, Université Paris-Saclay, Route de Saclay, 91128, Palaiseau, France.

Authors: Slablab, A., Isotalo, T. J., Mäkitalo, J., Turquet, L., COULON, P., Niemi, T., Ulysse, C., Kociak, M., Mailly, D., Rizza, G., Kauranen, M.

Number of pages: 10

Publication date: 24 Nov 2016

Peer-reviewed: Yes

Publication information

Journal: Scientific Reports

Volume: 6

Issue number: 37469

Article number: 37469

ISSN (Print): 2045-2322

Ratings:

Scopus rating (2016): CiteScore 4.63 SJR 1.625 SNIP 1.401

Scopus rating (2015): SJR 2.057 SNIP 1.684 CiteScore 5.3

Scopus rating (2014): SJR 2.103 SNIP 1.544 CiteScore 4.75

Scopus rating (2013): SJR 1.886 SNIP 1.51 CiteScore 4.06

Scopus rating (2012): SJR 1.458 SNIP 0.896 CiteScore 2.44

Original language: English

Keywords: optics, plasmonics, Nonlinear microscopy, IRRADIATION

ASJC Scopus subject areas: Atomic and Molecular Physics, and Optics

Electronic versions:

slablab et al. 2016

DOIs:

10.1038/srep37469

Links:

<http://urn.fi/URN:NBN:fi:tyy-201612154861>

Research output: Scientific - peer-review > Article

Wireless Optogenetic Neural Dust for Deep Brain Stimulation

In recent years, numerous research efforts have been dedicated towards developing efficient implantable devices for Deep Brain Stimulation (DBS). However, there are limitations and challenges with the current technologies. Firstly, the stimulation of neurons currently is only possible through implantable electrodes which target a population of neurons. This results in challenges in the event that stimulation at the single neuron level is required. Secondly, a major hurdle still lies in developing miniature devices that can last for a lifetime in the patient's brain. Recently, the concept of neural dust has been introduced as a way to achieve single neuron monitoring and potentially actuation. In parallel to this, the field of optogenetics has emerged where the aim is to stimulate neurons using light, usually by means of optical fibers inserted through the skull. Obviously, this introduces many challenges in terms of user friendliness and biocompatibility. We address this shortcoming by proposing the wireless optogenetic neural dust (wi-opt neural dust). The wi-opt neural dust is equipped with a miniature LED that is able to stimulate the genetically engineered neurons, and at the same time harvest energy from ultrasonic vibrations. The simulation results presented in the paper investigate the behaviour of the light propagation in the brain tissue, as well as the performance of designed circuitry for the energy harvesting process. The results demonstrate the feasibility of utilizing wi-opt neural dust for long term implantation in the brain, and a new direction towards precise stimulation of neurons in the cortex.

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Research group: Emerging Technologies for Nano-Bio-Info-Cogno

Authors: Wirdatmadja, S. A., Balasubramaniam, S., Koucheryavy, Y., Jornet, J. M.

Publication date: 21 Nov 2016

Host publication information

Title of host publication: 2016 IEEE 18th International Conference on e-Health Networking, Applications and Services (Healthcom)

Publisher: IEEE

ISBN (Electronic): 978-1-5090-3370-6

Electronic versions:

Healthcom_ver02

DOIs:

10.1109/HealthCom.2016.7749532

Links:

<http://urn.fi/URN:NBN:fi:tty-201703141168>

Research output: Scientific - peer-review › Conference contribution

UPS and DFT investigation of the electronic structure of gas-phase trimesic acid

Benzene-1,3,5-tricarboxylic acid (trimesic acid, TMA) molecules in gas-phase have been investigated by using valence band photoemission. The photoelectron spectrum in the binding energy region from 9 to 22 eV is interpreted based on the density functional theory calculations. The electronic configuration that makes contribution to each transition is demonstrated. Furthermore, electronic structure of TMA is compared with benzene and benzoic acid (BA) in order to demonstrate changes in molecular orbital energies induced by addition of carboxyl groups to benzene ring.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Optoelectronics Research Centre, Research group: Surface Science, University of Tartu, MAX IV Laboratory, Lund University

Authors: Reisberg, L., Pärna, R., Kikas, A., Kuusik, I., Kisand, V., Hirsimäki, M., Valden, M., Nõmmiste, E.

Number of pages: 6

Pages: 11-16

Publication date: Nov 2016

Peer-reviewed: Yes

Publication information

Journal: Journal of Electron Spectroscopy and Related Phenomena

Volume: 213

ISSN (Print): 0368-2048

Ratings:

Scopus rating (2016): SJR 0.962 SNIP 0.837 CiteScore 1.72

Scopus rating (2015): SJR 0.813 SNIP 0.923 CiteScore 1.73

Scopus rating (2014): SJR 0.778 SNIP 0.815 CiteScore 1.48

Scopus rating (2013): SJR 0.91 SNIP 0.954 CiteScore 1.82

Scopus rating (2012): SJR 1.047 SNIP 0.954 CiteScore 1.72

Scopus rating (2011): SJR 1.06 SNIP 0.842 CiteScore 1.68

Scopus rating (2010): SJR 0.742 SNIP 0.658

Scopus rating (2009): SJR 0.682 SNIP 0.663

Scopus rating (2008): SJR 0.786 SNIP 0.68

Scopus rating (2007): SJR 0.774 SNIP 0.807

Scopus rating (2006): SJR 0.863 SNIP 0.725

Scopus rating (2005): SJR 0.779 SNIP 0.784

Scopus rating (2004): SJR 0.754 SNIP 0.759

Scopus rating (2003): SJR 1.093 SNIP 0.8

Scopus rating (2002): SJR 1.008 SNIP 0.771

Scopus rating (2001): SJR 0.872 SNIP 0.785

Scopus rating (2000): SJR 0.623 SNIP 0.593

Scopus rating (1999): SJR 0.891 SNIP 0.663

Original language: English

ASJC Scopus subject areas: Organic Chemistry, Atomic and Molecular Physics, and Optics

Keywords: trimesic acid, molecules, electronic structure, synchrotron radiation, MAX IV Laboratory, UPS, DFT, organic acids, gas-phase, spectroscopy, photoemission

DOIs:

10.1016/j.elspec.2016.10.004

Links:

<http://urn.fi/URN:NBN:fi:tty-201612094854>. Embargo ends: 18/10/18

Research output: Scientific - peer-review › Article

Lipid membranes: Theory and simulations bridged to experiments

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Physics, University of Helsinki, MEMPHYS - Centre for Biomembrane Physics, University of Southern Denmark

Authors: Vattulainen, I., Róg, T.

Number of pages: 3

Pages: 2251-2253

Publication date: 1 Oct 2016

Peer-reviewed: Yes

Publication information

Journal: Biochimica et Biophysica Acta: Biomembranes

Volume: 1858

Issue number: 10

ISSN (Print): 0005-2736

Ratings:

Scopus rating (2016): SJR 1.511 SNIP 1.101 CiteScore 3.55

Scopus rating (2015): SJR 1.782 SNIP 1.142 CiteScore 3.8

Scopus rating (2014): SJR 1.869 SNIP 1.09 CiteScore 3.64

Scopus rating (2013): SJR 1.592 SNIP 0.975 CiteScore 3.45

Scopus rating (2012): SJR 1.833 SNIP 1.156 CiteScore 3.99

Scopus rating (2011): SJR 1.644 SNIP 1.227 CiteScore 4.17

Scopus rating (2010): SJR 2.179 SNIP 1.291

Scopus rating (2009): SJR 2.152 SNIP 1.298

Scopus rating (2008): SJR 2.035 SNIP 1.123

Scopus rating (2007): SJR 2.021 SNIP 1.158

Scopus rating (2006): SJR 1.922 SNIP 1.212

Scopus rating (2005): SJR 2.037 SNIP 1.231

Scopus rating (2004): SJR 1.5 SNIP 1.147

Scopus rating (2003): SJR 1.401 SNIP 1.115

Scopus rating (2002): SJR 1.594 SNIP 1.228

Scopus rating (2001): SJR 1.509 SNIP 1.053

Scopus rating (2000): SJR 1.089 SNIP 0.907

Scopus rating (1999): SJR 0.95 SNIP 0.841

Original language: English

ASJC Scopus subject areas: Biophysics, Biochemistry, Cell Biology

DOIs:

10.1016/j.bbamem.2016.06.007

Source: Scopus

Source-ID: 84980700166

Research output: Scientific - peer-review › Editorial

SCP-ECG V3.0: An Enhanced Standard Communication Protocol for Computer-assisted Electrocardiography

The main goal of the SCP-ECG standard is to address ECG data and related metadata structuring, semantics and syntax, with the objective of facilitating interoperability and thus supporting and promoting the exchange of the relevant information for unary and serial ECG diagnosis. Starting with version V3.0, the standard now also provides support for the storage of continuous, long-term ECG recordings and affords a repository for selected ECG sequences and the related metadata to accommodate stress tests, drug trials and protocol-based ECG recordings. The global and per-lead measurements sections have been extended and three new sections have been introduced for storing beat-by-beat and/or spike-by-spike measurements and annotations. The used terminology and the provided measurements and annotations have been harmonized with the ISO/IEEE 11073-10102 Annotated ECG standard. Emphasis has also been put on harmonizing the Universal Statement Codes with the CDISC and the categorized AHA statement codes and similarly the drug and implanted devices codes with the ATC and NASPE/BPEG codes.

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Signal Processing, Research group: Sleep and Sensory Signal Analysis Group-SSSAG, SFR Santé Lyon-Est: eTechSanté, Université de Lyon, The University of Cagliari, A.M.P.S. LCC, Institute of Cardiovascular and Medical Sciences, University of Glasgow

Authors: Pani, D., Rubel, P., Fayn, J., Badilini, F., Macfarlane, P., Värri, A.

Number of pages: 4

Pages: 309-312

Publication date: 12 Sep 2016

Host publication information

Title of host publication: Computers in Cardiology Conference

Volume: 43

Place of publication: Vancouver, Canada

Publisher: Computing in Cardiology

Editor: Murray, A.

ISBN (Print): 978-1-5090-0896-4

ISBN (Electronic): 978-1-5090-0895-7

Electronic versions:

SCP_ECG_V3_in_CinC-2016

Links:

<http://urn.fi/URN:NBN:fi:tty-201612164870>

Research output: Scientific - peer-review > Conference contribution

The impact of acquisition dose on quantitative breast density estimation with digital mammography: results from ACRIN PA 4006

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: University of Pennsylvania

Authors: Chen, L., Ray, S., Keller, B., Pertuz, S., McDonald, E., Conant, E., Kontos, D.

Publication date: Sep 2016

Peer-reviewed: Yes

Publication information

Journal: Radiology

Volume: 280

Issue number: 3

ISSN (Print): 0033-8419

Ratings:

Scopus rating (2016): SJR 3.488 SNIP 2.797 CiteScore 5.67

Scopus rating (2015): SJR 3.512 SNIP 2.765 CiteScore 5.5

Scopus rating (2014): SJR 3.795 SNIP 3.046 CiteScore 5.5

Scopus rating (2013): SJR 3.21 SNIP 2.953 CiteScore 5.4

Scopus rating (2012): SJR 3.279 SNIP 2.855 CiteScore 5.27

Scopus rating (2011): SJR 3.129 SNIP 2.696 CiteScore 4.93

Scopus rating (2010): SJR 3.226 SNIP 2.667

Scopus rating (2009): SJR 3.121 SNIP 2.76

Scopus rating (2008): SJR 3.051 SNIP 2.664

Scopus rating (2007): SJR 3.392 SNIP 2.729

Scopus rating (2006): SJR 3.078 SNIP 2.537

Scopus rating (2005): SJR 2.712 SNIP 2.642

Scopus rating (2004): SJR 2.664 SNIP 2.595

Scopus rating (2003): SJR 2.522 SNIP 2.709

Scopus rating (2002): SJR 2.479 SNIP 2.56

Scopus rating (2001): SJR 2.507 SNIP 2.665

Scopus rating (2000): SJR 2.949 SNIP 2.586

Scopus rating (1999): SJR 2.83 SNIP 2.855

Original language: English

DOIs:

10.1148/radiol.2016151749

Research output: Scientific - peer-review › Article

Automatic objective thresholding to detect neuronal action potentials

In this paper, we introduce a fully objective method to set thresholds (THs) for neuronal action potential spike detection from extracellular field potential signals. Although several more sophisticated methods exist, thresholding is still the most used spike detection method. In general, it is employed by setting a TH as per convention or operator decision, and without considering either the undetected or spurious spikes. Here, we demonstrate with both simulations and real microelectrode measurement data that our method can fully automatically and objectively yield THs comparable to those set by an expert operator. A Matlab function implementation of the method is described, and provided freely in Matlab Central File Exchange.

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Research group: Computational Biophysics and Imaging Group, Department of Pervasive Computing, BioMediTech

Authors: Tanskanen, J. M., Kapucu, F. E., Välkki, I., Hyttinen, J. A.

Number of pages: 5

Pages: 662-666

Publication date: 29 Aug 2016

Host publication information

Title of host publication: Proceedings of 2016 24th European Signal Processing Conference (EUSIPCO)

ISBN (Print): 978-1-5090-1891-8

ISBN (Electronic): 978-0-9928-6265-7

Keywords: Neuronal action potential, Thresholding, Spike detection, Microelectrode array, Electric field potential

ASJC Scopus subject areas: Signal Processing, Neuroscience(all)

Electronic versions:

EUSIPCO2016_Tanskanen

DOIs:

10.1109/EUSIPCO.2016.7760331

Links:

<http://urn.fi/URN:NBN:fi:ty-201612124857>

Research output: Scientific - peer-review › Conference contribution

Imaging of the Second-harmonic Response of Spatially-oriented Individual Ion-shaped Nanoparticles

During the last decade, many efforts have been made to develop techniques to integrate nanostructures in functional matrices. This activity, mainly boosted by advances in nanofabrication, has enabled the development of elegant methods for the development of planar nanodevices. However, the design and implementation of embedded three-dimensional (3D) nano-architectures with tunable spatial orientation remains a challenge. To overcome this difficulty, an alternative is offered by the technique of sculpturing nanoparticles using ion beams (ion-beam shaping). Here, we use this method to produce an array of anisotropic and spatially-oriented gold nanoparticles embedded in silica matrix. Their orientation is then imaged by nonlinear optical

microscopy based on second-harmonic generation and polarized optical beams.

The arrays of gold nanoparticles were fabricated by first preparing an array of spherical particles in silica matrix. These particles were then illuminated by a beam of xenon ions. Depending on the total ion fluence, the gold particle elongate along the direction of irradiation, while maintaining constant volume, allowing nanorods and even nanowires to be fabricated. The tilt angle of the particles was adjusted by the direction of ion irradiation.

Second-harmonic microscopy of nanorods was based on using linearly and radially polarized beams focused by a high-numerical-aperture objective. This technique allows the transverse and longitudinal field components in the focus to be controlled. This in turn affects the coupling of the incident light to the nanorods with different orientations.

We report the high sensitivity of the second-harmonic response to the orientation of the nanorods for different states of polarization. The experimental results were obtained to be in very good agreement with simulations based on the boundary-element method. Compared with previous reports, our results provide a considerable improvement for understanding the interaction of highly focused beams with anisotropic sub-wavelength structures.

General information

State: Published

Organisations: Department of Physics, Research area: Optics, Research group: Nonlinear Optics, Optoelectronics Research Centre, Ecole Polytechnique

Authors: Slablab, A., Turquet, L., Isotalo, T. J., Mäkitalo, J. A., COULON, P., Niemi, K. T., Kociak, M., Rizza, G., Kauranen, M. O.

Number of pages: 1

Pages: 3867

Publication date: 10 Aug 2016

Peer-reviewed: Unknown

Event: Paper presented at 2016 Progress in Electromagnetic Research Symposium, Shanghai, China.

Electronic versions:

Abstract_PIERS_2016

DOIs:

10.1109/PIERS.2016.7735457

Research output: Scientific › Paper, poster or abstract

A survey on the feasibility of surface EMG in facial pacing

A survey on the feasibility of surface electromyography (EMG) measurements in facial pacing is presented. Pacing for unilateral facial paralysis consists of the measurement of activity from the healthy side of the face and functional electrical stimulation to reanimate the paralyzed one. The goal of this study is to evaluate the feasibility of surface EMG as a measurement method to detect muscle activations and to determine their intensities. Prior work is discussed, and results from experiments where 12 participants carried out a set of facial movements are presented. EMG was registered from zygomaticus major (smile), orbicularis oris (lip pucker), orbicularis oculi (eye blink), corrugator supercilii (frown), and masseter (chew). Most important facial functions that are limited due to the paralysis are blinking, smiling, and puckering. With majority of the participants, crosstalk between the measured EMG channels was found to be acceptably small to be able to pace smiling and puckering based on detecting their contraction intensities from the healthy side. However, pacing blinking based on orbicularis oculi EMG measurement does not seem possible due to crosstalk from other muscles, but the electro-oculographic (EOG) signals that couple to the same measurement channel could help to detect eye blinks and trigger stimuli. Furthermore, masseter greatly disturbs EMG measurement of most facial muscles, which needs to be addressed in the pacing system to avoid falsely interpreting its activity as the activity of another muscle.

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Automation Science and Engineering, Research area: Microsystems, Research area:

Measurement Technology and Process Control, University of Tampere, Department of Clinical Neurophysiology

Authors: Rantanen, V., Ilves, M., Vehkaoja, A., Kontunen, A., Lylykangas, J., Mäkelä, E., Rautiainen, M., Surakka, V., Lekkala, J.

Pages: 1688-1691

Publication date: Aug 2016

Host publication information

Title of host publication: 2016 IEEE 38th Annual International Conference of the Engineering in Medicine and Biology Society (EMBC)

Place of publication: Lake Buena Vista (Orlando), Florida, USA

Publisher: IEEE

ISBN (Print): 978-1-4577-0219-8

ISBN (Electronic): 978-1-4577-0220-4

ASJC Scopus subject areas: Biomedical Engineering

Electronic versions:

A Survey on the Feasibility of Surface EMG in Facial Pacing

DOIs:

10.1109/EMBC.2016.7591040

Links:

<http://urn.fi/URN:NBN:fi:ty-201611254799>

Research output: Scientific - peer-review › Conference contribution

Combating Unilateral Facial Paralysis With Low-Latency Muscle Reanimation

The Challenge:

Addressing unilateral facial paralysis by creating a measurement and control system for facial pacing, which measures facial movements from the healthy side of the face and uses functional electrical stimulation to simultaneously reanimate the paralysed side.

The Solution:

Using myRIO combined with custom electronics to measure multiple channels of surface EMG, process the acquired signals, and produce stimulation waveforms to activate facial muscles with the low-latency and reliability required for this novel medical system.

General information

State: Published

Ministry of Education publication type: I1 Audiovisual material

Organisations: Department of Automation Science and Engineering, Research area: Microsystems, Research area: Measurement Technology and Process Control

Authors: Rantanen, V., Verho, J., Vehkaoja, A., Veselý, P.

Publication date: Aug 2016

Media of output: Online

Links:

<http://sine.ni.com/cs/app/doc/p/id/cs-17222>

Research output: Scientific > Digital or Visual Products

Direction as a vibration loading parameter in osteogenic differentiation of adipose stem cells

General information

State: Published

Organisations: Department of Electronics and Communications Engineering, Research group: Computational Biophysics and Imaging Group

Authors: Halonen, H., Kyllönen, L., Ihalainen, T. O., Miettinen, S., Hyttinen, J.

Number of pages: 1

Publication date: 10 Jul 2016

Peer-reviewed: Unknown

Event: Paper presented at Congress of the European Society of biomechanics ESB2016, Lyon, France.

ASJC Scopus subject areas: Biotechnology, Cell Biology, Biomedical Engineering

Keywords: HMHF vibration loading, Adipose stem cells, Osteogenic differentiation

Links:

<https://esbiomech.org/conference/index.php/congress/lyon2016/paper/viewFile/123/209>

Research output: Scientific > Paper, poster or abstract

Improved antifouling properties and selective biofunctionalization of stainless steel by employing heterobifunctional silane-polyethylene glycol overlayers and avidin-biotin technology

A straightforward solution-based method to modify the biofunctionality of stainless steel (SS) using heterobifunctional silane-polyethylene glycol (silane-PEG) overlayers is reported. Reduced nonspecific biofouling of both proteins and bacteria onto SS and further selective biofunctionalization of the modified surface were achieved. According to photoelectron spectroscopy analyses, the silane-PEGs formed less than 10 Å thick overlayers with close to 90% surface coverage and reproducible chemical compositions. Consequently, the surfaces also became more hydrophilic, and the observed non-specific biofouling of proteins was reduced by approximately 70%. In addition, the attachment of *E. coli* was reduced by more than 65%. Moreover, the potential of the overlayer to be further modified was demonstrated by successfully coupling biotinylated alkaline phosphatase (bAP) to a silane-PEG-biotin overlayer via avidin-biotin bridges. The activity of the immobilized enzyme was shown to be well preserved without compromising the achieved antifouling properties. Overall, the simple solution-based approach enables the tailoring of SS to enhance its activity for biomedical and biotechnological applications.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Optoelectronics Research Centre, Research group: Surface Science, BioMediTech, University of Jyväskylä, Department of Physics, NanoScience Center

Authors: Hynninen, V., Vuori, L., Hannula, M., Tapio, K., Lahtonen, K., Isoniemi, T., Lehtonen, E., Hirsimäki, M., Toppari, J. J., Valden, M., Hytönen, V. P.

Publication date: 6 Jul 2016

Peer-reviewed: Yes

Publication information

Journal: Scientific Reports

Volume: 6

Article number: 29324

ISSN (Print): 2045-2322

Ratings:

Scopus rating (2016): CiteScore 4.63 SJR 1.625 SNIP 1.401

Scopus rating (2015): SJR 2.057 SNIP 1.684 CiteScore 5.3

Scopus rating (2014): SJR 2.103 SNIP 1.544 CiteScore 4.75

Scopus rating (2013): SJR 1.886 SNIP 1.51 CiteScore 4.06

Scopus rating (2012): SJR 1.458 SNIP 0.896 CiteScore 2.44

Original language: English

Electronic versions:

hynninen et al - Improved antifouling properties and selective biofunctionalization

DOIs:

10.1038/srep29324

Links:

<http://urn.fi/URN:NBN:fi:tty-201607294340>

Research output: Scientific - peer-review > Article

Acoustic Modelling

Let us examine the behaviour of sound in a gas or in a liquid medium. From a physical point of view, the sound we hear is created by the pressure change in the medium surrounding us that is sensed by our ears. The equations describing the behaviour of a liquid or a gas are based on well-known equations of fluid mechanics. Therefore in acoustics, they are often referred to as fluids. In the following sections we present a simple wave equation, which is the simplest of (linear) equations used to model acoustical phenomena. Even though the wave equation is quite a simplified model, it has proven to be extremely useful for describing the behaviour of sound in the most common fluid we face every day, namely air.

General information

State: Published

Ministry of Education publication type: A3 Part of a book or another research book

Organisations: Department of Mathematics, Research group: MAT Intelligent Information Systems Laboratory, Research group: MAT Mathematical and semantic modelling, Tampere Univ Technol, Tampere University of Technology

Authors: Pohjolainen, S., Suutala, A.

Number of pages: 21

Pages: 185-205

Publication date: 30 Jun 2016

Host publication information

Title of host publication: Mathematical Modelling

Place of publication: Switzerland

Publisher: Springer

Editor: Pohjolainen, S.

ISBN (Print): 978-3-319-27834-6

ISBN (Electronic): 978-3-319-27836-0

ASJC Scopus subject areas: Applied Mathematics, Modelling and Simulation, Acoustics and Ultrasonics

DOIs:

10.1007/978-3-319-27836-0_11

Bibliographical note

INT=mat,"Suutala, Antti"

Research output: Scientific - peer-review > Chapter

Titanium Nitride Microelectrodes Deposited by Ion Beam Assisted E-beam Evaporation

An alternative method for fabricating titanium nitride (TiN) microelectrodes is presented. In order to decrease the impedance and noise levels of microelectrodes, one of the most common methods is to coat the electrodes with TiN. Usually that has required the use of a sputtering device, but we have demonstrated that also an e-beam coater can be used for TiN deposition, if equipped with an ion source. Our first 30 μm microelectrodes fabricated by ion beam assisted deposition (IBAD) have impedances around 75 k Ω , which is close to the impedances reported for sputter deposited TiN microelectrodes.

General information

State: Published

Organisations: Department of Automation Science and Engineering, Research area: Microsystems, Research area: Measurement Technology and Process Control, University of Tampere, NeuroGroup, BioMediTech

Authors: Rynnänen, T., Toivanen, M., Narkilahti, S., Lekkala, J.

Publication date: 24 Jun 2016

Peer-reviewed: Unknown

Event: Paper presented at MEA meeting 2016, .

Keywords: microelectrode, Titanium nitride, e-Beam evaporation, Ion beam assisted deposition, MEA

DOIs:

doi: 10.3389/conf.fnins.2016.93.00123

Research output: Scientific > Paper, poster or abstract

Transatlantic collection of health informatics competencies

The electronic collection, processing and management of information is becoming increasingly important in healthcare. Because of the nature of the healthcare provision and delivery process, where the health, safety and quality of human lives are impacted on a daily basis, it is critical that those who work in the field are competent and able to perform all clinical, administrative, research and technology-impacted facets of their roles.

The United States and the European Union have been working to encourage broader and more effective use of Information and Communications Technology (ICT) within healthcare. The development, use and governance of ICT within healthcare, often called health informatics, requires a number of competences which need to be identified and integrated into relevant skills assessment, education and training. Ultimately, this will help produce a more proficient and a more confident mobile health informatics-empowered workforce.

A structured set of health information technology and eHealth implementation competences was collected in a co-operation project by voluntary experts in USA and European Union. The project took a deliberately broad starting point, seeking and reviewing an extensive range of related competencies. The skills cover the following domains of professions working with health information technology: direct patient care; administrative; engineering/information, communication, and technology (ICT); informatics; and research and biomedicine. The aggregation of over one thousand competencies was classified to a baseline set of skills and four levels of expertise in 33 focus areas according to Bloom's taxonomy. The data set also contains definitions of 268 'typical' professional roles. The use of the collection of competencies is supported by an open access web tool through which all the competencies can be searched through a query mechanism.

The limitation of this work is that only the Acute Care segment of roles and competencies impacted by ICT was evaluated within the scope of this project, however, this subset of other care settings such as ambulatory, rehabilitative care, surgery, and others serves as a representative set of roles and competencies within the health care field as well as a being an important proof of concept for future usefulness of the work if extended beyond its current span. This project has made a contribution to the potential improvement of workforce mobility internationally.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Research group: Sleep and Sensory Signal Analysis Group-SSSAG, Omni Micro Systems, UK Council for Health Informatics Professions, UHealth School of Biomedical Informatics, Irish Computer Society, Medical Business Solutions, CAL2CAL Corporation, European Health Telematics Association, Esac Inc., RTI International, Scottish Centre for Telehealth and Telecare, NHS 24, European Commission

Authors: Värrö, A., Blake, R., Roberts, J., Fenton, S., Cleary, M., Zacks, S., Datta, G., Kaye, R., Parker, J., Nguyen, C., Dougherty, M., Barry, N., Cunningham, F.

Number of pages: 10

Pages: 127-136

Publication date: 23 May 2016

Peer-reviewed: Yes

Publication information

Journal: Finnish Journal of eHealth and eWelfare

Volume: 8

Issue number: 2-3

ISSN (Print): 1798-0798

Original language: English

Keywords: health informatics competency, health informatics skills, health informatics workforce, health informatics education, health information technology, eHealth, professionalism, eLeadership, health information management, health ICT, skill, knowledge

Links:

<http://ojs.tsv.fi/index.php/stty/article/view/58108>

Research output: Scientific - peer-review > Article

Articular cartilage repair with recombinant human type II collagen/poly lactide scaffold in a preliminary porcine study

The purpose of this study was to investigate the potential of a novel recombinant human type II collagen/poly lactide scaffold (rhCo-PLA) in the repair of full-thickness cartilage lesions with autologous chondrocyte implantation technique (ACI). The forming repair tissue was compared to spontaneous healing (spontaneous) and repair with a commercial porcine type I/III collagen membrane (pCo). Domestic pigs (4-month-old, n = 20) were randomized into three study groups and a circular full-thickness chondral lesion with a diameter of 8 mm was created in the right medial femoral condyle. After 3 weeks, the chondral lesions were repaired with either rhCo-PLA or pCo together with autologous chondrocytes, or the lesion was only debrided and left untreated for spontaneous repair. The repair tissue was evaluated 4 months after the second operation. Hyaline cartilage formed most frequently in the rhCo-PLA treatment group. Biomechanically, there was a trend that both treatment groups resulted in better repair tissue than spontaneous healing. Adverse subchondral bone reactions developed less frequently in the spontaneous group (40%) and the rhCo-PLA treated group (50%) than in the

pCo control group (100%). However, no statistically significant differences were found between the groups. The novel rhCo-PLA biomaterial showed promising results in this proof-of-concept study, but further studies will be needed in order to determine its effectiveness in articular cartilage repair.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Biomaterials and Tissue Engineering Group, Research group: Computational Biophysics and Imaging Group, BioMediTech

Authors: Muhonen, V., Salenius, E., Haaparanta, A., Järvinen, E., Paatela, T., Meller, A., Hannula, M., Björkman, M., Pyhälä, T., Ellä, V., Vasara, A., Töyräs, J., Kellomäki, M., Kiviranta, I.

Pages: 745-753

Publication date: 1 May 2016

Peer-reviewed: Yes

Publication information

Journal: Journal of Orthopaedic Research

Volume: 34

Issue number: 5

ISSN (Print): 0736-0266

Ratings:

Scopus rating (2016): SJR 1.212 SNIP 1.082 CiteScore 2.8

Scopus rating (2015): SJR 1.509 SNIP 1.365 CiteScore 3.22

Scopus rating (2014): SJR 1.414 SNIP 1.416 CiteScore 3.14

Scopus rating (2013): SJR 1.491 SNIP 1.352 CiteScore 3.21

Scopus rating (2012): SJR 1.422 SNIP 1.401 CiteScore 3.31

Scopus rating (2011): SJR 1.426 SNIP 1.402 CiteScore 3.15

Scopus rating (2010): SJR 1.59 SNIP 1.529

Scopus rating (2009): SJR 1.446 SNIP 1.389

Scopus rating (2008): SJR 1.532 SNIP 1.388

Scopus rating (2007): SJR 1.532 SNIP 1.447

Scopus rating (2006): SJR 1.774 SNIP 1.812

Scopus rating (2005): SJR 1.74 SNIP 1.796

Scopus rating (2004): SJR 1.405 SNIP 1.497

Scopus rating (2003): SJR 1.373 SNIP 1.233

Scopus rating (2002): SJR 1.361 SNIP 1.024

Scopus rating (2001): SJR 1.481 SNIP 1.33

Scopus rating (2000): SJR 1.508 SNIP 1.625

Scopus rating (1999): SJR 1.302

Original language: English

DOIs:

10.1002/jor.23099

Research output: Scientific - peer-review › Article

Mimetic Interfaces Project: Eye Blink Pacing

General information

State: Published

Ministry of Education publication type: I1 Audiovisual material

Organisations: Department of Automation Science and Engineering, Research area: Microsystems, Research area: Measurement Technology and Process Control, University of Tampere

Authors: Rantanen, V., Vehkaoja, A., Verho, J., Leikkala, J., Ilves, M., Lylykangas, J., Surakka, V., Mäkelä, E., Rautiainen, M., Veselý, P.

Publication date: 1 May 2016

Media of output: Online

Size: 23M

Electronic versions:

Mimetic_Interfaces-Eye_Blink_Pacing-2016-05-01-1080p

Mimetic_Interfaces-Eye_Blink_Pacing-2016-05-01-720p

Links:

<http://urn.fi/URN:NBN:fi:tty-201608304469>

Links:

<http://www.vrantanen.com/publications/mimetic-interfaces-project-functional-electrical-stimulation-of-facial-muscles>
Research output: Scientific > Digital or Visual Products

Wearable monitoring of physical functioning and disability changes, circadian rhythms and sleep patterns in nursing home residents

Sleep problems and disrupted circadian rhythms are common among older adults and may be associated with several health issues and physical functioning status. Wearable continuous monitoring of physical activity enables unobtrusive monitoring of circadian activity and sleep patterns. The objective of this retrospective study was to analyze whether physical functioning status (Activities of Daily Living assessment of Resident Assessment Instrument) is associated with diurnal activity rhythm and sleep patterns measured with wearable activity sensor in nursing home residents during their normal daily life. Continuous activity data were collected by the wearable sensor from 16 nursing home residents (average age of 90.7 years, 7 demented subjects, 1 female) in their daily life over several months (12-18 months). The subjects' physical activity and sleep were quantified by several parameters from the activity data. In the cross-sectional analysis, physical functioning status was associated with the strength ($RHO=0.78$, $P<0.05$) and the stability ($RHO=0.72$, $P<0.05$) of the activity rhythm when the level of dementia was not controlled. In the longitudinal analysis (12-18 months), at an individual level the activity rhythm indices and activity level had the strongest correlations with changes in physical functioning but the associations were to some extent individual. In these long-term case recordings, decrease in the physical functioning was most strongly associated with decreasing levels of activity, stability and strength of the activity rhythm, and with increasing fragmentation of rhythm and daytime passivity. Daily wearable monitoring of physical activity may hence reveal information about functioning state and health of older adults. However, since the changes in activity patterns implying changes in physical functioning status may not be consistent between the individuals, a multivariate approach is recommended for monitoring of these changes by continuous physical activity measurement.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Research group: Personal Health Informatics-PHI

Authors: Merilahti, J., Viramo, P., Korhonen, I.

Pages: 856-864

Publication date: 1 May 2016

Peer-reviewed: Yes

Early online date: 7 Apr 2015

Publication information

Journal: IEEE Journal of Biomedical and Health Informatics

Volume: 20

Issue number: 3

ISSN (Print): 2168-2194

Ratings:

Scopus rating (2016): CiteScore 3.68 SJR 0.852 SNIP 1.971

Scopus rating (2015): SJR 0.823 SNIP 2.297 CiteScore 3.15

Scopus rating (2014): SJR 0.692 SNIP 2.37 CiteScore 1.93

Scopus rating (2013): SJR 1.049 SNIP 2.405

Scopus rating (2012): SJR 0.799 SNIP 2.261

Scopus rating (2011): SJR 0.681 SNIP 2.042

Scopus rating (2010): SJR 0.632 SNIP 1.862

Scopus rating (2009): SJR 0.588 SNIP 1.809

Scopus rating (2008): SJR 0.605 SNIP 2.01

Scopus rating (2007): SJR 0.716 SNIP 2.154

Scopus rating (2006): SJR 0.685 SNIP 2.199

Scopus rating (2005): SJR 0.596 SNIP 1.843

Scopus rating (2004): SJR 0.486 SNIP 1.355

Scopus rating (2003): SJR 0.616 SNIP 1.65

Scopus rating (2002): SJR 0.491 SNIP 1.309

Scopus rating (2001): SJR 0.821 SNIP 1.548

Scopus rating (2000): SJR 0.459 SNIP 1.515

Scopus rating (1999): SJR 0.367 SNIP 0.952

Original language: English

DOIs:

10.1109/JBHI.2015.2420680

Source: PubMed

Source-ID: 25861091

Research output: Scientific - peer-review › Article

Flow Cytometry-Based Classification in Cancer Research: A View on Feature Selection

In this paper, we study the problem of feature selection in cancer-related machine learning tasks. In particular, we study the accuracy and stability of different feature selection approaches within simplistic machine learning pipelines. Earlier studies have shown that for certain cases, the accuracy of detection can easily reach 100% given enough training data. Here, however, we concentrate on simplifying the classification models with and seek for feature selection approaches that are reliable even with extremely small sample sizes. We show that as much as 50% of features can be discarded without compromising the prediction accuracy. Moreover, we study the model selection problem among the ℓ_1 regularization path of logistic regression classifiers. To this aim, we compare a more traditional cross-validation approach with a recently proposed Bayesian error estimator.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Research group: Laboratory of Biosystem Dynamics-LBD, Research group: Computational Systems Biology, Pori Department, Research group: Data-analytics and Optimization, Research group: Vision, BioMediTech

Authors: Hassan, S. S., Ruusuvuori, P., Latonen, L., Huttunen, H.

Pages: 75-85

Publication date: 10 Apr 2016

Peer-reviewed: Yes

Publication information

Journal: Cancer Informatics

Volume: 2015

Issue number: Suppl. 5

ISSN (Print): 1176-9351

Ratings:

Scopus rating (2016): SJR 0.588 SNIP 0.328 CiteScore 1.24

Scopus rating (2015): SJR 0.546 SNIP 0.409 CiteScore 1.46

Scopus rating (2014): SJR 0.94 SNIP 0.748 CiteScore 1.75

Scopus rating (2013): SJR 0.865 SNIP 0.552 CiteScore 1.37

Scopus rating (2012): SJR 0.391 SNIP 0.436 CiteScore 1.07

Scopus rating (2011): SJR 0.585 SNIP 0.478 CiteScore 1.31

Scopus rating (2010): SJR 0.56 SNIP 0.584

Scopus rating (2009): SJR 0.509 SNIP 0.391

Scopus rating (2008): SJR 0.483 SNIP 0.246

Scopus rating (2007): SJR 0.454 SNIP 0.325

Scopus rating (2006): SJR 0.246 SNIP 0.164

Original language: English

Electronic versions:

Flow Cytometry-Based Classification in Cancer Research

DOIs:

10.4137/CIN.S30795

Links:

<http://urn.fi/URN:NBN:fi:ty-201604283888>

Research output: Scientific - peer-review › Article

Introduction to Organic and Printed Electronics

Introduction to the key topics in the field of organic and printed electronics

General information

State: Published

Ministry of Education publication type: B2 Part of a book or another research book

Organisations: Department of Electronics and Communications Engineering, Research group: Laboratory for Future Electronics

Authors: Nisato, G., Lupo, D., Ganz, S.

Pages: 1-9
Publication date: 5 Apr 2016

Host publication information

Title of host publication: Organic and Printed Electronics : Fundamentals and Applications
Place of publication: Singapore
Publisher: PAN STANFORD PUBLISHING
Editors: Lupo, D., Nisato, G., Ganz, S.
Edition: 1
ISBN (Print): 978-981-4669-74-0
ISBN (Electronic): 978-981-4669-75-7
DOIs:
10.1201/b20043-2
Research output: Scientific › Chapter

Market Perspectives and Road Map for Organic Electronics

A description of the the technology roadmapping process in general and in particular the application to the field of organic and printed electronics

General information

State: Published
Ministry of Education publication type: B2 Part of a book or another research book
Organisations: Department of Electronics and Communications Engineering, Research group: Laboratory for Future Electronics, PolyIC, VDMA, Organic Electronics Association
Authors: Lupo, D., Clemens, W., Breitung, S., Hecker, K.
Number of pages: 28
Pages: 509-536
Publication date: 5 Apr 2016

Host publication information

Title of host publication: Organic and Printed Electronics : Fundamentals and Applications
Place of publication: Singapore
Publisher: PAN STANFORD PUBLISHING
Editors: Lupo, D., Nisato, G., Ganz, S.
Edition: 1
ISBN (Print): 978-981-4669-74-0
ISBN (Electronic): 978-981-4669-75-7
ASJC Scopus subject areas: Engineering(all), Materials Science(all)
DOIs:
10.1201/b20043-15
Research output: Scientific › Chapter

Organic and Printed Electronics: Fundamentals and Applications

General information

State: Published
Ministry of Education publication type: D6 Edited professional books
Organisations: Department of Electronics and Communications Engineering, Research group: Laboratory for Future Electronics, CSEM, TU Darmstadt
Authors: Nisato, G. (ed.), Lupo, D. (ed.), Ganz, S. (ed.)
Number of pages: 580
Publication date: 5 Apr 2016

Publication information

Place of publication: Singapore
Publisher: PAN STANFORD PUBLISHING
Edition: 1
ISBN (Print): 978-981-4669-74-0
ISBN (Electronic): 978-981-4669-75-7
Original language: English
Keywords: organic electronics, Printed electronics, organic semiconductors, OLED, OPV, TFT, printing, power storage
ASJC Scopus subject areas: Chemistry(all), Materials Science(all), Engineering(all), Physics and Astronomy(all)
DOIs:
10.1201/b20043

Fully-automated quantitative estimation of volumetric breast density from digital breast tomosynthesis images

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Former organisation of the author

Authors: Pertuz, S., McDonald, E., Weinstein, S., Conant, E., Kontos, D.

Pages: 65-74

Publication date: Apr 2016

Peer-reviewed: Yes

Publication information

Journal: Radiology

Volume: 279

Issue number: 1

ISSN (Print): 0033-8419

Ratings:

Scopus rating (2016): SJR 3.488 SNIP 2.797 CiteScore 5.67

Scopus rating (2015): SJR 3.512 SNIP 2.765 CiteScore 5.5

Scopus rating (2014): SJR 3.795 SNIP 3.046 CiteScore 5.5

Scopus rating (2013): SJR 3.21 SNIP 2.953 CiteScore 5.4

Scopus rating (2012): SJR 3.279 SNIP 2.855 CiteScore 5.27

Scopus rating (2011): SJR 3.129 SNIP 2.696 CiteScore 4.93

Scopus rating (2010): SJR 3.226 SNIP 2.667

Scopus rating (2009): SJR 3.121 SNIP 2.76

Scopus rating (2008): SJR 3.051 SNIP 2.664

Scopus rating (2007): SJR 3.392 SNIP 2.729

Scopus rating (2006): SJR 3.078 SNIP 2.537

Scopus rating (2005): SJR 2.712 SNIP 2.642

Scopus rating (2004): SJR 2.664 SNIP 2.595

Scopus rating (2003): SJR 2.522 SNIP 2.709

Scopus rating (2002): SJR 2.479 SNIP 2.56

Scopus rating (2001): SJR 2.507 SNIP 2.665

Scopus rating (2000): SJR 2.949 SNIP 2.586

Scopus rating (1999): SJR 2.83 SNIP 2.855

Original language: English

DOIs:

[10.1148/radiol.2015150277](https://doi.org/10.1148/radiol.2015150277)

Research output: Scientific - peer-review › Article

Health figures: an open source JavaScript library for health data visualization

Background

The way we look at data has a great impact on how we can understand it, particularly when the data is related to health and wellness. Due to the increased use of self-tracking devices and the ongoing shift towards preventive medicine, better understanding of our health data is an important part of improving the general welfare of the citizens. Electronic Health Records, self-tracking devices and mobile applications provide a rich variety of data but it often becomes difficult to understand. We implemented the hFigures library inspired on the hGraph visualization with additional improvements. The purpose of the library is to provide a visual representation of the evolution of health measurements in a complete and useful manner.

Results

We researched the usefulness and usability of the library by building an application for health data visualization in a health coaching program. We performed a user evaluation with Heuristic Evaluation, Controlled User Testing and Usability Questionnaires. In the Heuristics Evaluation the average response was 6.3 out of 7 points and the Cognitive Walkthrough done by usability experts indicated no design or mismatch errors. In the CSUQ usability test the system obtained an average score of 6.13 out of 7, and in the ASQ usability test the overall satisfaction score was 6.64 out of 7.

Conclusions

We developed hFigures, an open source library for visualizing a complete, accurate and normalized graphical

representation of health data. The idea is based on the concept of the hGraph but it provides additional key features, including a comparison of multiple health measurements over time. We conducted a usability evaluation of the library as a key component of an application for health and wellness monitoring. The results indicate that the data visualization library was helpful in assisting users in understanding health data and its evolution over time

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Research group: Personal Health Informatics-PHI

Authors: Ledesma, A., Al-Musawi, M., Nieminen, H.

Publication date: 22 Mar 2016

Peer-reviewed: Yes

Publication information

Journal: BMC Medical Informatics and Decision Making

Volume: 16

Issue number: 1

Article number: 38

ISSN (Print): 1472-6947

Ratings:

Scopus rating (2016): SJR 1.021 SNIP 1.125 CiteScore 2.27

Scopus rating (2015): SJR 1.055 SNIP 1.391 CiteScore 2.63

Scopus rating (2014): SJR 0.89 SNIP 1.199 CiteScore 2.01

Scopus rating (2013): SJR 0.693 SNIP 1.236 CiteScore 2.02

Scopus rating (2012): SJR 0.783 SNIP 1.229 CiteScore 2.14

Scopus rating (2011): SJR 1.053 SNIP 1.634 CiteScore 2.57

Scopus rating (2010): SJR 1.084 SNIP 1.678

Scopus rating (2009): SJR 0.87 SNIP 1.508

Scopus rating (2008): SJR 0.797 SNIP 1.576

Scopus rating (2007): SJR 0.653 SNIP 1.415

Scopus rating (2006): SJR 0.426 SNIP 1.125

Scopus rating (2005): SJR 0.3 SNIP 0.812

Scopus rating (2004): SJR 0.258 SNIP 1.073

Scopus rating (2003): SJR 0.351 SNIP 1.957

Scopus rating (2002): SJR 0.547 SNIP 0.244

Original language: English

Keywords: Data visualization, Health data, Health informatics, Javascript

Electronic versions:

hFiguresLedesmaEtAl

DOIs:

10.1186/s12911-016-0275-6

Links:

<http://urn.fi/URN:NBN:fi:ty-201603243765>

Research output: Scientific - peer-review > Article

Structural and Electrical Characterization of Solution-Processed Electrodes for Piezoelectric Polymer Film Sensors

Solution-processable graphene and carbon nanotube-based electrode materials were used here to provide electrodes on flexible piezoelectric polyvinylidene fluoride sensors. Piezoelectric sensitivity measurements, image-based analysis, adhesion tests, and sheet resistance measurements

were applied to these printable sensors to rigorously analyze their performance and structure. The printable sensors showed electrical performance similar to metallized sensors, whereas the adhesion of the solution-processed materials to the substrate is not as high as that of the evaporated metal films. This also affects the measured sensor sensitivity values. The measurements based on optical images were found to be a promising method to capture detailed information about the electrode surface structure.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Automation Science and Engineering, Research area: Microsystems, Research area: Measurement Technology and Process Control

Authors: Rajala, S., Mettänen, M., Tuukkanen, S.

Number of pages: 8
Pages: 1692-1699
Publication date: 15 Mar 2016
Peer-reviewed: Yes

Publication information

Journal: IEEE Sensors Journal
Volume: 16
Issue number: 6
ISSN (Print): 1530-437X
Ratings:

Scopus rating (2016): CiteScore 3.12 SJR 0.706 SNIP 1.689
Scopus rating (2015): SJR 0.684 SNIP 1.908 CiteScore 2.85
Scopus rating (2014): SJR 0.799 SNIP 1.934 CiteScore 2.5
Scopus rating (2013): SJR 0.666 SNIP 1.811 CiteScore 2.6
Scopus rating (2012): SJR 0.602 SNIP 1.445 CiteScore 2.09
Scopus rating (2011): SJR 0.572 SNIP 1.421 CiteScore 2.13
Scopus rating (2010): SJR 0.533 SNIP 1.077
Scopus rating (2009): SJR 0.631 SNIP 1.351
Scopus rating (2008): SJR 0.641 SNIP 1.371
Scopus rating (2007): SJR 0.785 SNIP 1.484
Scopus rating (2006): SJR 0.631 SNIP 1.627
Scopus rating (2005): SJR 0.596 SNIP 1.968
Scopus rating (2004): SJR 0.772 SNIP 1.934
Scopus rating (2003): SJR 0.622 SNIP 2.018
Scopus rating (2002): SJR 0.465 SNIP 2.1

Original language: English

Keywords: Printed electrodes, image analysis, measurement, piezoelectric films, piezoelectric transducers, SHEAR-STRESS MEASUREMENTS, GRAPHENE, PVDF

ASJC Scopus subject areas: Biomedical Engineering, Electronic, Optical and Magnetic Materials, Surfaces and Interfaces
Electronic versions:

Rajala_Mettänen_IEEE_2015_PVDF-sensors_self-archive

DOIs:

10.1109/JSEN.2015.2504956

Links:

<http://urn.fi/URN:NBN:fi:ty-201603173660>

Source: Bibtex

Source-ID: urn:baf47c637d585669f900add29c0f9bc

Research output: Scientific - peer-review > Article

Prosthetic Pacing Device for Unilateral Facial Paralysis

Facial pacing ultimately aims at improving the quality of life of people suffering from unilateral facial paralysis. A device to study facial pacing is presented. It is able to measure electromyography signals from the healthy side of the face and simultaneously activate the corresponding muscles on the paralyzed side with electrical stimulation. Tests with healthy participants are ongoing and clinical studies are to be started soon. Four measurement and four stimulation channels of the device enable studying different electrode configurations and stimulation patterns for recognizing and reanimating symmetrical facial expressions in the future. Preliminary testing with ten healthy volunteers showed average partial activation threshold of 2.50 mA (± 0.47 mA) and 3.00 mA (± 0.67 mA) for orbicularis oculi and orbicularis oris muscles, respectively, and full eye closure threshold of 4.45 mA (± 0.69 mA).

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Automation Science and Engineering, Research area: Microsystems, Research area: Measurement Technology and Process Control

Authors: Rantanen, V., Vehkaoja, A., Verho, J., Veselý, P., Lylykangas, J., Ilves, M., Mäkelä, E., Rautiainen, M., Surakka, V., Lekkala, J.

Number of pages: 6

Pages: 647-652

Publication date: 1 Mar 2016

Host publication information

Title of host publication: Proceedings of the XIV Mediterranean Conference on Medical and Biological Engineering and Computing 2016

Volume: 57

Place of publication: Paphos, Cyprus

Publisher: Springer

ISBN (Print): 978-3-319-32701-3

ISBN (Electronic): 978-3-319-32703-7

Publication series

Name: IFMBE Proceedings

ISSN (Print): 1680-0737

Keywords: electrical stimulation, facial pacing, facial paralysis

Electronic versions:

Prosthetic Pacing Device for Unilateral Facial Paralysis-postprint. Embargo ended: 2/04/17

DOIs:

10.1007/978-3-319-32703-7_126

Links:

<http://urn.fi/URN:NBN:fi:tty-201703221197>. Embargo ended: 2/04/17

Bibliographical note

JUFOID=58152

Source: Bibtex

Source-ID: urn:677ecadd712569a58ceef0eab66b23a

Research output: Scientific - peer-review > Conference contribution

Real-Time Patient-Specific ECG Classification by 1-D Convolutional Neural Networks

Goal: This paper presents a fast and accurate patient-specific electrocardiogram (ECG) classification and monitoring system. Methods: An adaptive implementation of 1-D convolutional neural networks (CNNs) is inherently used to fuse the two major blocks of the ECG classification into a single learning body: feature extraction and classification. Therefore, for each patient, an individual and simple CNN will be trained by using relatively small common and patient-specific training data, and thus, such patient-specific feature extraction ability can further improve the classification performance. Since this also negates the necessity to extract hand-crafted manual features, once a dedicated CNN is trained for a particular patient, it can solely be used to classify possibly long ECG data stream in a fast and accurate manner or alternatively, such a solution can conveniently be used for real-time ECG monitoring and early alert system on a light-weight wearable device. Results: The results over the MIT-BIH arrhythmia benchmark database demonstrate that the proposed solution achieves a superior classification performance than most of the state-of-the-art methods for the detection of ventricular ectopic beats and supraventricular ectopic beats. Conclusion: Besides the speed and computational efficiency achieved, once a dedicated CNN is trained for an individual patient, it can solely be used to classify his/her long ECG records such as Holter registers in a fast and accurate manner. Significance: Due to its simple and parameter invariant nature, the proposed system is highly generic, and, thus, applicable to any ECG dataset.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Research group: Video

Authors: Kiranyaz, S., Ince, T., Gabbouj, M.

Number of pages: 12

Pages: 664-675

Publication date: 1 Mar 2016

Peer-reviewed: Yes

Publication information

Journal: IEEE Transactions on Biomedical Engineering

Volume: 63

Issue number: 3

ISSN (Print): 0018-9294

Ratings:

Scopus rating (2016): SJR 1.214 SNIP 1.995 CiteScore 4.2

Scopus rating (2015): SJR 1.132 SNIP 2.083 CiteScore 3.74

Scopus rating (2014): SJR 0.84 SNIP 1.973 CiteScore 3.34

Scopus rating (2013): SJR 1.081 SNIP 2.073 CiteScore 3.53

Scopus rating (2012): SJR 0.816 SNIP 1.706 CiteScore 3

Scopus rating (2011): SJR 0.7 SNIP 1.715 CiteScore 3.04
Scopus rating (2010): SJR 0.686 SNIP 1.637
Scopus rating (2009): SJR 0.81 SNIP 1.94
Scopus rating (2008): SJR 0.826 SNIP 1.719
Scopus rating (2007): SJR 1.144 SNIP 2.187
Scopus rating (2006): SJR 1.317 SNIP 2.426
Scopus rating (2005): SJR 1.023 SNIP 2.252
Scopus rating (2004): SJR 0.73 SNIP 1.689
Scopus rating (2003): SJR 0.849 SNIP 1.367
Scopus rating (2002): SJR 0.888 SNIP 1.428
Scopus rating (2001): SJR 0.767 SNIP 1.578
Scopus rating (2000): SJR 0.942 SNIP 1.505
Scopus rating (1999): SJR 0.613 SNIP 2.187
Original language: English
Keywords: ECG, CLASSIFICATION, convolutional neural networks
DOIs:
10.1109/TBME.2015.2468589
Research output: Scientific - peer-review › Article

Mimetic Interfaces Project: Functional Electrical Stimulation of Facial Muscles

General information

State: Published

Ministry of Education publication type: I1 Audiovisual material

Organisations: Department of Automation Science and Engineering, Research area: Microsystems, Research area: Measurement Technology and Process Control, University of Tampere

Authors: Rantanen, V., Vehkaoja, A., Verho, J., Lekkala, J., Ilves, M., Lylykangas, J., Surakka, V., Mäkelä, E., Rautiainen, M., Vesely, P.

Publication date: 9 Feb 2016

Media of output: Online

Size: 66M

Electronic versions:

Mimetic_Interfaces-Functional_Electrical_Stimulation_of_Facial_Muscles-2016-02-09-1080p

Mimetic_Interfaces-Functional_Electrical_Stimulation_of_Facial_Muscles-2016-02-09-720p

Links:

<http://urn.fi/URN:NBN:fi:tty-201605033934>

Links:

<http://www.vrantanen.com/publications/mimetic-interfaces-project-functional-electrical-stimulation-of-facial-muscles>

Research output: Scientific › Digital or Visual Products

Security Vulnerabilities and Countermeasures for Target Localization in Bio-NanoThings Communication Networks

The emergence of molecular communication has provided an avenue for developing biological nanonetworks. Synthetic biology is a platform that enables reprogramming cells, which we refer to as Bio-NanoThings, that can be assembled to create nanonetworks. In this paper, we focus on specific Bio-NanoThings, i.e, bacteria, where engineering their ability to emit or sense molecules can result in functionalities, such as cooperative target localization. Although this opens opportunities, e.g., for novel healthcare applications of the future, this can also lead to new problems, such as a new form of bioterrorism. In this paper, we investigate the disruptions that malicious Bio-NanoThings (M-BNTs) can create for molecular nanonetworks. In particular, we introduce two types of attacks: blackhole and sentry attacks. In blackhole attack M-BNTs emit attractant chemicals to draw-in the legitimate Bio-NanoThings (L-BNTs) from searching for their target, while in the sentry attack, the M-BNTs emit repellents to disperse the L-BNTs from reaching their target. We also present a countermeasure that L-BNTs can take to be resilient to the attacks, where we consider two forms of decision processes that includes Bayes' rule as well as a simple threshold approach. We run a thorough set of simulations to assess the effectiveness of the proposed attacks as well as the proposed countermeasure. Our results show that the attacks can significantly hinder the regular behavior of Bio-NanoThings, while the countermeasures are effective for protecting against such attacks.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Emerging Technologies for Nano-Bio-Info-Cogno, University of Padova

Authors: Giaretta, A., Balasubramaniam, S., Conti, M.
Number of pages: 12
Pages: 665-676
Publication date: 3 Feb 2016
Peer-reviewed: Yes

Publication information

Journal: IEEE Transactions on Information Forensics and Security
Volume: 11
Issue number: 4
ISSN (Print): 1556-6013
Ratings:
Scopus rating (2016): SJR 1.359 SNIP 3.162 CiteScore 6.01
Scopus rating (2015): SJR 1.419 SNIP 3.719 CiteScore 5.41
Scopus rating (2014): SJR 1.371 SNIP 3.621 CiteScore 4.92
Scopus rating (2013): SJR 1.168 SNIP 3.247 CiteScore 5.06
Scopus rating (2012): SJR 0.968 SNIP 2.854 CiteScore 3.82
Scopus rating (2011): SJR 0.855 SNIP 2.742 CiteScore 3.68
Scopus rating (2010): SJR 1.188 SNIP 2.933
Scopus rating (2009): SJR 1.772 SNIP 3.48
Scopus rating (2008): SJR 1.215 SNIP 3.601
Scopus rating (2007): SJR 0.969 SNIP 3.388
Original language: English
DOIs:
10.1109/TIFS.2015.2505632
Research output: Scientific - peer-review › Article

Implementation and User Testing of a System for Visualizing Continuous Health Data and Events

Efficient ways are needed to visualize the health status of a person and how the lifestyle, daily choices and health care actions are affecting it. Current systems lack a comprehensive interface for interaction and exploration of large and complex data and events affecting the data. Based on state-of-the-art data visualization techniques, we implemented and user tested a system that visualizes health data holistically over time. The system focuses on the dynamic changes by using a timeline of events affecting the overall health status. We conducted an extensive user testing process involving surveys, heuristics and observations in order to evaluate our system. The results show that our system has a high level of User Satisfaction while providing an adequate understanding, interaction and navigation of the data.

General information

State: Published
Ministry of Education publication type: A4 Article in a conference publication
Organisations: Department of Signal Processing, Research group: Personal Health Informatics-PHI
Authors: Al-Musawi, M., Ledesma, A., Nieminen, H., Korhonen, I.
Number of pages: 4
Pages: 156-159
Publication date: Feb 2016

Host publication information

Title of host publication: 2016 IEEE-EMBS International Conference on Biomedical and Health Informatics (BHI)
Publisher: IEEE
ISBN (Print): 978-1-5090-2455-1
Keywords: health, Visualization, Health and wellness applications, Javascript, Health data, application
DOIs:
10.1109/BHI.2016.7455858

Bibliographical note

INT=sgn,"Al-Musawi, Mohammed"
Research output: Scientific - peer-review › Conference contribution

Printed Epidermal Electronics

General information

State: Published
Organisations: Department of Electronics and Communications Engineering, Research group: Laboratory for Future Electronics

Authors: Mäntysalo, M., Kraft, T., Vuorinen, T.

Publication date: Feb 2016

Peer-reviewed: Unknown

Event: Paper presented at Innovations in Large-Area Electronics, Cambridge, United Kingdom.

Research output: Scientific › Paper, poster or abstract

Pointing and Selecting with Facial Activity

The aim of this paper was to evaluate the use of three facial actions (i.e. frowning, raising the eyebrows, and smiling) in selecting objects on a computer screen when gaze was used for pointing. Dwell time is the most commonly used selection technique in gaze-based interaction, and thus, a dwell time of 400 ms was used as a reference selection technique. A wireless, head-mounted prototype device that carried out eye tracking and contactless, capacitive measurement of facial actions was used for the interaction task. Participants (N=16) performed point-and-select tasks with three pointing distances (i.e. 60, 120 and 240 mm) and three target sizes (i.e. 25, 30 and 40 mm). Task completion times, pointing errors and throughput values based on Fitts' law were used to compare the selection techniques. The participants also rated the techniques with subjective ratings scales. The results showed that the different techniques performed equally well in many respects. However, throughput values varied from 8.38 bits/s (raising the eyebrows) to 15.33 bits/s (smiling) and were comparable to or, in the case of smiling, better than in earlier research with similar interaction techniques. The dwell time was found to be the least accurate selection technique in terms of the magnitudes of point-and-select errors. Smiling technique was rated as more accurate to use than the frowning or the raising techniques. The results give further support for methods that combine facial behavior to eye tracking when interacting with technology.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Automation Science and Engineering

Authors: Tuisku, O., Rantanen, V., Spakov, O., Surakka, V., Lekkala, J.

Pages: 1-12

Publication date: Jan 2016

Peer-reviewed: Yes

Publication information

Journal: Interacting with Computers

Volume: 28

Issue number: 1

ISSN (Print): 0953-5438

Ratings:

Scopus rating (2016): SJR 0.334 SNIP 0.837 CiteScore 1.55

Scopus rating (2015): SJR 0.449 SNIP 1.402 CiteScore 1.69

Scopus rating (2014): SJR 0.663 SNIP 2.175 CiteScore 2.42

Scopus rating (2013): SJR 0.748 SNIP 2.536 CiteScore 2.83

Scopus rating (2012): SJR 0.67 SNIP 2.177 CiteScore 2.75

Scopus rating (2011): SJR 0.736 SNIP 2.283 CiteScore 2.56

Scopus rating (2010): SJR 0.781 SNIP 1.582

Scopus rating (2009): SJR 0.698 SNIP 2.417

Scopus rating (2008): SJR 0.639 SNIP 1.789

Scopus rating (2007): SJR 0.573 SNIP 2.132

Scopus rating (2006): SJR 0.645 SNIP 1.784

Scopus rating (2005): SJR 0.483 SNIP 1.585

Scopus rating (2004): SJR 0.676 SNIP 1.725

Scopus rating (2003): SJR 0.603 SNIP 1.474

Scopus rating (2002): SJR 0.497 SNIP 1.26

Scopus rating (2001): SJR 0.66 SNIP 0.838

Scopus rating (2000): SJR 0.618 SNIP 1.178

Scopus rating (1999): SJR 0.375 SNIP 0.855

Original language: English

DOIs:

10.1093/iwc/iwu026

Bibliographical note

Contribution: organisation=ase,FACT1=1
Portfolio EDEND: 2014-12-19
Publisher name: Oxford University Press; H C I Specialist Group

Source: researchoutputwizard
Source-ID: 1645
Research output: Scientific - peer-review › Article

A 1.5-W frequency doubled semiconductor disk laser tunable over 40 nm at around 745 nm

1.5 W of output power was obtained in the challenging wavelength range between 700 and 800 nm by frequency doubling a wafer-fused 1.49- μm semiconductor disk laser pumped with 980-nm diodes. A bismuth borate crystal was used for doubling the frequency. A total optical-to-optical efficiency of 8.3 % was achieved. The laser was tunable from 720 to 764 nm with an intracavity birefringent plate. The beam quality parameter M² remained below 1.5 at all power levels. The laser is attractive for biomedical applications such as photodynamic therapy that benefit from the low absorption of light in tissue in this spectral range.

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Optoelectronics Research Centre, Research group: Ultrafast and intense lasers, Research group: Semiconductor Technology and Applications, Optoelectronics Research Centre, Tampere University of Technology
Authors: Saarinen, E. J., Lyytikäinen, J., Ranta, S., Rantamäki, A., Saarela, A., Sirbu, A., Iakovlev, V., Kapon, E., Okhotnikov, O. G.

Number of pages: 8

Publication date: 2016

Host publication information

Title of host publication: Proceedings of SPIE : Vertical External Cavity Surface Emitting Lasers (VECSELs) VI

Volume: 9734

Publisher: SPIE

Article number: 97340P-8

Publication series

Name: Spie conference proceedings

Publisher: SPIE

ISSN (Electronic): 0277-786X

DOIs:

10.1117/12.2209384

Bibliographical note

INT=orc,"Saarela, Antti"

JUF0ID=71479

Research output: Scientific - peer-review › Conference contribution

Cis and Trans Unsaturated Phosphatidylcholine Bilayers: A Molecular Dynamics Simulation Study

Trans unsaturated lipids are uncommon in nature. In the human diet, they occur as natural products of ruminal bacteria or from industrial food processing like hydrogenation of vegetable oils. Consumption of trans unsaturated lipids has been shown to have a negative influence on human health; in particular, the risk of cardiovascular disease is higher when the amount of trans unsaturated lipids in the diet is elevated. In this study, we first performed quantum mechanical calculations to specifically and accurately parameterize cis and trans mono-unsaturated lipids and subsequently validated the newly derived parameter set. Then, we carried out molecular dynamics (MD) simulations of lipid bilayers composed of cis or trans unsaturated lipids with and without cholesterol. Our results show that trans mono-unsaturated chains are more flexible than cis mono-unsaturated chains due to lower barriers for rotation around the single bonds next to the trans double bond than those next to the cis double bond. In effect, interactions between cholesterol and trans unsaturated chains are stronger than cis unsaturated chains, which results in a higher ordering effect of cholesterol in trans unsaturated bilayers.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Physics

Authors: Kulig, W., Pasenkiewicz-Gierula, M., Róg, T.

Pages: 12-20

Publication date: 2016

Peer-reviewed: Yes

Early online date: 14 Jul 2015

Publication information

Journal: Chemistry and Physics of Lipids

Volume: 195
ISSN (Print): 0009-3084
Ratings:

Scopus rating (2016): SJR 0.976 SNIP 0.862 CiteScore 2.78
Scopus rating (2015): SJR 0.957 SNIP 0.957 CiteScore 2.75
Scopus rating (2014): SJR 0.885 SNIP 1.039 CiteScore 2.62
Scopus rating (2013): SJR 0.82 SNIP 1.055 CiteScore 2.66
Scopus rating (2012): SJR 0.803 SNIP 0.974 CiteScore 2.41
Scopus rating (2011): SJR 0.727 SNIP 0.984 CiteScore 2.56
Scopus rating (2010): SJR 0.874 SNIP 0.964
Scopus rating (2009): SJR 0.9 SNIP 0.995
Scopus rating (2008): SJR 1.114 SNIP 1.057
Scopus rating (2007): SJR 1.083 SNIP 1.091
Scopus rating (2006): SJR 0.808 SNIP 0.881
Scopus rating (2005): SJR 1.038 SNIP 1.035
Scopus rating (2004): SJR 0.69 SNIP 0.831
Scopus rating (2003): SJR 0.917 SNIP 0.817
Scopus rating (2002): SJR 1.005 SNIP 0.813
Scopus rating (2001): SJR 1.097 SNIP 0.827
Scopus rating (2000): SJR 0.738 SNIP 0.742
Scopus rating (1999): SJR 0.737 SNIP 0.705

Original language: English

Keywords: cholesterol, OPLS-AA force field, torsional potential, model validation

DOIs:

10.1016/j.chemphyslip.2015.07.002

Source: RIS

Source-ID: urn:317FBB74503176B7E58C8A075FD7C764

Research output: Scientific - peer-review > Article

Determination of saturation, heart rate, and respiratory rate at forearm using a Nellcor™ forehead SpO₂-saturation sensor

General information

State: E-pub ahead of print

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Automation Science and Engineering, Research area: Microsystems, Research area: Measurement Technology and Process Control

Authors: Harju, J., Vehkaoja, A., Lindroos, V., Kumpulainen, P., Liuhanen, S., Yli-Hankala, A., Oksala, N.

Number of pages: 8

Publication date: 2016

Peer-reviewed: Yes

Early online date: 1 Jan 2016

Publication information

Journal: Journal of Clinical Monitoring and Computing

ISSN (Print): 1387-1307

Ratings:

Scopus rating (2016): SJR 0.63 SNIP 0.963 CiteScore 1.71
Scopus rating (2015): SJR 0.744 SNIP 0.932 CiteScore 1.56
Scopus rating (2014): SJR 0.704 SNIP 1.013 CiteScore 1.8
Scopus rating (2013): SJR 0.554 SNIP 0.867 CiteScore 1.33
Scopus rating (2012): SJR 0.445 SNIP 0.518 CiteScore 0.78
Scopus rating (2011): SJR 0.453 SNIP 0.812 CiteScore 1.23
Scopus rating (2010): SJR 0.382 SNIP 0.615
Scopus rating (2009): SJR 0.428 SNIP 0.743
Scopus rating (2008): SJR 0.297 SNIP 0.517
Scopus rating (2007): SJR 0.424 SNIP 0.79
Scopus rating (2006): SJR 0.303 SNIP 0.997

Scopus rating (2005): SJR 0.288 SNIP 0.704
Scopus rating (2004): SJR 0.261 SNIP 0.724
Scopus rating (2003): SJR 0.183 SNIP 0.55
Scopus rating (2002): SJR 0.352 SNIP 0.642
Scopus rating (2001): SJR 0.239 SNIP 0.392
Scopus rating (2000): SJR 0.297 SNIP 0.532
Scopus rating (1999): SJR 0.208 SNIP 0.318

Original language: English

DOIs:

10.1007/s10877-016-9940-7

Links:

<http://rdcu.be/lnSR> (Link to the open-access article)

Research output: Scientific - peer-review › Article

Estimation of kinetic parameters of transcription from temporal single-RNA measurements

Gene expression dynamics in prokaryotes is largely controlled by the multi-step process of transcription initiation whose kinetics is subject to regulation. Since the number and duration of these steps cannot be currently measured *in vivo*, we propose a novel method for estimating them from time series of RNA numbers in individual cells.

We demonstrate the method's applicability on measurements of fluorescence-tagged RNA molecules in *Escherichia coli* cells, and compare with a previous method. We show that the results of the two methods agree for equal data. We also show that, when incorporating additional data, the new method produces significantly different estimates, which are in closer agreement with qPCR measurements. Unlike the previous method, the new method requires no preprocessing of the RNA numbers, using maximal information from the RNA time series. In addition, it can use data outside of the observed RNA productions. Overall, the new method characterizes the transcription initiation process with enhanced detail. (C) 2015 Elsevier Inc. All rights reserved.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Research group: Laboratory of Biosystem Dynamics-LBD

Authors: Zimmer, C., Häkkinen, A., S. Ribeiro, A.

Pages: 146-153

Publication date: 2016

Peer-reviewed: Yes

Publication information

Journal: Mathematical Biosciences

Volume: 271

ISSN (Print): 0025-5564

Ratings:

Scopus rating (2016): SJR 0.645 SNIP 1 CiteScore 1.53
Scopus rating (2015): SJR 0.71 SNIP 0.977 CiteScore 1.43
Scopus rating (2014): SJR 0.712 SNIP 1.13 CiteScore 1.62
Scopus rating (2013): SJR 0.72 SNIP 1.038 CiteScore 1.75
Scopus rating (2012): SJR 0.682 SNIP 1.08 CiteScore 1.88
Scopus rating (2011): SJR 0.692 SNIP 1.123 CiteScore 1.78
Scopus rating (2010): SJR 0.783 SNIP 1.237
Scopus rating (2009): SJR 0.588 SNIP 0.901
Scopus rating (2008): SJR 0.63 SNIP 0.943
Scopus rating (2007): SJR 0.631 SNIP 1.019
Scopus rating (2006): SJR 0.69 SNIP 1.251
Scopus rating (2005): SJR 0.945 SNIP 1.24
Scopus rating (2004): SJR 0.796 SNIP 1.296
Scopus rating (2003): SJR 0.87 SNIP 1.278
Scopus rating (2002): SJR 0.519 SNIP 0.86
Scopus rating (2001): SJR 0.589 SNIP 1.082
Scopus rating (2000): SJR 0.493 SNIP 0.855
Scopus rating (1999): SJR 0.527 SNIP 0.755

Original language: English

DOIs:

10.1016/j.mbs.2015.10.001

Research output: Scientific - peer-review › Article

Exercise loading history and femoral neck strength in a sideways fall: A three-dimensional finite element modeling study.

Over 90% of hip fractures are caused by falls. Due to a fall-induced impact on the greater trochanter, the posterior part of the thin superolateral cortex of the femoral neck is known to experience the highest stress, making it a fracture-prone region. Cortical geometry of the proximal femur, in turn, reflects a mechanically appropriate form with respect to habitual exercise loading. In this finite element (FE) modeling study, we investigated whether specific exercise loading history is associated with femoral neck structural strength and estimated fall-induced stresses along the femoral neck. One hundred and eleven three-dimensional (3D) proximal femur FE models for a sideways falling situation were constructed from magnetic resonance (MR) images of 91 female athletes (aged 24.7 ± 6.1 years, >8 years competitive career) and 20 non-competitive habitually active women (aged 23.7 ± 3.8 years) that served as a control group. The athletes were divided into five distinct groups based on the typical loading pattern of their sports: high-impact (H-I: triple-jumpers and high-jumpers), odd-impact (O-I: soccer and squash players), high-magnitude (H-M: power-lifters), repetitive-impact (R-I: endurance runners), and repetitive non-impact (R-NI: swimmers). The von Mises stresses obtained from the FE models were used to estimate mean fall-induced stresses in eight anatomical octants of the cortical bone cross-sections at the proximal, middle, and distal sites along the femoral neck axis. Significantly ($p < 0.05$) lower stresses compared to the control group were observed: the H-I group - in the superoposterior (10%) and posterior (19%) octants at the middle site, and in the superoposterior (13%) and posterior (22%) octants at the distal site; the O-I group - in the superior (16%), superoposterior (16%), and posterior (12%) octants at the middle site, and in the superoposterior (14%) octant at the distal site; the H-M group - in the superior (13%) and superoposterior (15%) octants at the middle site, and a trend ($p = 0.07$, 9%) in the superoposterior octant at the distal site; the R-I group - in the superior (14%), superoposterior (23%) and posterior (22%) octants at the middle site, and in the superoposterior (19%) and posterior (20%) octants at the distal site. The R-NI group did not differ significantly from the control group. These results suggest that exercise loading history comprising various impacts in particular is associated with a stronger femoral neck in a falling situation and may have potential to reduce hip fragility.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Mechanical Engineering and Industrial Systems, Research area: Applied Mechanics, Department of Electronics and Communications Engineering, Research group: Computational Biophysics and Imaging Group, BioMediTech, UKK Inst Hlth Promot Res, UKK Institute, University of Jyväskylä

Authors: Abe, S., Narra, N., Nikander, R., Hyttinen, J., Kouhia, R., Sievänen, H.

Number of pages: 9

Pages: 9-17

Publication date: 2016

Peer-reviewed: Yes

Publication information

Journal: Bone

Volume: 92

ISSN (Print): 8756-3282

Ratings:

Scopus rating (2016): SJR 1.612 SNIP 1.427 CiteScore 4.09

Scopus rating (2015): SJR 1.757 SNIP 1.527 CiteScore 4.17

Scopus rating (2014): SJR 1.794 SNIP 1.656 CiteScore 4.18

Scopus rating (2013): SJR 1.843 SNIP 1.73 CiteScore 4.55

Scopus rating (2012): SJR 1.644 SNIP 1.591 CiteScore 4.09

Scopus rating (2011): SJR 1.82 SNIP 1.628 CiteScore 4.33

Scopus rating (2010): SJR 1.785 SNIP 1.657

Scopus rating (2009): SJR 1.759 SNIP 1.593

Scopus rating (2008): SJR 1.848 SNIP 1.515

Scopus rating (2007): SJR 1.841 SNIP 1.52

Scopus rating (2006): SJR 1.758 SNIP 1.517

Scopus rating (2005): SJR 1.671 SNIP 1.646

Scopus rating (2004): SJR 1.329 SNIP 1.483

Scopus rating (2003): SJR 1.456 SNIP 1.344

Scopus rating (2002): SJR 1.511 SNIP 1.551

Scopus rating (2001): SJR 1.479 SNIP 1.666

Scopus rating (2000): SJR 1.411 SNIP 1.438

Scopus rating (1999): SJR 1.323 SNIP 1.58

Original language: English

ASJC Scopus subject areas: Orthopedics and Sports Medicine, Biochemistry, medical, Physical Therapy, Sports Therapy and Rehabilitation

Keywords: Bone strength, Finite element analysis, Exercise , Falling , OSTEOPOROSIS, Hip fracture

DOIs:

10.1016/j.bone.2016.07.021

Links:

<http://urn.fi/URN:NBN:fi:jyu-201608243859>. Embargo ended: 28/07/17

Research output: Scientific - peer-review > Article

Functionalizing Surface Electrical Potential of Hydroxyapatite Coatings

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Materials Science, Research group: Surface Engineering, Riga Technical University, University of Adelaide

Authors: Pluduma, L., Freimanis, E., Gross, K., Koivuluoto, H., Algate, K., Haynes, D., Vuoristo, P.

Number of pages: 6

Pages: 12-17

Publication date: 2016

Host publication information

Title of host publication: 11th International Conference Medical Applications of Novel Biomaterials and Nanotechnology

Volume: 102

ISBN (Print): 978-3-0357-1125-7

Publication series

Name: Advances in Science and Technology

Volume: 102

ISSN (Print): 1661-819X

Bibliographical note

JUFOID=75599

Research output: Scientific - peer-review > Conference contribution

Increased cytoplasm viscosity hampers aggregate polar segregation in Escherichia coli

In *Escherichia coli*, under optimal conditions, protein aggregates associated with cellular aging are excluded from midcell by the nucleoid. We study the functionality of this process under sub-optimal temperatures from population and time lapse images of individual cells and aggregates and nucleoids within. We show that, as temperature decreases, aggregates become homogeneously distributed and uncorrelated with nucleoid size and location. We present evidence that this is due to increased cytoplasm viscosity, which weakens the anisotropy in aggregate displacements at the nucleoid borders that is responsible for their preference for polar localisation. Next, we show that in plasmolysed cells, which have increased cytoplasm viscosity, aggregates are also not preferentially located at the poles. Finally, we show that the inability of cells with increased viscosity to exclude aggregates from midcell results in enhanced aggregate concentration in between the nucleoids in cells close to dividing. This weakens the asymmetries in aggregate numbers between sister cells of subsequent generations required for rejuvenating cell lineages. We conclude that the process of exclusion of protein aggregates from midcell is not immune to stress conditions affecting the cytoplasm viscosity. The findings contribute to our understanding of *E. coli*'s internal organisation and functioning, and its fragility to stressful conditions.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Research group: Computational Systems Biology, Research group: Laboratory of Biosystem Dynamics-LBD

Authors: Oliveira, S. M., Neeli-Venkata, R., Goncalves, N. S., Santinha, J., Martins, L., Tran, H., Mäkelä, J., Gupta, A., Barandas, M., Häkkinen, A., Lloyd-Price, J., Fonseca, J. M., S. Ribeiro, A.

Number of pages: 14

Pages: 686-699

Publication date: 2016

Peer-reviewed: Yes

Publication information

Journal: Molecular Microbiology

Volume: 99

Issue number: 4

ISSN (Print): 0950-382X

Ratings:

Scopus rating (2016): SJR 2.543 SNIP 0.99 CiteScore 3.7

Scopus rating (2015): SJR 2.942 SNIP 1.087 CiteScore 3.95

Scopus rating (2014): SJR 3.176 SNIP 1.223 CiteScore 4.25

Scopus rating (2013): SJR 3.631 SNIP 1.303 CiteScore 4.9

Scopus rating (2012): SJR 3.405 SNIP 1.269 CiteScore 4.78

Scopus rating (2011): SJR 3.439 SNIP 1.293 CiteScore 4.72

Scopus rating (2010): SJR 3.63 SNIP 1.206

Scopus rating (2009): SJR 3.938 SNIP 1.331

Scopus rating (2008): SJR 3.89 SNIP 1.225

Scopus rating (2007): SJR 3.828 SNIP 1.254

Scopus rating (2006): SJR 4.281 SNIP 1.364

Scopus rating (2005): SJR 4.014 SNIP 1.357

Scopus rating (2004): SJR 3.629 SNIP 1.344

Scopus rating (2003): SJR 3.772 SNIP 1.353

Scopus rating (2002): SJR 3.914 SNIP 1.453

Scopus rating (2001): SJR 4.085 SNIP 1.481

Scopus rating (2000): SJR 3.991 SNIP 1.574

Scopus rating (1999): SJR 4.253 SNIP 1.574

Original language: English

DOIs:

10.1111/mmi.13257

Research output: Scientific - peer-review › Article

Interdigitation of long-chain sphingomyelin induces coupling of membrane leaflets in a cholesterol dependent manner

It has been a long-standing question how the two leaflets in a lipid bilayer modulate each others' physical properties. In this paper, we discuss how this interaction may take place through interdigitation. We use atomistic molecular dynamics simulations to consider asymmetric lipid membrane models whose compositions are based on the lipidomics data determined for exosomes released by PC-3 prostate cancer cells. The simulations show interdigitation to be exceptionally strong for long-chain sphingomyelin (SM) molecules. In asymmetric membranes the amide-linked chain of SM is observed to extend deep into the opposing membrane leaflet. Interestingly, we find that the conformational order of the amide-linked SM chain increases the deeper it penetrates to the opposing leaflet. Analysis of this finding reveals that the amide-linked SM chain interacts favorably with the lipid chains in the opposite leaflet, and that cholesterol modulates the effect of SM interdigitation by influencing the conformational order of lipid hydrocarbon chains in the opposing (cytosolic) leaflet.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Physics, Research area: Computational Physics, Research group: Biological Physics and Soft Matter, University of Limerick

Authors: Rog, T., Orłowski, A., Llorente, A., Skotland, T., Sylvänne, T., Kauhanen, D., Ekroos, K., Sandvig, K., Vattulainen, I.

Pages: 281-288

Publication date: 2016

Peer-reviewed: Yes

Publication information

Journal: Biochimica et Biophysica Acta: Biomembranes

Volume: 1858

Issue number: 2

ISSN (Print): 0005-2736

Ratings:

Scopus rating (2016): SJR 1.511 SNIP 1.101 CiteScore 3.55

Scopus rating (2015): SJR 1.782 SNIP 1.142 CiteScore 3.8

Scopus rating (2014): SJR 1.869 SNIP 1.09 CiteScore 3.64

Scopus rating (2013): SJR 1.592 SNIP 0.975 CiteScore 3.45
Scopus rating (2012): SJR 1.833 SNIP 1.156 CiteScore 3.99
Scopus rating (2011): SJR 1.644 SNIP 1.227 CiteScore 4.17
Scopus rating (2010): SJR 2.179 SNIP 1.291
Scopus rating (2009): SJR 2.152 SNIP 1.298
Scopus rating (2008): SJR 2.035 SNIP 1.123
Scopus rating (2007): SJR 2.021 SNIP 1.158
Scopus rating (2006): SJR 1.922 SNIP 1.212
Scopus rating (2005): SJR 2.037 SNIP 1.231
Scopus rating (2004): SJR 1.5 SNIP 1.147
Scopus rating (2003): SJR 1.401 SNIP 1.115
Scopus rating (2002): SJR 1.594 SNIP 1.228
Scopus rating (2001): SJR 1.509 SNIP 1.053
Scopus rating (2000): SJR 1.089 SNIP 0.907
Scopus rating (1999): SJR 0.95 SNIP 0.841

Original language: English

DOIs:

10.1016/j.bbamem.2015.12.003

Research output: Scientific - peer-review › Article

In vivo genotoxic effects of uncoated and coated CeO₂ NPs administrated to mice by pharyngeal aspiration

General information

State: Published

Organisations: Department of Materials Science, Research group: Materials Characterization, Työterveyslaitos, University of Zaragoza, Leitat Technological Center

Authors: Catalan, J., Aimonen, K., Hartikainen, M., Vippola, M., Moreno, C., Cabellos, J., Janer, G., Vazquez-Campos, S., Wolff, H., Savolainen, K., Norppa, H.

Number of pages: 1

Publication date: 2016

Peer-reviewed: Unknown

Event: Paper presented at 8th International Nanotoxicology Conference, Boston, United States.

Research output: Scientific › Paper, poster or abstract

Linear Channel Modeling and Error Analysis for Intra/Inter Cellular Ca²⁺ Molecular Communication

The use of intra/inter-cellular calcium ion (Ca²⁺) signaling for molecular communication (MC) is investigated in this paper. In particular, the elevation of the intracellular Ca²⁺ concentration upon the external excitation, i.e., Ca²⁺ wave generation, and the intercellular propagation of Ca²⁺ wave over consecutive cells are studied for information transmission. The main objective of this paper is to develop a linear channel model for intra/inter-cellular Ca²⁺ MC. In this context, the end-to-end Ca²⁺ MC system is studied under three blocks: the wave generation, the gap junctional (intercellular) propagation, and the intracellular propagation. The wave generation block captures the intracellular Ca²⁺ signaling pathway including the release of Ca²⁺ from the organelles and the buffers inside a cell, and the intake from the extracellular space. The gap junctional (intercellular) propagation block captures the Ca²⁺ transition through the gap junctions between the touching cells. The intracellular propagation block defines the effect of the cytoplasmic diffusion. Using the developed blocks for the different biophysical phenomena, the end-to-end channel gain and delay formulas are derived. Furthermore, the bit error probability is studied to reveal the impact of the detection threshold. This work provides the basis for the modeling, analysis and the design of Ca²⁺ MC systems.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Emerging Technologies for Nano-Bio-Info-Cogno, Georgia Institute of Technology

Authors: Bicen, A. O., Akyildiz, I. F., Balasubramaniam, S., Koucheryavy, Y.

Pages: 488-498

Publication date: 2016

Peer-reviewed: Yes

Publication information

Journal: IEEE Transactions on Nanobioscience

Volume: 15

Issue number: 5
ISSN (Print): 1536-1241
Ratings:

Scopus rating (2016): CiteScore 3.04 SJR 0.571 SNIP 1.177
Scopus rating (2015): SJR 0.499 SNIP 1.19 CiteScore 2.92
Scopus rating (2014): SJR 0.62 SNIP 1.246 CiteScore 2.73
Scopus rating (2013): SJR 0.384 SNIP 0.766 CiteScore 1.93
Scopus rating (2012): SJR 0.41 SNIP 1.307 CiteScore 1.97
Scopus rating (2011): SJR 0.5 SNIP 0.819 CiteScore 2.11
Scopus rating (2010): SJR 0.662 SNIP 0.861
Scopus rating (2009): SJR 0.555 SNIP 0.737
Scopus rating (2008): SJR 0.572 SNIP 0.893
Scopus rating (2007): SJR 0.853 SNIP 1.228
Scopus rating (2006): SJR 0.718 SNIP 1.007
Scopus rating (2005): SJR 0.517 SNIP 0.769
Scopus rating (2004): SJR 0.286 SNIP 0.515
Scopus rating (2003): SJR 0.101 SNIP 0

Original language: English

DOIs:

10.1109/TNB.2016.2574639

Research output: Scientific - peer-review › Article

Printed epidermal electronic system

General information

State: Published

Organisations: Department of Electronics and Communications Engineering, Research group: Laboratory for Future Electronics

Authors: Mäntysalo, M., Vuorinen, T., Suikkola, J.

Publication date: 2016

Peer-reviewed: Unknown

Event: Paper presented at LOPEC 8th International Exhibition and Conference for the Printed Electronics Industry , Munich, Germany.

Research output: Scientific › Paper, poster or abstract

Remotely Powered Piezoresistive Pressure Sensor: Toward Wireless Monitoring of Intracranial Pressure

This paper presents the results of pressure measurements taken after the successful activation of an implantable piezoresistive pressure sensor. The sensor was activated using inductive power transmission for an Intracranial Pressure (ICP) monitoring application. This generated sufficient power (4.47 mW) and voltage (1.894 V) at the sensor input to monitor the pressure changes. Although the changes in voltage were monitored through wires, the required electronics for wireless voltage transfer and measurement in a biological environment are planned in the future. The simulated and measured results of the wireless link, along with the measured changes in pressure are presented. The results are the first step towards a wirelessly powered implant for ICP monitoring.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Wireless Identification and Sensing Systems Research Group

Authors: Khan, M. W. A., Björninen, T., Sydänheimo, L., Ukkonen, L.

Pages: 549-551

Publication date: 2016

Peer-reviewed: Yes

Publication information

Journal: IEEE Microwave and Wireless Components Letters

Volume: 26

Issue number: 7

ISSN (Print): 1531-1309

Ratings:

Scopus rating (2016): SJR 0.814 SNIP 1.483 CiteScore 2.35

Scopus rating (2015): SJR 0.804 SNIP 1.541 CiteScore 2.32
Scopus rating (2014): SJR 1.199 SNIP 1.974 CiteScore 2.56
Scopus rating (2013): SJR 1.603 SNIP 2.191 CiteScore 3.09
Scopus rating (2012): SJR 1.411 SNIP 1.971 CiteScore 2.98
Scopus rating (2011): SJR 1.317 SNIP 1.79 CiteScore 2.74
Scopus rating (2010): SJR 1.449 SNIP 1.762
Scopus rating (2009): SJR 1.518 SNIP 1.856
Scopus rating (2008): SJR 1.6 SNIP 1.774
Scopus rating (2007): SJR 2.431 SNIP 2.18
Scopus rating (2006): SJR 1.833 SNIP 1.882
Scopus rating (2005): SJR 1.764 SNIP 1.825
Scopus rating (2004): SJR 1.747 SNIP 1.922
Scopus rating (2003): SJR 2.716 SNIP 2.322
Scopus rating (2002): SJR 2.362 SNIP 1.828
Scopus rating (2001): SJR 2.162 SNIP 1.67
Scopus rating (2000): SJR 1.605 SNIP 1.4
Scopus rating (1999): SJR 1.425 SNIP 1.63
Original language: English
Keywords: Intracranial pressure (ICP), piezoresistive pressure sensor, wireless power transfer
DOIs:
10.1109/LMWC.2016.2574836
Research output: Scientific - peer-review › Article

The biophysical properties of ethanolamine plasmalogens revealed by atomistic molecular dynamics simulations

Given the importance of plasmalogens in cellular membranes and neurodegenerative diseases, a better understanding of how plasmalogens affect the lipid membrane properties is needed. Here we carried out molecular dynamics simulations to study a lipid membrane comprised of ethanolamine plasmalogens (PE-plasmalogens). We compared the results to the PE-diacyl counterpart and palmitoyl-oleyl-phosphatidylcholine (POPC) bilayers. Results show that PE-plasmalogens form more compressed, thicker, and rigid lipid bilayers in comparison with the PE-diacyl and POPC membranes. The results also point out that the vinyl-ether linkage increases the ordering of sn-1 chain substantially and the ordering of the sn-2 chain to a minor extent. Further, the vinyl-ether linkage changes the orientation of the lipid head group, but it does not cause changes in the head group and glycerol backbone tilt angles with respect to the bilayer normal. The vinyl-ether linkage also packs the proximal regions of the sn-1 and sn-2 chains more closely together which also decreases the distance between the rest of the sn-1 and sn-2 chains.

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Department of Physics, Research area: Computational Physics, Tampere University of Technology, VTT Technical Research Centre of Finland
Authors: Rog, T., Koivuniemi, A.
Number of pages: 7
Pages: 97-103
Publication date: 2016
Peer-reviewed: Yes
Early online date: 1 Jan 2015

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Journal: Biochimica et Biophysica Acta: Biomembranes
Volume: 1858
Issue number: 1
ISSN (Print): 0005-2736
Ratings:
Scopus rating (2016): SJR 1.511 SNIP 1.101 CiteScore 3.55
Scopus rating (2015): SJR 1.782 SNIP 1.142 CiteScore 3.8
Scopus rating (2014): SJR 1.869 SNIP 1.09 CiteScore 3.64
Scopus rating (2013): SJR 1.592 SNIP 0.975 CiteScore 3.45
Scopus rating (2012): SJR 1.833 SNIP 1.156 CiteScore 3.99
Scopus rating (2011): SJR 1.644 SNIP 1.227 CiteScore 4.17

Scopus rating (2010): SJR 2.179 SNIP 1.291
Scopus rating (2009): SJR 2.152 SNIP 1.298
Scopus rating (2008): SJR 2.035 SNIP 1.123
Scopus rating (2007): SJR 2.021 SNIP 1.158
Scopus rating (2006): SJR 1.922 SNIP 1.212
Scopus rating (2005): SJR 2.037 SNIP 1.231
Scopus rating (2004): SJR 1.5 SNIP 1.147
Scopus rating (2003): SJR 1.401 SNIP 1.115
Scopus rating (2002): SJR 1.594 SNIP 1.228
Scopus rating (2001): SJR 1.509 SNIP 1.053
Scopus rating (2000): SJR 1.089 SNIP 0.907
Scopus rating (1999): SJR 0.95 SNIP 0.841
Original language: English
ASJC Scopus subject areas: Biochemistry, Cell Biology, Biophysics
Keywords: Lipid membrane, Molecular dynamics, Neurodegenerative diseases, Plasmalogenes
DOIs:
10.1016/j.bbamem.2015.10.023
Source: Scopus
Source-ID: 84946197363
Research output: Scientific - peer-review > Article

The Impact of Social Behavior on the Attenuation and Delay of Bacterial Nanonetworks

Molecular communication (MC) is a new paradigm for developing communication systems that exchanges information through the transmission and reception of molecules. One proposed model for MC is using bacteria to carry information encoded into DNA plasmids, and this is termed bacterial nanonetworks. However, a limiting factor in the models that have been studied so far is the environment considered only in ideal conditions with a single population. This is far from realistic in natural environments, where bacteria co-exist in multiple populations of same and different species, resulting in a very complex social community. This complex community has social interactions that include cooperation, cheating, as well as competition. In this paper, the effects of these social interactions on the information delivery in bacterial nanonetworks are studied in terms of delay, attenuation and data rate. The numerical results show that the cooperative behavior of bacteria improves the performance of delay and attenuation leading to a higher data rate, and this performance can be degraded once their behavior switches towards cheating. The competitive social behavior shows that the performance can degrade delay as well as attenuation leading to slower data rates, as the population with the encoded DNA plasmids are prevented from reaching the receiver. The analysis of social interactions between the bacteria will pave the way for efficient design of bacterial nanonetworks enabling applications such as intra-body sensing, drug delivery, and environmental control against pollution and biological hazards.

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Department of Electronics and Communications Engineering, Research group: Emerging Technologies for Nano-Bio-Info-Cogno, Georgia Institute of Technology
Authors: Unluturk, B., Balasubramaniam, S., Akyildiz, I. F.
Pages: 959-969
Publication date: 2016
Peer-reviewed: Yes

Publication information

Journal: IEEE Transactions on Nanobioscience
Volume: 15
Issue number: 8
ISSN (Print): 1536-1241
Ratings:
Scopus rating (2016): CiteScore 3.04 SJR 0.571 SNIP 1.177
Scopus rating (2015): SJR 0.499 SNIP 1.19 CiteScore 2.92
Scopus rating (2014): SJR 0.62 SNIP 1.246 CiteScore 2.73
Scopus rating (2013): SJR 0.384 SNIP 0.766 CiteScore 1.93
Scopus rating (2012): SJR 0.41 SNIP 1.307 CiteScore 1.97
Scopus rating (2011): SJR 0.5 SNIP 0.819 CiteScore 2.11
Scopus rating (2010): SJR 0.662 SNIP 0.861

Scopus rating (2009): SJR 0.555 SNIP 0.737

Scopus rating (2008): SJR 0.572 SNIP 0.893

Scopus rating (2007): SJR 0.853 SNIP 1.228

Scopus rating (2006): SJR 0.718 SNIP 1.007

Scopus rating (2005): SJR 0.517 SNIP 0.769

Scopus rating (2004): SJR 0.286 SNIP 0.515

Scopus rating (2003): SJR 0.101 SNIP 0

Original language: English

DOIs:

10.1109/TNB.2016.2627081

Research output: Scientific - peer-review › Article

Towards material excellence: Evaluation of Tekes' programmes on materials

General information

State: Published

Ministry of Education publication type: D4 Published development or research report or study

Organisations: Department of Materials Science, Research group: Plastics and Elastomer Technology, Virebit Oy

Authors: Timonen, J., Antikainen, M., Das, A., Sarlin, E., Vuorinen, J.

Number of pages: 61

Publication date: 2016

Publication information

Publisher: Tekes

ISBN (Print): 978-952-457-621-5

Original language: English

Links:

<http://www.tekes.fi/tekes/julkaisut1/towards-material-excellence--42016/>

Research output: Professional › Commissioned report

Uniform and electrically conductive biopolymer-doped polypyrrole coating for fibrous PLA

Three-dimensional, fibrous scaffolds can be easily fabricated from polylactide (PLA) using melt spinning and textile techniques. However, the surface properties of PLA scaffolds are not ideal for tissue engineering purposes. Furthermore, electrically conducting scaffolds are required to deliver electrical stimulation to cells. In this study, uniform, electrically conducting polypyrrole (PPy) coatings were fabricated on biodegradable PLA fibers. Biopolymer dopants-hyaluronic acid (HA) and chondroitin sulfate (CS)-were compared, and a PPy/CS composition was analyzed further. The effect of the oxidative polymerization conditions on the PLA fibers and CS counterion was studied. Furthermore, the initial molecular weight of CS and its degree of polymerization were determined. Our experiments showed that the molecular weight of CS decreases under oxidizing conditions but that the decay is not significant with the short polymerization process we used. The coating process was transferred to nonwoven PLA fabrics, and the stability of PPy/CS coating was studied during in vitro incubation in phosphate buffer solution at physiological temperature. The conductivity and surface roughness of the coating decayed during the 20-day incubation. The mechanical strength, however, remained at the initial level. Thus, the fabricated structures are suitable for short-term electrical stimulation adequate to promote cell functions in specific cases.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Biomaterials and Tissue Engineering Group, BioMediTech, VTT Technical Research Centre of Finland

Authors: Hiltunen, M., Pelto, J., Ellä, V., Kellomäki, M.

Pages: 1721–1729

Publication date: 2016

Peer-reviewed: Yes

Publication information

Journal: Journal of Biomedical Materials Research. Part B: Applied Biomaterials

Volume: 104

Issue number: 8

ISSN (Print): 1552-4973

Ratings:

Scopus rating (2016): SJR 0.688 SNIP 0.981 CiteScore 2.69

Scopus rating (2015): SJR 0.797 SNIP 1.094 CiteScore 2.74

Scopus rating (2014): SJR 0.742 SNIP 1.176 CiteScore 2.82
Scopus rating (2013): SJR 0.815 SNIP 1.163 CiteScore 2.63
Scopus rating (2012): SJR 0.893 SNIP 1.156 CiteScore 2.56
Scopus rating (2011): SJR 0.877 SNIP 1.039 CiteScore 2.3
Scopus rating (2010): SJR 0.906 SNIP 1.048
Scopus rating (2009): SJR 0.847 SNIP 1.052
Scopus rating (2008): SJR 0.856 SNIP 1.044
Scopus rating (2007): SJR 0.866 SNIP 1.032
Scopus rating (2006): SJR 0.921 SNIP 1.09
Scopus rating (2005): SJR 0.609 SNIP 1.019
Scopus rating (2004): SJR 0.426 SNIP 0.867
Original language: English
ASJC Scopus subject areas: Biomedical Engineering, Biomaterials
Keywords: Coating(s), Scaffolds, Stability, Surface characterization, Tissue engineering
DOIs:
10.1002/jbm.b.33514
Source: Scopus
Source-ID: 84941100023
Research output: Scientific - peer-review › Article

Urinary thrombomodulin levels were significantly higher following occupational exposure to chemicals, in the presence of dipstick protein, but not in the presence of dipstick blood

Currently, there are no biomarkers which can identify patients with an increased risk of developing urothelial cancer as a result of occupational chemical exposure. The aim of this study was to evaluate the relationships between final diagnosis and 22 biomarkers measured in urine, serum and plasma collected from 156 hematuric patients. Fourteen of the 80 patients (17.5%) with urothelial cancer and 13/76 (17.1%) of the controls were deemed to have a history of chemical exposure. We applied Fisher's exact tests to explore associations between chemical exposure and final diagnosis, and tumor stage and grade, where applicable; ANOVA and t-test to compare age across patients with and without chemical exposure; and Zelen's exact test to evaluate relationships across final diagnosis, chemical exposure and smoking. Following pre-selection of biomarkers using Lasso, we identified biomarkers with differential levels across patients with and without chemical exposure using Welch's t-test. Using a one-sided t-test and considering multiple testing using FDR, we observed that TM levels in urine were significantly higher in samples from patients with a history of chemical exposure regardless of their diagnosis as control or urothelial cancer (one-sided t-test, $p_{UC} = 0.014$ and $p_{CTL} = 0.043$); in the presence of dipstick protein and when urinary pH levels ≤ 6 ($p = 0.003$), but not in the presence of dipstick blood ($p = 0.115$). Urothelial cancer patients with a history of chemical exposure were significantly younger (64.1 years) than those without chemical exposure (70.2 years) (one-sided t-test p-value = 0.012); and their tumors were higher grade (Fisher's exact test; $p = 0.008$). There was a strong association between a history of chemical exposure and smoking in urothelial cancer patients (Zelen's exact test; $p = 0.025$). Elevated urinary thrombomodulin levels could have the potential to identify chemical exposure in hematuric patients at high risk of developing urothelial cancer.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Randox Laboratories Ltd, Queen's University, Belfast, Northern Ireland, Belfast City Hospital, South Eastern Health and Social Care Trust, Centre for Cancer Research and Cell Biology

Authors: Ruddock, M. W., De Matos Simoes, R., O'Rourke, D., Duggan, B., Stevenson, M., O'Kane, H. F., Curry, D., Abogunrin, F., Emmert-Streib, F., Reid, C. N., Maxwell, P., Arthur, K., Mallon, M., Carson, G., Kennedy, G., Williamson, K. E.

Publication date: 2016

Peer-reviewed: Yes

Publication information

Journal: Biology and Medicine

Volume: 8

Issue number: 1

Article number: 1000260

Ratings:

Scopus rating (2016): SJR 0.2 SNIP 0.36

Scopus rating (2015): SJR 0.144 SNIP 0.469

Scopus rating (2014): SJR 0.299 SNIP 1.01

Scopus rating (2013): SJR 0.249 SNIP 0.732

Scopus rating (2012): SJR 0.368 SNIP 0.697
Scopus rating (2011): SJR 0.199 SNIP 0.632
Scopus rating (2010): SJR 0.12 SNIP 0.53
Original language: English
ASJC Scopus subject areas: Biochemistry, Genetics and Molecular Biology(all)
Keywords: Bladder cancer, Chemical exposure, Occupation, Smoking, Thrombomodulin, Urine
DOIs:
10.4172/0974-8369.1000260
Source: Scopus
Source-ID: 84960172049
Research output: Scientific - peer-review › Article

Using Competing Bacterial Communication to Disassemble Biofilms

In recent years, bacterial infections have become a major public health concern due to their ability to cooperate between single and multiple species resisting to various forms of treatments (e.g., antibiotics). One form of protection is through biofilms, where the bacteria produce a protective medium known as the Extracellular Polymeric Substances (EPS). Researchers are pursuing new multi-disciplinary approaches to treating and curb the evolving process of these infections through the biofilms, to lower the humans' antibiotic dependence that can result in the so-called "super-bugs". Although various solutions have been proposed to break biofilms, they are based on applying drugs or using nanoparticles. In this paper, we propose an alternative approach, where bacteria will cooperate and surround the biofilms to consume the nutrients. By hijacking the nutrients in the environment and blocking the flow from reaching the biofilms, this will lead to starvation, forcing them to break their structure. Preliminary simulations show that a small action radius of quorum sensing molecules is needed to maximise bacteria attraction to a particular location and create the protective wall. Therefore, this formation is capable of speeds up biofilm dispersal process by two hours.

General information

State: Published
Ministry of Education publication type: A4 Article in a conference publication
Organisations: Department of Electronics and Communications Engineering, Research group: Emerging Technologies for Nano-Bio-Info-Cogno, Waterford Institute of Technology
Authors: Martins, D., Barros, M., Balasubramaniam, S.
Publication date: 2016

Host publication information

Title of host publication: 3rd ACM International Conference on Nanoscale Computing and Communication (ACM NanoCom 2016)
Publisher: ACM
Article number: 18
ISBN (Electronic): 978-1-4503-4061-8
DOIs:
10.1145/2967446.2967463
Research output: Scientific - peer-review › Conference contribution

What can we learn about cholesterol's transmembrane distribution based on cholesterol-induced changes in membrane potential?

Cholesterol is abundant in the plasma membranes of animal cells and is known to regulate a variety of membrane properties. Despite decades of research, the transmembrane distribution of cholesterol is still a matter of debate. Here we consider this outstanding issue through atomistic simulations of asymmetric lipid membranes, whose composition is largely consistent with eukaryotic plasma membranes. We show that the membrane dipole potential changes in a cholesterol-dependent manner. Remarkably, moving cholesterol from the extracellular to the cytosolic leaflet increases the dipole potential on the cytosolic side, and vice versa. Biologically this implies that by altering the dipole potential, cholesterol can provide a driving force for cholesterol molecules to favor the cytosolic leaflet, in order to compensate for the intramembrane field that arises from the resting potential.

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Department of Physics, Research area: Computational Physics, Research group: Biological Physics and Soft Matter, Institute of Macromolecular Compounds, Russian Academy of Sciences, St. Petersburg, Institute of Organic Chemistry and Biochemistry, Czech Academy of Sciences, Flemingovo náměstí 542/2, 166 10 Praha 6, Czech Republic, Belozersky Institute of Physico-Chemical Biology, Lomonosov Moscow State University, Leninskie Gory, 1/40, 119991 Moscow, Russia
Authors: Falkovich, S. G., Martinez-Seara, H., Nesterenko, A. M., Vattulainen, I., Gurtovenko, A. A.
Number of pages: 6

Pages: 4585-4590
Publication date: 2016
Peer-reviewed: Yes

Publication information

Journal: Journal of Physical Chemistry Letters

Volume: 7

Issue number: 22

ISSN (Print): 1948-7185

Ratings:

Scopus rating (2016): SJR 4.583 SNIP 1.68 CiteScore 8.18

Scopus rating (2015): SJR 4.233 SNIP 1.829 CiteScore 8.04

Scopus rating (2014): SJR 3.722 SNIP 1.724 CiteScore 7

Scopus rating (2013): SJR 3.515 SNIP 1.61 CiteScore 6.61

Scopus rating (2012): SJR 3.943 SNIP 1.751 CiteScore 6.3

Scopus rating (2011): SJR 3.244 SNIP 1.602 CiteScore 5.95

Original language: English

DOIs:

10.1021/acs.jpcclett.6b02123

Research output: Scientific - peer-review > Article

Using multi-step proposal distribution for improved MCMC convergence in Bayesian network structure learning

Bayesian networks have become popular for modeling probabilistic relationships between entities. As their structure can also be given a causal interpretation about the studied system, they can be used to learn, for example, regulatory relationships of genes or proteins in biological networks and pathways. Inference of the Bayesian network structure is complicated by the size of the model structure space, necessitating the use of optimization methods or sampling techniques, such as Markov Chain Monte Carlo (MCMC) methods. However, convergence of MCMC chains is in many cases slow and can become even a harder issue as the dataset size grows. We show here how to improve convergence in the Bayesian network structure space by using an adjustable proposal distribution with the possibility to propose a wide range of steps in the structure space, and demonstrate improved network structure inference by analyzing phosphoprotein data from the human primary T cell signaling network.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Aalto University

Authors: Larjo, A., Lähdesmäki, H.

Publication date: 27 Dec 2015

Peer-reviewed: Yes

Publication information

Journal: Eurasip Journal on Bioinformatics and Systems Biology

Volume: 2015

Issue number: 1

Article number: 6

ISSN (Print): 1687-4145

Ratings:

Scopus rating (2016): SJR 0.475 SNIP 0.324 CiteScore 0.79

Scopus rating (2015): SJR 0.329 SNIP 0.392 CiteScore 0.68

Scopus rating (2014): SJR 0.377 SNIP 0.439 CiteScore 0.86

Scopus rating (2013): SJR 0.242 SNIP 0.752 CiteScore 0.74

Scopus rating (2012): SJR 0.445 SNIP 0.455 CiteScore 0.97

Scopus rating (2011): SJR 0.396 SNIP 0.414 CiteScore 0.81

Scopus rating (2010): SJR 0.593 SNIP 0.656

Scopus rating (2009): SJR 0.604 SNIP 0.98

Scopus rating (2008): SJR 0.311 SNIP 0.231

Scopus rating (2007): SJR 0.121 SNIP 0.091

Original language: English

ASJC Scopus subject areas: Medicine(all), Computer Science(all), Signal Processing, Statistics and Probability, General

Keywords: Bayesian network, MCMC, Proposal distribution, Structure learning

DOIs:

10.1186/s13637-015-0024-7

Source: Scopus

Source-ID: 84932633872

Research output: Scientific - peer-review › Article

Which wavelength is the best for arterial pulse waveform extraction using laser speckle imaging?

A multi-wavelengths analysis for pulse waveform extraction using laser speckle is conducted. The proposed system consists of three coherent light sources (532 nm, 635 nm, 850 nm). A bench-test composed of a moving skin-like phantom (silicone membrane) is used to compare the results obtained from different wavelengths. The system is able to identify a skin-like phantom vibration frequency, within physiological values, with a minimum error of 0.5 mHz for the 635 nm and 850 nm wavelengths and a minimum error of 1.3 mHz for the 532 nm light wavelength using a FFT-based algorithm. The phantom velocity profile is estimated with an error ranging from 27% to 9% using a bidimensional correlation coefficient-based algorithm. An in vivo trial is also conducted, using the 532 nm and 635 nm laser sources. The 850 nm light source has not been able to extract the pulse waveform. The heart rate is identified with a minimum error of 0.48 beats per minute for the 532 nm light source and a minimal error of 1.15 beats per minute for the 635 nm light source. Our work reveals that a laser speckle-based system with a 532 nm wavelength is able to give arterial pulse waveform with better results than those given with a 635 nm laser.

General information

State: E-pub ahead of print

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Computational Biophysics and Imaging Group, LARIS-Laboratoire Angevin de Recherche en Ingénierie des Systèmes, Center for Mathematics Probability and Statistics

Authors: Vaz, P., Pereira, T., Figueiras, E., Correia, C., Humeau-Heurtier, A., Cardoso, J.

Number of pages: 8

Pages: 188-195

Publication date: 22 Dec 2015

Peer-reviewed: Yes

Publication information

Journal: Biomedical Signal Processing and Control

Volume: 25

ISSN (Print): 1746-8094

Ratings:

Scopus rating (2016): SJR 0.659 SNIP 1.574 CiteScore 2.82

Scopus rating (2015): SJR 0.631 SNIP 1.559 CiteScore 2.55

Scopus rating (2014): SJR 0.43 SNIP 1.44 CiteScore 1.89

Scopus rating (2013): SJR 0.566 SNIP 1.8 CiteScore 2.28

Scopus rating (2012): SJR 0.378 SNIP 1.277 CiteScore 1.6

Scopus rating (2011): SJR 0.407 SNIP 1.087 CiteScore 1.75

Scopus rating (2010): SJR 0.37 SNIP 0.926

Scopus rating (2009): SJR 0.31 SNIP 1.083

Scopus rating (2008): SJR 0.251 SNIP 0.813

Scopus rating (2007): SJR 0.141 SNIP 0.284

Original language: English

Keywords: Arterial pulse waveform, Correlation, Fast Fourier transform, Laser speckle, Multi-spectral

ASJC Scopus subject areas: Health Informatics, Signal Processing

DOIs:

10.1016/j.bspc.2015.11.013

Source: Scopus

Source-ID: 84950341719

Research output: Scientific - peer-review › Article

Topologies, structures and parameter files for lipid simulations in GROMACS with the OPLS-aa force field: DPPC, POPC, DOPC, PEPC, and cholesterol

In this data article we provide topologies and force field parameters files for molecular dynamics simulations of lipids in the OPLS-aa force field using the GROMACS package. This is the first systematic parameterization of lipid molecules in this force field. Topologies are provided for four phosphatidylcholines: saturated DPPC, mono-cis unsaturated POPC and DOPC, and mono-trans unsaturated PEPC. Parameterization of the phosphatidylcholines was achieved in two steps: first, we supplemented the OPLS force field parameters for DPPC with new parameters for torsion angles and van der Waals parameters for the carbon and hydrogen atoms in the acyl chains, as well as new partial atomic charges and parameters for torsion angles in the phosphatidylcholine and glycerol moieties [1]. Next, we derived parameters for the cis and trans

double bonds and the neighboring them single bonds [2]. Additionally, we provide GROMACS input files with parameters describing simulation conditions (md.mdp), which are strongly recommended to be used with these lipids models. The data are associated with the research article "Cis and trans unsaturated phosphatidylcholine bilayers: a molecular dynamics simulation study" [2] and provided as supporting materials.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Physics, Research area: Computational Physics, Computational Science X (CompX)

Authors: Kulig, W., Pasenkiewicz-Gierula, M., Róg, T.

Number of pages: 4

Pages: 333-336

Publication date: 5 Dec 2015

Peer-reviewed: Yes

Publication information

Journal: Data in Brief

Volume: 5

ISSN (Print): 2352-3409

Ratings:

Scopus rating (2016): SJR 0.216 SNIP 0.201 CiteScore 0.5

Scopus rating (2015): SJR 0.186 SNIP 0.065 CiteScore 0.25

Original language: English

DOIs:

10.1016/j.dib.2015.09.013

Research output: Scientific - peer-review > Article

Device for Studying Reanimation of Unilateral Facial Paralysis

A device for studying facial pacing for people who suffer from unilateral facial paralysis is presented. The device is able to measure electromyographic (EMG) signals from the healthy side of the face and simultaneously activate the paralysed side with electrical stimulation.

Electronics designed for the device are integrated to a single tabletop unit together with a myRIO embedded hardware device by National Instruments (NI). The presented device is designed to fulfil the safety requirements of the Council Directive 93/42/EEC of the European Union concerning medical devices and IEC 60601 standards. The device is powered by a commercial medical grade power source. The custom electronics include isolated measurement and stimulation amplifiers that feed the signals to and from the myRIO. Complex real-time processing can be carried out in the myRIO's FPGA circuit for detecting muscle activations and producing appropriate stimulation signals. The functionality is programmed with NI LabVIEW. The device is controlled wirelessly via a computer interface, and the measured data is logged to the computer.

Clinical study with the device is about to be started at the Tampere University Hospital. First trials will determine and compare the required stimulation signal waveform parameters for transcutaneous activation of facial muscles of healthy participants and patients suffering from unilateral facial paralysis. Four measurement and four stimulation channels of the device enable studying different electrode configurations and stimulation patterns for recognizing and reanimating symmetrical facial expressions in the future.

General information

State: Published

Organisations: Department of Automation Science and Engineering, Research area: Microsystems, Research area:

Measurement Technology and Process Control, University of Tampere, Department of Clinical Neurophysiology

Authors: Rantanen, V., Vehkaoja, A. T., Verho, J. A., Vesely, P., Kontunen, A., Mattila, R., Lylykangas, J., Ilves, M., Mäkelä, E., Rautiainen, M., Surakka, V., Lekkala, J. O.

Publication date: 4 Dec 2015

Peer-reviewed: Unknown

Event: Paper presented at Biomeditech Research Day 2015, Tampere, Finland.

Keywords: electromyography, facial pacing, functional electrical stimulation, prosthetic technology, unilateral facial paralysis

ASJC Scopus subject areas: Biomedical Engineering

Electronic versions:

Ville_Rantanen_Device_for_Studying_Reanimation_of_Unilateral_Facial_Paralysis_Presentation_at_BMT_Research_Day_2015_12_04

Links:

<http://www.vrantanen.com/presentations/device-for-studying-reanimation-of-unilateral-facial-paralysis>

How Well Does BODIPY-Cholesteryl Ester Mimic Unlabeled Cholesteryl Esters in High Density Lipoprotein Particles?

We compare the behavior of unlabeled and BODIPY-labeled cholesteryl ester (CE) in high density lipoprotein by atomistic molecular dynamics simulations. We find through replica exchange umbrella sampling and unbiased molecular dynamics simulations that BODIPY labeling has no significant effect on the partitioning of CE between HDL and the water phase. However, BODIPY-CE was observed to diffuse more slowly and locate itself closer to the HDL-water interface than CE due to the BODIPY probe that is constrained to the surface region, and because the CE body in BODIPY-CE prefers to align itself away from the HDL surface. The implications as to the suitability of BODIPY to explore lipoprotein properties are discussed.

General information

State: E-pub ahead of print

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Physics, Research area: Computational Physics, Research group: Biological Physics and Soft Matter, Computational Science X (CompX)

Authors: Karilainen, T., Vuorela, T., Vattulainen, I.

Number of pages: 9

Pages: 15848-15856

Publication date: 4 Dec 2015

Peer-reviewed: Yes

Publication information

Journal: Journal of Physical Chemistry Part B

Volume: 119

Issue number: 52

ISSN (Print): 1520-6106

Ratings:

Scopus rating (2016): SJR 1.348 SNIP 1.02 CiteScore 3.03

Scopus rating (2015): SJR 1.367 SNIP 1.096 CiteScore 3.25

Scopus rating (2014): SJR 1.44 SNIP 1.14 CiteScore 3.28

Scopus rating (2013): SJR 1.494 SNIP 1.2 CiteScore 3.53

Scopus rating (2012): SJR 1.92 SNIP 1.251 CiteScore 3.66

Scopus rating (2011): SJR 1.78 SNIP 1.226 CiteScore 3.62

Scopus rating (2010): SJR 1.849 SNIP 1.214

Scopus rating (2009): SJR 2.232 SNIP 1.349

Scopus rating (2008): SJR 2.543 SNIP 1.381

Scopus rating (2007): SJR 2.346 SNIP 1.282

Scopus rating (2006): SJR 2.369 SNIP 1.415

Scopus rating (2005): SJR 2.275 SNIP 1.474

Scopus rating (2004): SJR 2.148 SNIP 1.511

Scopus rating (2003): SJR 2.034 SNIP 1.47

Scopus rating (2002): SJR 2.118 SNIP 1.496

Scopus rating (2001): SJR 2.053 SNIP 1.508

Scopus rating (2000): SJR 2.145 SNIP 1.527

Scopus rating (1999): SJR 1.713 SNIP 1.8

Original language: English

DOIs:

10.1021/acs.jpcc.5b10188

Research output: Scientific - peer-review › Article

Variance-corrected Michaelis-Menten equation predicts transient rates of single-enzyme reactions and response times in bacterial gene-regulation

Many chemical reactions in biological cells occur at very low concentrations of constituent molecules. Thus, transcriptional gene-regulation is often controlled by poorly expressed transcription-factors, such as E.coli lac repressor with few tens of copies. Here we study the effects of inherent concentration fluctuations of substrate-molecules on the seminal Michaelis-Menten scheme of biochemical reactions. We present a universal correction to the Michaelis-Menten equation for the reaction-rates. The relevance and validity of this correction for enzymatic reactions and intracellular gene-regulation is demonstrated. Our analytical theory and simulation results confirm that the proposed variance-corrected Michaelis-Menten equation predicts the rate of reactions with remarkable accuracy even in the presence of large non-equilibrium

concentration fluctuations. The major advantage of our approach is that it involves only the mean and variance of the substrate-molecule concentration. Our theory is therefore accessible to experiments and not specific to the exact source of the concentration fluctuations.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Physics, Research area: Computational Physics, Institute for Physics and Astronomy, University of Potsdam

Authors: Pulkkinen, O., Metzler, R.

Publication date: 4 Dec 2015

Peer-reviewed: Yes

Publication information

Journal: Scientific Reports

Volume: 5

Article number: 17820

ISSN (Print): 2045-2322

Ratings:

Scopus rating (2016): CiteScore 4.63 SJR 1.625 SNIP 1.401

Scopus rating (2015): SJR 2.057 SNIP 1.684 CiteScore 5.3

Scopus rating (2014): SJR 2.103 SNIP 1.544 CiteScore 4.75

Scopus rating (2013): SJR 1.886 SNIP 1.51 CiteScore 4.06

Scopus rating (2012): SJR 1.458 SNIP 0.896 CiteScore 2.44

Original language: English

ASJC Scopus subject areas: General

DOIs:

10.1038/srep17820

Source: Scopus

Source-ID: 84949239330

Research output: Scientific - peer-review > Article

A new algorithm to improve assessment of cortical bone geometry in pQCT

High-resolution peripheral quantitative computed tomography (HR-pQCT) is now considered the leading imaging modality in bone research. However, access to HR-pQCT is limited and image acquisition is mainly constrained only for the distal third of appendicular bones. Hence, the conventional pQCT is still commonly used despite inaccurate threshold-based segmentation of cortical bone that can compromise the assessment of whole bone strength. Therefore, this study addressed whether the use of an advanced image processing algorithm, called OBS, can enhance the cortical bone analysis in pQCT images and provide similar information to HR-pQCT when the same volumes of interest are analyzed. Using pQCT images of European Forearm Phantom (EFP), and pQCT and HR-pQCT images of the distal tibia from 15 cadavers, we compared the results from the OBS algorithm with those obtained from common pQCT analyses, HR-pQCT manual analysis (considered as a gold standard) and common HR-pQCT analysis dual threshold technique. We found that the use of OBS segmentation method for pQCT image analysis of EFP data did not result in any improvement but reached similar performance in cortical bone delineation as did HR-pQCT image analyses. The assessments of cortical cross-sectional bone area and thickness by OBS algorithm were overestimated by less than 4% while area moments of inertia were overestimated by ~5-10%, depending on reference HR-pQCT analysis method. In conclusion, this study showed that the OBS algorithm performed reasonably well and it offers a promising practical tool to enhance the assessment of cortical bone geometry in pQCT.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Computational Biophysics and Imaging Group, BioMediTech, Integrated Technologies for Tissue Engineering Research (ITTE), BioMediTech - Institute of Biosciences and Medical Technology, Bone Research Group, UKK Institute Finland, Western University, University of Toronto, Canada, University of Waterloo

Authors: Cervinka, T., Sievänen, H., Lala, D., Cheung, A. M., Giangregorio, L., Hyttinen, J.

Number of pages: 10

Pages: 721-730

Publication date: 1 Dec 2015

Peer-reviewed: Yes

Publication information

Journal: Bone

Volume: 81
ISSN (Print): 8756-3282
Ratings:

Scopus rating (2016): SJR 1.612 SNIP 1.427 CiteScore 4.09
Scopus rating (2015): SJR 1.757 SNIP 1.527 CiteScore 4.17
Scopus rating (2014): SJR 1.794 SNIP 1.656 CiteScore 4.18
Scopus rating (2013): SJR 1.843 SNIP 1.73 CiteScore 4.55
Scopus rating (2012): SJR 1.644 SNIP 1.591 CiteScore 4.09
Scopus rating (2011): SJR 1.82 SNIP 1.628 CiteScore 4.33
Scopus rating (2010): SJR 1.785 SNIP 1.657
Scopus rating (2009): SJR 1.759 SNIP 1.593
Scopus rating (2008): SJR 1.848 SNIP 1.515
Scopus rating (2007): SJR 1.841 SNIP 1.52
Scopus rating (2006): SJR 1.758 SNIP 1.517
Scopus rating (2005): SJR 1.671 SNIP 1.646
Scopus rating (2004): SJR 1.329 SNIP 1.483
Scopus rating (2003): SJR 1.456 SNIP 1.344
Scopus rating (2002): SJR 1.511 SNIP 1.551
Scopus rating (2001): SJR 1.479 SNIP 1.666
Scopus rating (2000): SJR 1.411 SNIP 1.438
Scopus rating (1999): SJR 1.323 SNIP 1.58

Original language: English

Keywords: Bone strength, Cortical bone, HR-pQCT, PQCT, Segmentation

ASJC Scopus subject areas: Physiology, Endocrinology, Diabetes and Metabolism, Histology

DOIs:

10.1016/j.bone.2015.09.015

Source: Scopus

Source-ID: 84944315861

Research output: Scientific - peer-review › Article

Assessment of respiratory effort during sleep with noninvasive techniques

General information

State: Published

Ministry of Education publication type: B1 Article in a scientific magazine

Organisations: Department of Electronics and Communications Engineering, BioMediTech, Department of Clinical Neurophysiology, Department of Medical Physics, Tampere University Hospital, Pirkanmaa Hospital District, University of Tampere

Authors: Tenhunen, M., Hasan, J., Himanen, S. L.

Number of pages: 2

Pages: 103-104

Publication date: 1 Dec 2015

Peer-reviewed: No

Publication information

Journal: Sleep Medicine Reviews

Volume: 24

ISSN (Print): 1087-0792

Ratings:

Scopus rating (2016): SJR 2.534 SNIP 2.705 CiteScore 6.03
Scopus rating (2015): SJR 3.267 SNIP 3.255 CiteScore 6.7
Scopus rating (2014): SJR 3.107 SNIP 3.305 CiteScore 7.14
Scopus rating (2013): SJR 3.381 SNIP 3.951 CiteScore 8.2
Scopus rating (2012): SJR 3.202 SNIP 3.648 CiteScore 7.41
Scopus rating (2011): SJR 2.207 SNIP 2.76 CiteScore 5.94
Scopus rating (2010): SJR 2.06 SNIP 2.559
Scopus rating (2009): SJR 2.191 SNIP 2.544
Scopus rating (2008): SJR 2.517 SNIP 2.294

Scopus rating (2007): SJR 1.978 SNIP 2.314

Scopus rating (2006): SJR 1.806 SNIP 2.346

Scopus rating (2005): SJR 1.519 SNIP 2.053

Scopus rating (2004): SJR 1.107 SNIP 1.774

Scopus rating (2003): SJR 0.698 SNIP 1.072

Scopus rating (2002): SJR 0.44 SNIP 0.477

Scopus rating (2001): SJR 0.464 SNIP 0.762

Scopus rating (2000): SJR 0.521 SNIP 0.819

Scopus rating (1999): SJR 0.337 SNIP 0.599

Original language: English

ASJC Scopus subject areas: Clinical Neurology, Physiology (medical), Pulmonary and Respiratory Medicine, Neurology
DOIs:

10.1016/j.smr.2015.08.010

Source: Scopus

Source-ID: 84944583589

Research output: Scientific › Article

Modeling carbon dioxide transport in PDMS-based microfluidic cell culture devices

Maintaining a proper pH level is crucial for successful cell culturing. Mammalian cells are commonly cultured in incubators, where the cell culture medium is saturated with a mixture of air and 5% carbon dioxide (CO₂). Therefore, to keep cell culture medium pH in an acceptable level outside these incubators, a suitable CO₂ concentration must be dissolved in the medium. However, it can be very difficult to control and measure precisely local concentration levels. Furthermore, possible undesired concentration gradients generated during long-term cell culturing are almost impossible to detect. Therefore, we have developed a computational model to estimate CO₂ transport in silicone-based microfluidic devices. An extensive set of experiments was used to validate the finite element model. The model parameters were obtained using suitable measurement set-ups and the model was validated using a fully functional cell cultivation device. The predictions obtained by the simulations show very good responses to experiments. It is shown in this paper how the model helps to understand the dynamics of CO₂ transport in silicone-based cell culturing devices possessing different geometries, thus providing cost-effective means for studying different device designs under a variety of experimental conditions without the need of actual testing. Finally, based on the results from the computational model, an alternative strategy for feeding CO₂ is proposed to accelerate the system performance such that a faster and more uniform CO₂ concentration response is achieved in the area of interest.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Automation Science and Engineering, Department of Materials Science, Research group: Paper Converting and Packaging, BioMediTech, Integrated Technologies for Tissue Engineering Research (ITTE), BioMediTech

Authors: Mäki, A. J., Peltokangas, M., Kreutzer, J., Auvinen, S., Kallio, P.

Number of pages: 10

Pages: 515-524

Publication date: 1 Dec 2015

Peer-reviewed: Yes

Publication information

Journal: Chemical Engineering Science

Volume: 137

ISSN (Print): 0009-2509

Ratings:

Scopus rating (2016): SJR 1.037 SNIP 1.442 CiteScore 3.05

Scopus rating (2015): SJR 1.038 SNIP 1.606 CiteScore 2.96

Scopus rating (2014): SJR 1.115 SNIP 1.642 CiteScore 2.81

Scopus rating (2013): SJR 1.157 SNIP 1.866 CiteScore 2.95

Scopus rating (2012): SJR 1.189 SNIP 1.847 CiteScore 2.77

Scopus rating (2011): SJR 1.205 SNIP 1.685 CiteScore 2.8

Scopus rating (2010): SJR 1.319 SNIP 1.708

Scopus rating (2009): SJR 1.293 SNIP 1.759

Scopus rating (2008): SJR 1.299 SNIP 1.6

Scopus rating (2007): SJR 1.347 SNIP 1.523

Scopus rating (2006): SJR 1.308 SNIP 1.553

Scopus rating (2005): SJR 1.445 SNIP 1.801

Scopus rating (2004): SJR 1.301 SNIP 1.858

Scopus rating (2003): SJR 1.7 SNIP 1.676

Scopus rating (2002): SJR 1.675 SNIP 1.279

Scopus rating (2001): SJR 1.706 SNIP 1.734

Scopus rating (2000): SJR 1.313 SNIP 1.307

Scopus rating (1999): SJR 1.214 SNIP 1.539

Original language: English

ASJC Scopus subject areas: Chemical Engineering(all), Chemistry(all), Applied Mathematics, Industrial and Manufacturing Engineering

Keywords: Carbon dioxide, Finite element method, Mass transport, Microfluidics cell culturing, Numerical simulation, pH
DOIs:

10.1016/j.ces.2015.06.065

Links:

<http://www.scopus.com/inward/record.url?scp=84938149959&partnerID=8YFLogxK> (Link to publication in Scopus)

Bibliographical note

ORG=ase,0.9

ORG=mol,0.1

Source: Scopus

Source-ID: 84938149959

Research output: Scientific - peer-review > Article

Behavioral Informatics and Computational Modeling in Support of Proactive Health Management and Care

Health-related behaviors are among the most significant determinants of health and quality of life. Improving health behavior is an effective way to enhance health outcomes and mitigate the escalating challenges arising from an increasingly aging population and the proliferation of chronic diseases. Although it has been difficult to obtain lasting improvements in health behaviors on a wide scale, advances at the intersection of technology and behavioral science may provide the tools to address this challenge. In this paper, we describe a vision and an approach to improve health behavior interventions using the tools of behavioral informatics, an emerging transdisciplinary research domain based on system-theoretic principles in combination with behavioral science and information technology. The field of behavioral informatics has the potential to optimize interventions through monitoring, assessing, and modeling behavior in support of providing tailored and timely interventions. We describe the components of a closed-loop system for health interventions. These components range from fine grain sensor characterizations to individual-based models of behavior change. We provide an example of a research health coaching platform that incorporates a closed-loop intervention based on these multiscale models. Using this early prototype, we illustrate how the optimized and personalized methodology and technology can support self-management and remote care. We note that despite the existing examples of research projects and our platform, significant future research is required to convert this vision to full-scale implementations.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Research group: Personal Health Informatics-PHI, VTT Tech Res Ctr Finland, VTT Technical Research Center Finland

Authors: Pavel, M., Jimison, H. B., Korhonen, I., Gordon, C. M., Saranummi, N.

Number of pages: 13

Pages: 2763-2775

Publication date: Dec 2015

Peer-reviewed: Yes

Publication information

Journal: IEEE Transactions on Biomedical Engineering

Volume: 62

Issue number: 12

ISSN (Print): 0018-9294

Ratings:

Scopus rating (2016): SJR 1.214 SNIP 1.995 CiteScore 4.2

Scopus rating (2015): SJR 1.132 SNIP 2.083 CiteScore 3.74

Scopus rating (2014): SJR 0.84 SNIP 1.973 CiteScore 3.34

Scopus rating (2013): SJR 1.081 SNIP 2.073 CiteScore 3.53

Scopus rating (2012): SJR 0.816 SNIP 1.706 CiteScore 3

Scopus rating (2011): SJR 0.7 SNIP 1.715 CiteScore 3.04
Scopus rating (2010): SJR 0.686 SNIP 1.637
Scopus rating (2009): SJR 0.81 SNIP 1.94
Scopus rating (2008): SJR 0.826 SNIP 1.719
Scopus rating (2007): SJR 1.144 SNIP 2.187
Scopus rating (2006): SJR 1.317 SNIP 2.426
Scopus rating (2005): SJR 1.023 SNIP 2.252
Scopus rating (2004): SJR 0.73 SNIP 1.689
Scopus rating (2003): SJR 0.849 SNIP 1.367
Scopus rating (2002): SJR 0.888 SNIP 1.428
Scopus rating (2001): SJR 0.767 SNIP 1.578
Scopus rating (2000): SJR 0.942 SNIP 1.505
Scopus rating (1999): SJR 0.613 SNIP 2.187
Original language: English
DOIs:
10.1109/TBME.2015.2484286

Bibliographical note

EXT="Jimison, Holly B"
EXT="Saranummi, Niilo"
Source: PubMed
Source-ID: 26441408
Research output: Scientific - peer-review › Article

Comparative End-to-End Analysis of Ca²⁺-Signaling-Based Molecular Communication in Biological Tissues

Calcium (Ca²⁺)-signaling-based molecular communication is a short-range communication process that diffuses and propagates ions between the cells of a tissue. The communication process is initiated via stimulation and amplification of the production of Ca²⁺ ions within a cell; these ions then diffuse through a physical connection between cells called a gap junction. Ca²⁺ signaling can be found in different classes of cell. In excitable cells, initiation of the Ca²⁺-signaling process is accompanied by an electrical component; for nonexcitable cell types, the electrical component is absent; while hybrid cells exhibit both behaviors. This paper provides a comparison and analysis of the communication behavior in tissues comprised three specific cell types that utilize Ca²⁺ signaling: epithelium cells (nonexcitable), smooth muscle cells (excitable), and astrocytes (hybrid). The analysis focuses on spatiotemporal Ca²⁺ concentration dynamics and how they are influenced by the intracellular signaling process, the molecular diffusion delay, the gain and capacity of the communication channel, as well as intracellular signaling interference. This analysis of the communication behavior in the context of tissues provides insights useful for, inter alia, the design of nanomachines that are situated within tissues and that use analysis of the communication channel to infer tissue health.

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Department of Electronics and Communications Engineering, Research group: Emerging Technologies for Nano-Bio-Info-Cogno, Wireless Communications and Positioning (WICO)
Authors: Barros, M. T., Balasubramaniam, S., Jennings, B.
Number of pages: 15
Pages: 5128-5142
Publication date: Dec 2015
Peer-reviewed: Yes

Publication information

Journal: IEEE Transactions on Communications
Volume: 63
Issue number: 12
ISSN (Print): 0090-6778
Ratings:
Scopus rating (2016): SJR 1.386 SNIP 1.915 CiteScore 5.26
Scopus rating (2015): SJR 1.358 SNIP 2.235 CiteScore 3.97
Scopus rating (2014): SJR 1.312 SNIP 1.99 CiteScore 3.46
Scopus rating (2013): SJR 1.856 SNIP 2.479 CiteScore 3.24
Scopus rating (2012): SJR 1.856 SNIP 2.138 CiteScore 2.9
Scopus rating (2011): SJR 1.233 SNIP 1.859 CiteScore 2.36

Scopus rating (2010): SJR 1.343 SNIP 1.893
Scopus rating (2009): SJR 1.779 SNIP 2.42
Scopus rating (2008): SJR 2.455 SNIP 2.683
Scopus rating (2007): SJR 2.727 SNIP 3.018
Scopus rating (2006): SJR 2.533 SNIP 3.018
Scopus rating (2005): SJR 3.072 SNIP 3.817
Scopus rating (2004): SJR 3.573 SNIP 4.063
Scopus rating (2003): SJR 3.548 SNIP 3.609
Scopus rating (2002): SJR 4.423 SNIP 3.056
Scopus rating (2001): SJR 3.951 SNIP 3.014
Scopus rating (2000): SJR 1.871 SNIP 2.343
Scopus rating (1999): SJR 1.215 SNIP 1.609
Original language: English
DOIs:

10.1109/TCOMM.2015.2487349

Research output: Scientific - peer-review › Article

Istujat liikkumaan!

General information

State: Published

Ministry of Education publication type: E1 Popularised article, newspaper article

Organisations: Department of Pervasive Computing, Research area: User experience

Authors: Ahtinen, A.

Number of pages: 1

Pages: 8

Publication date: Dec 2015

Peer-reviewed: Unknown

Publication information

Journal: Tampereen Kaupakamarilehti

Issue number: 6

Original language: Finnish

Research output: General public › Comment/debate

LTCC-Based Multi-Electrode Arrays for 3D in Vitro Cell Cultures

Current technologies to monitor neuronal cultures in vitro are based on 2-dimensional (2D) multi-electrode arrays and cell cultures. The complexity of actual high-level neurobiological systems requires 3-dimensional (3D) cultures and 3D electrode arrays to improve our understanding of such systems. The realization calls for smart multilayer and packaging technology. Our approach uses low-temperature cofired ceramics (LTCC) for the design of a 3-dimensional multi-electrode array (3D MEA). An LTCC multilayer board with gold electrodes forms the basis of the system. The layout of the 3D MEA is designed to fit into widely used measurement adapters for 2D signal recordings, enabling data processing identical to that of established chips. Design and manufacturing of the new 3D device as a basic tool for the investigation of 3D cell cultures are described. Features of thick-film gold electrodes are characterized by means of microscopic and spectroscopic tools complemented with complex impedance measurements. Possible biological applications for in vitro electrophysiological measurements were evaluated based on cell cultures of primary neurons, seeded directly to the chip surface. It was shown that activity can be measured over six months.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Computational Biophysics and Imaging Group, BioMediTech, Integrated Technologies for Tissue Engineering Research (ITTE), TU Ilmenau, Technische Universitat Ilmenau, Inst Mikro & Nanotechnologien MacroNano, ETH, Swiss Federal Institute of Technology Zurich, Inst Biomed Engrn, Lab Biosensors & Bioelect

Authors: Bartsch, H., Himmerlich, M., Fischer, M., Demko, L., Hyttinen, J., Schober, A.

Number of pages: 10

Pages: 315-324

Publication date: Dec 2015

Peer-reviewed: Yes

Publication information

Journal: Journal of Ceramic Science and Technology

Volume: 6

Issue number: 4

ISSN (Print): 2190-9385

Ratings:

Scopus rating (2016): SJR 0.378 SNIP 0.715 CiteScore 1.13

Scopus rating (2015): SJR 0.243 SNIP 0.441 CiteScore 0.53

Scopus rating (2014): SJR 0.212 SNIP 0.516 CiteScore 0.62

Scopus rating (2013): SJR 0.282 SNIP 0.686 CiteScore 0.5

Scopus rating (2012): SJR 0.507 SNIP 1.354 CiteScore 0.98

Scopus rating (2011): SJR 0.157 SNIP 0.423

Original language: English

Keywords: Low-temperature cofired ceramics (LTCC), three-dimensional hybrid multi-electrode array (3D MEA), in vitro cell culture, thick-film gold electrode, primary neuron culture, GROWTH

DOIs:

10.4416/JCST2015-00056

Source: WOS

Source-ID: 000367422100010

Research output: Scientific - peer-review › Article

Human-based approaches to pharmacology and cardiology: An interdisciplinary and intersectorial workshop

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Research group: Computational Biophysics and Imaging Group, Department of Electronics and Communications Engineering, BioMediTech

Authors: Rodriguez, B., Carusi, A., Abi-Gerges, N., Ariga, R., Britton, O., Bub, G., Bueno-Orovio, A., Burton, R., Carapella, V., Cardone-Noott, L., Daniels, M., Davies, M., Dutta, S., Ghetti, A., Grau, V., Harmer, S., Kopljär, I., Lambiase, P., Lu, H. R., Lyon, A., Mincholé, A., Muszkiewicz, A., Oster, J., Paci, M., Passini, E., Severi, S., Taggart, P., Tinker, A., Valentin, J., Varro, A., Zhou, X., Wallman, M.

Publication date: 29 Nov 2015

Peer-reviewed: Yes

Publication information

Journal: Europace

ISSN (Print): 1099-5129

Ratings:

Scopus rating (2016): SJR 2.363 SNIP 1.57 CiteScore 2.78

Scopus rating (2015): SJR 2.336 SNIP 1.602 CiteScore 2.93

Scopus rating (2014): SJR 2.235 SNIP 1.609 CiteScore 2.8

Scopus rating (2013): SJR 1.913 SNIP 1.386 CiteScore 2.7

Scopus rating (2012): SJR 1.525 SNIP 1.16 CiteScore 2.3

Scopus rating (2011): SJR 1.287 SNIP 1.082 CiteScore 1.88

Scopus rating (2010): SJR 1.061 SNIP 1.016

Scopus rating (2009): SJR 0.98 SNIP 1.133

Scopus rating (2008): SJR 0.775 SNIP 0.972

Scopus rating (2007): SJR 0.967 SNIP 1.056

Scopus rating (2006): SJR 0.977 SNIP 1.047

Scopus rating (2005): SJR 0.567 SNIP 0.948

Scopus rating (2004): SJR 0.629 SNIP 0.721

Scopus rating (2003): SJR 0.506 SNIP 0.641

Scopus rating (2002): SJR 0.458 SNIP 0.415

Scopus rating (2001): SJR 0.327 SNIP 0.338

Scopus rating (2000): SJR 0.336 SNIP 0.33

Original language: English

DOIs:

10.1093/europace/euv320

Research output: Scientific - peer-review › Article

Effects of Intracellular and Partitioning Asymmetries in Escherichia coli

Cell divisions in Escherichia coli are, in general, morphologically symmetric. However, in a few cases, significant asymmetries between sister cells exist. These asymmetries between sister cells result in functional differences between them. For example, cells inheriting the older pole, over generations, accumulate more unwanted protein aggregates than their sister and, consequently, have a reduced growth rate. The reduced ability of these cells to reproduce shows that even these unicellular organisms are susceptible to the effects of aging. To understand senescence in these organisms, it is critical to investigate the sources as well as the functional consequences of asymmetries in division.

In this thesis, we characterize mechanisms responsible for functional and morphological asymmetries in division in E. coli cells, using live, single-cell, single-molecule imaging techniques and detailed stochastic models. First, to understand the functional asymmetries due to the heterogeneous spatial distribution of large, inert protein complexes, we study the kinetics of segregation and retention of such complexes by observing these events, one event at a time. For that, we track individual MS2-GFP tagged RNA complexes, as they move in the cell cytoplasm, and characterize the mechanisms responsible for their long-term spatial distribution and resulting partitioning. Next, to understand the morphological asymmetries, we study the difference in cell sizes between sister cells at division under different environmental conditions. Finally, we present the models and simulators developed to characterize and mimic these processes, as well as to explore their functional consequences.

Our results suggest that functional and morphological asymmetries in division, in the growth conditions studied, appear to be mostly driven by the nucleoid. In particular, we find that the fluorescent complexes are retained at the poles due to nucleoid occlusion. Further, the positioning of the point of division is also regulated by the degree of proximity between the two replicated nucleoids in the cell at the moment preceding division. Finally, based on simulation results of the models in extreme conditions, we suggest that asymmetries in these processes in division can enhance the mean vitality of E. coli cell populations. Overall, the results suggest that nucleoid occlusion contributes, in different ways, to heterogeneities in E. coli cells that ultimately generate phenotypic differences between sister cells.

General information

State: Published

Ministry of Education publication type: G5 Doctoral dissertation (article)

Organisations: Department of Signal Processing, Research group: Laboratory of Biosystem Dynamics-LBD

Authors: Gupta, A.

Number of pages: 62

Publication date: 27 Nov 2015

Publication information

Publisher: Tampere University of Technology

ISBN (Print): 978-952-15-3601-4

ISBN (Electronic): 978-952-15-3657-1

Original language: English

Publication series

Name: Tampere University of Technology. Publication

Publisher: Tampere University of Technology

Volume: 1335

ISSN (Print): 1459-2045

Electronic versions:

gupta_1335

Links:

<http://URN.fi/URN:ISBN:978-952-15-3657-1>

Bibliographical note

Awarding institution: Tampere University of Technology

Research output: Collection of articles > Doctoral Thesis

Polypyrrole coating on poly-(lactide/glycolide)- β -tricalcium phosphate screws enhances new bone formation in rabbits

Polypyrrole (PPy) has gained interest as an implant material due to its multifunctional properties and its high compatibility with several cell and tissue types. For the first time, the biocompatibility and osteointegration of PPy coating, incorporated with chondroitin sulfate (CS), were studied in vivo by implanting PPy-coated bioabsorbable bone fixation composite screws of poly-(lactide/glycolide) copolymer (PLGA) and β -tricalcium phosphate (TCP) into New Zealand white rabbits. Uncoated bioabsorbable polymer composite screws and commercially available stainless steel cortical screws were used as reference implants. The rabbits were euthanized 12 and 26 weeks after the implantation. The systemic effects were evaluated from food and water consumption, body weight, body temperature, clinical signs, blood samples, internal organ weights, and histological examination. Local effects were studied from bone tissue and surrounding soft tissue histology. New bone formation was evaluated by micro-computed tomography, tetracycline labeling and torsion tests. Torsion tests

were performed in order to capture the peak value of the torsion force during the course of the screw's loosening. The coated screws induced significantly more bone formation than the uncoated screws. In addition, none of the implants induced any systemic or local toxicity. The results suggest that PPy is biocompatible with bone tissue and is a potential coating for enhancing osteointegration in orthopedic implants.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Computational Biophysics and Imaging Group, Research group: Biomaterials and Tissue Engineering Group, BioMediTech, Integrated Technologies for Tissue Engineering Research (ITTE), Fudan University, University of Wollongong, VTT Technical Research Centre of Finland, Tampere University Hospital, University of Oulu, Univ Helsinki, Helsinki University Central Hospital, University of Helsinki, Cent Hosp, Dept Med, Div Nephrol, University of Twente

Authors: Zhao, M. D., Björninen, M., Cao, L., Wang, H. R., Pelto, J., Li, X. Q., Hyttinen, J., Jiang, Y. Q., Kellomäki, M., Miettinen, S., Sándor, G. K., Seppänen, R., Haimi, S., Dong, J.

Publication date: 27 Nov 2015

Peer-reviewed: Yes

Publication information

Journal: Biomedical Materials

Volume: 10

Issue number: 6

Article number: 065016

ISSN (Print): 1748-6041

Ratings:

Scopus rating (2016): CiteScore 2.29

Scopus rating (2015): SJR 0.936 SNIP 0.877 CiteScore 3

Scopus rating (2014): SJR 0.935 SNIP 1.025 CiteScore 3.1

Scopus rating (2013): SJR 0.741 SNIP 0.75 CiteScore 2.24

Scopus rating (2012): SJR 0.652 SNIP 0.742 CiteScore 1.95

Scopus rating (2011): SJR 0.578 SNIP 0.828 CiteScore 2.28

Scopus rating (2010): SJR 0.383 SNIP 0.776

Scopus rating (2009): SJR 0.279 SNIP 0.782

Scopus rating (2008): SJR 0.178 SNIP 0.581

Scopus rating (2007): SJR 0.145 SNIP 0.376

Scopus rating (2006): SJR 0.101

Scopus rating (2005): SJR 0.101

Scopus rating (2004): SJR 0.101

Scopus rating (2003): SJR 0.101 SNIP 0

Scopus rating (2002): SJR 0.101 SNIP 0

Scopus rating (2001): SJR 0.101 SNIP 0

Scopus rating (2000): SJR 0.101

Scopus rating (1999): SJR 0.105

Original language: English

ASJC Scopus subject areas: Bioengineering, Biomaterials, Biomedical Engineering

Keywords: absorbable screw, biocompatibility, in vivo, osteointegration, polypyrrole (PPy)

DOIs:

10.1088/1748-6041/10/6/065016

Bibliographical note

EXT="Pelto, Jani"

Source: Scopus

Source-ID: 84950121168

Research output: Scientific - peer-review > Article

Signatures of chaotic and stochastic dynamics uncovered with epsilon-recurrence networks

An old and important problem in the field of nonlinear time-series analysis entails the distinction between chaotic and stochastic dynamics. Recently, ϵ -recurrence networks have been proposed as a tool to analyse the structural properties of a time series. In this paper, we propose the applicability of local and global ϵ -recurrence network measures to distinguish between chaotic and stochastic dynamics using paradigmatic model systems such as the Lorenz system, and the chaotic and hyper-chaotic Rossler system. We also demonstrate the effect of increasing levels of noise on these network measures and provide a real-world application of analysing electroencephalographic data comprising epileptic seizures.

Our results show that both local and global e-recurrence network measures are sensitive to the presence of unstable periodic orbits and other structural features associated with chaotic dynamics that are otherwise absent in stochastic dynamics. These network measures are still robust at high noise levels and short data lengths. Furthermore, e-recurrence network analysis of the real-world epileptic data revealed the capability of these network measures in capturing dynamical transitions using short window sizes. e-recurrence network analysis is a powerful method in uncovering the signatures of chaotic and stochastic dynamics based on the geometrical properties of time series.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Computational Biophysics and Imaging Group, BioMediTech, Integrated Technologies for Tissue Engineering Research (ITTE), Stockholm Univ, Stockholm University, Planetary Boundary Res Lab, BioMediTech

Authors: Subramaniam, N., Donges, J. F., Hyttinen, J.

Publication date: 8 Nov 2015

Peer-reviewed: Yes

Publication information

Journal: Proceedings of the Royal Society A: Mathematical Physical and Engineering Sciences

Volume: 471

Issue number: 2183

Article number: 20150349

ISSN (Print): 1364-5021

Ratings:

Scopus rating (2016): SJR 0.754 SNIP 1.081 CiteScore 1.85

Scopus rating (2015): SJR 0.866 SNIP 1.279 CiteScore 2.07

Scopus rating (2014): SJR 0.949 SNIP 1.437 CiteScore 2.15

Scopus rating (2013): SJR 1.003 SNIP 1.589 CiteScore 2.35

Scopus rating (2012): SJR 0.969 SNIP 1.521 CiteScore 2.08

Scopus rating (2011): SJR 0.867 SNIP 1.464 CiteScore 1.88

Scopus rating (2010): SJR 0.938 SNIP 1.507

Scopus rating (2009): SJR 1.001 SNIP 1.571

Scopus rating (2008): SJR 1.071 SNIP 1.415

Scopus rating (2007): SJR 1.139 SNIP 1.532

Scopus rating (2006): SJR 1.041 SNIP 1.456

Scopus rating (2005): SJR 1.14 SNIP 1.419

Scopus rating (2004): SJR 1.068 SNIP 1.339

Scopus rating (2003): SJR 1.146 SNIP 1.438

Scopus rating (2002): SJR 1.119 SNIP 1.414

Scopus rating (2001): SJR 1.126 SNIP 1.329

Scopus rating (2000): SJR 0.881 SNIP 1.399

Scopus rating (1999): SJR 0.91 SNIP 1.28

Original language: English

Keywords: time-series analysis, complex networks, chaotic dynamics, stochastic dynamics, TIME-SERIES ANALYSIS, COMPLEX NETWORK, SYSTEMS, NOISE, INFORMATION, TRANSITIONS, CENTRALITY, NONLINEARITY, DETERMINISM, QUANTIFIERS

DOIs:

10.1098/rspa.2015.0349

Source: WOS

Source-ID: 000363982600007

Research output: Scientific - peer-review > Article

Towards washable electro-textile UHF RFID tags: reliability study of epoxy-coated copper fabric antennas

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Wireless Identification and Sensing Systems Research Group, Sensing Systems for Wireless Medicine (MediSense), City University of Hong Kong

Authors: Wang, S., Chong, N. L., Virkki, J., Björninen, T., Sydänheimo, L., Ukkonen, L.

Publication date: 8 Nov 2015

Peer-reviewed: Yes

Publication information

Journal: International Journal of Antennas and Propagation

Article number: 424150

ISSN (Print): 1687-5869

Ratings:

Scopus rating (2016): CiteScore 0.94 SJR 0.276 SNIP 0.576

Scopus rating (2015): SJR 0.35 SNIP 0.753 CiteScore 0.97

Scopus rating (2014): SJR 0.36 SNIP 0.695 CiteScore 0.94

Scopus rating (2013): SJR 0.337 SNIP 0.677 CiteScore 1.04

Scopus rating (2012): SJR 0.256 SNIP 0.546 CiteScore 0.85

Scopus rating (2011): SJR 0.133 SNIP 0.14 CiteScore 0.79

Original language: English

DOIs:

10.1155/2015/424150

Links:

<http://www.hindawi.com/journals/ijap/2015/424150/> (This article is openly available in the publisher's website.)

Research output: Scientific - peer-review > Article

Biotelemetric wireless intracranial pressure monitoring: an in vitro study

Assessment of intracranial pressure (ICP) is of great importance in management of traumatic brain injuries (TBIs). The existing clinically established ICP measurement methods require catheter insertion in the cranial cavity. This increases the risk of infection and hemorrhage. Thus, noninvasive but accurate techniques are attractive. In this paper, we present two wireless, battery-less and minimally invasive implantable sensors for continuous ICP monitoring. The implants comprise ultra-thin (50 μm) flexible spiral coils connected in parallel to a capacitive microelectromechanical systems (MEMS) pressure sensor. The implantable sensors are inductively coupled to an external on-body reader antenna. The ICP variation can be detected wirelessly through measuring the reader antenna's input impedance. This paper also proposes a novel implant placement to improve the efficiency of the inductive link. In this study, the performance of the proposed telemetry system was evaluated in a hydrostatic pressure measurement setup. The impact of the human tissues on the inductive link was simulated using a 5-mm layer of pig skin. The results from the in vitro measurement proved the capability of our developed sensors to detect ICP variations ranging from 0 to 70 mmHg at 2.5-mmHg intervals.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Wireless Identification and Sensing Systems Research Group, Sensing Systems for Wireless Medicine (MediSense)

Authors: Behfar, M., Björninen, T., Moradi, E., Sydänheimo, L., Ukkonen, L.

Number of pages: 10

Publication date: 5 Nov 2015

Peer-reviewed: Yes

Publication information

Journal: International Journal of Antennas and Propagation

Article number: 918698

ISSN (Print): 1687-5869

Ratings:

Scopus rating (2016): CiteScore 0.94 SJR 0.276 SNIP 0.576

Scopus rating (2015): SJR 0.35 SNIP 0.753 CiteScore 0.97

Scopus rating (2014): SJR 0.36 SNIP 0.695 CiteScore 0.94

Scopus rating (2013): SJR 0.337 SNIP 0.677 CiteScore 1.04

Scopus rating (2012): SJR 0.256 SNIP 0.546 CiteScore 0.85

Scopus rating (2011): SJR 0.133 SNIP 0.14 CiteScore 0.79

Original language: English

DOIs:

10.1155/2015/918698

Research output: Scientific - peer-review > Article

Comparison Study for Whitney (Raviart-Thomas) Type Source Models in Finite Element Method Based EEG Forward Modeling

This study concentrates on finite element method (FEM) based electroencephalography (EEG) forward simulation in which the electric potential evoked by neural activity in the brain is to be calculated at the surface of the head. The main advantage of the FEM is that it allows realistic modeling of tissue conductivity inhomogeneity. However, it is not straightforward to apply the classical model of a dipolar source with the FEM, due to its strong singularity and the resulting irregularity. The focus of this study is on comparing different methods to cope with this problem. In particular, we evaluate the accuracy of Whitney (Raviart-Thomas) type dipole-like source currents compared to two reference dipole modeling methods: the St. Venant and partial integration approach. Common to all these methods is that they enable direct approximation of the potential field utilizing linear basis functions. In the present context, Whitney elements are particularly interesting, as they provide a simple means to model a divergence-conforming primary current vector field satisfying the square integrability condition. Our results show that a Whitney type source model can provide simulation accuracy comparable to the present reference methods. It can lead to superior accuracy under optimized conditions with respect to both source location and orientation in a tetrahedral mesh. For random source orientations, the St. Venant approach turns out to be the method of choice over the interpolated version of the Whitney model. The overall moderate differences obtained suggest that practical aspects, such as the focality, should be prioritized when choosing a source model.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Mathematics, Mathematical modelling with wide societal impact (MathImpact)

Authors: Pursiainen, S., Bauer, M., Vorwerk, J., Köstler, H., Wolters, C. H.

Number of pages: 9

Pages: 2648-2656

Publication date: Nov 2015

Peer-reviewed: Yes

Publication information

Journal: IEEE Transactions on Biomedical Engineering

Volume: 62

Issue number: 11

ISSN (Print): 0018-9294

Ratings:

Scopus rating (2016): SJR 1.214 SNIP 1.995 CiteScore 4.2

Scopus rating (2015): SJR 1.132 SNIP 2.083 CiteScore 3.74

Scopus rating (2014): SJR 0.84 SNIP 1.973 CiteScore 3.34

Scopus rating (2013): SJR 1.081 SNIP 2.073 CiteScore 3.53

Scopus rating (2012): SJR 0.816 SNIP 1.706 CiteScore 3

Scopus rating (2011): SJR 0.7 SNIP 1.715 CiteScore 3.04

Scopus rating (2010): SJR 0.686 SNIP 1.637

Scopus rating (2009): SJR 0.81 SNIP 1.94

Scopus rating (2008): SJR 0.826 SNIP 1.719

Scopus rating (2007): SJR 1.144 SNIP 2.187

Scopus rating (2006): SJR 1.317 SNIP 2.426

Scopus rating (2005): SJR 1.023 SNIP 2.252

Scopus rating (2004): SJR 0.73 SNIP 1.689

Scopus rating (2003): SJR 0.849 SNIP 1.367

Scopus rating (2002): SJR 0.888 SNIP 1.428

Scopus rating (2001): SJR 0.767 SNIP 1.578

Scopus rating (2000): SJR 0.942 SNIP 1.505

Scopus rating (1999): SJR 0.613 SNIP 2.187

Original language: English

DOIs:

10.1109/TBME.2015.2439282

A survey of printable piezoelectric sensors

Availability of solution-processable piezoelectric sensor and electrode materials enable low-cost and high-throughput fabrication of fully printable piezoelectric sensors. Results obtained with piezoelectric polymer (polyvinylidene fluoride, PVDF), cellulose nanofibril (CNF) and cellulose nanocrystal (CNC) films as sensor materials are presented here. These sensor materials can be processed in solution and used in combination with printed electrodes to obtain full printability of the sensors. A commercial PVDF film and in-house fabricated CNF and CNC film are used as sensor materials. In addition, conducting polymer, graphene and carbon nanotube (CNT) based inks are used as solution-processable electrode materials in the sensors, whereas conventional metallic electrodes are used as reference electrode material. The sensor operation of the fabricated sensors is evaluated through piezoelectric sensitivity measurements. The sensor sensitivity measurements revealed mean sensitivities from 2 pC/N to 42 pC/N in transverse direction, depending on set of the sensor and electrode materials used.

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Automation Science and Engineering, Research area: Microsystems, Research area: Measurement Technology and Process Control, Augmented Human Activities (AHA), Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Tuukkanen, S., Rajala, S.

Number of pages: 4

Pages: 1426-1429

Publication date: 27 Oct 2015

Host publication information

Title of host publication: IEEE Sensors 2015 Conference Proceedings

Publisher: IEEE

ISBN (Electronic): 978-1-4799-8202-8

Electronic versions:

Tuukkanen_IEEE_Sensors_2015_

DOIs:

10.1109/ICSENS.2015.7370542

Links:

<http://urn.fi/URN:NBN:fi:tty-201603183701>

Bibliographical note

Versio ja lupa kunnossa 14.1.2016 KK

Research output: Scientific - peer-review › Conference contribution

Changes in global gene expression of *Vibrio parahaemolyticus* induced by cold- and heat-stress

Background: *Vibrio* (*V.*) *parahaemolyticus* causes seafood-borne gastro-intestinal bacterial infections in humans worldwide. It is widely found in marine environments and is isolated frequently from seawater, estuarine waters, sediments and raw or insufficiently cooked seafood. Throughout the food chain, *V. parahaemolyticus* encounters different temperature conditions that might alter metabolism and pathogenicity of the bacterium. In this study, we performed gene expression profiling of *V. parahaemolyticus* RIMD 2210633 after exposure to 4, 15, 20, 37 and 42°C to describe the cold and heat shock response. Methods: Gene expression profiles of *V. parahaemolyticus* RIMD 2210633 after exposure to 4, 15, 20, 37 and 42°C were investigated via microarray. Gene expression values and RT-qPCR experiments were compared by plotting the log₂ values. Moreover, volcano plots of microarray data were calculated to visualize the distribution of differentially expressed genes at individual temperatures and to assess hybridization qualities and comparability of data. Finally, enriched terms were searched in annotations as well as functional-related gene categories using the Database for Annotation, Visualization and Integrated Discovery. Results: Analysis of 37°C normalised transcriptomics data resulted in differential expression of 19 genes at 20°C, 193 genes at 4°C, 625 genes at 42°C and 638 genes at 15°C. Thus, the largest number of significantly expressed genes was observed at 15 and 42°C with 13.3 and 13 %, respectively. Genes of many functional categories were highly regulated even at lower temperatures. Virulence associated genes (*tdh1*, *tdh2*, *toxR*, *toxS*, *vopC*, *T6SS-1*, *T6SS-2*) remained mostly unaffected by heat or cold stress. Conclusion: Along with folding and temperature shock depending systems, an overall temperature-dependent regulation of expression could be shown. Particularly the energy metabolism was affected by changed temperatures. Whole-genome gene expression studies of food related pathogens such as *V. parahaemolyticus* reveal how these pathogens react to stress impacts to predict its behaviour under conditions like storage and transport.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Chemistry and Bioengineering, Department of Signal Processing, Freie Universität Berlin, University of Tampere
Authors: Urmersbach, S., Aho, T., Alter, T., Hassan, S. S., Autio, R., Huehn, S.
Publication date: 23 Oct 2015
Peer-reviewed: Yes

Publication information

Journal: BMC Microbiology
Volume: 15
Issue number: 1
Article number: 229
ISSN (Print): 1471-2180
Ratings:

Scopus rating (2016): SJR 1.23 SNIP 0.992 CiteScore 2.82
Scopus rating (2015): SJR 1.401 SNIP 0.998 CiteScore 2.93
Scopus rating (2014): SJR 1.472 SNIP 1.039 CiteScore 2.95
Scopus rating (2013): SJR 1.527 SNIP 1.143 CiteScore 3.32
Scopus rating (2012): SJR 1.454 SNIP 1.12 CiteScore 3.38
Scopus rating (2011): SJR 1.472 SNIP 1.116 CiteScore 3.4
Scopus rating (2010): SJR 1.405 SNIP 1.03
Scopus rating (2009): SJR 1.438 SNIP 0.964
Scopus rating (2008): SJR 1.432 SNIP 0.99
Scopus rating (2007): SJR 1.354 SNIP 0.949
Scopus rating (2006): SJR 1.261 SNIP 0.827
Scopus rating (2005): SJR 0.734 SNIP 0.548
Scopus rating (2004): SJR 0.668 SNIP 0.544
Scopus rating (2003): SJR 0.661 SNIP 0.535
Scopus rating (2002): SJR 0.69 SNIP 0.511

Original language: English

Keywords: Gene expression, Thermal shock, Vibrio parahaemolyticus

ASJC Scopus subject areas: Microbiology, Microbiology (medical)

DOIs:

10.1186/s12866-015-0565-7

Links:

<http://www.scopus.com/inward/record.url?scp=84944883751&partnerID=8YFLogxK> (Link to publication in Scopus)

Bibliographical note

ORG=keb,0.5

ORG=sgn,0.5

Source: Scopus

Source-ID: 84944883751

Research output: Scientific - peer-review > Article

Exercise apps cure the sitting disease

A sedentary lifestyle is the bane of our modern society and affects both body and mind. But help may be closer than you think – in your pocket. Can a mobile application get us up from our office chairs and start exercising?

General information

State: Published

Ministry of Education publication type: E1 Popularised article, newspaper article

Organisations: Department of Pervasive Computing, Research area: User experience

Authors: Ahtinen, A.

Publication date: 21 Oct 2015

Peer-reviewed: Unknown

Publication information

Journal: Interface: Science Magazine

Issue number: 2

Original language: English

Research output: General public > Comment/debate

Adipose Tissue Dysfunction and Altered Systemic Amino Acid Metabolism Are Associated with Non-Alcoholic Fatty Liver Disease

Background

Fatty liver is a major cause of obesity-related morbidity and mortality. The aim of this study was to identify early metabolic alterations associated with liver fat accumulation in 50- to 55-year-old men (n = 49) and women (n = 52) with and without NAFLD.

Methods

Hepatic fat content was measured using proton magnetic resonance spectroscopy (H-1 MRS). Serum samples were analyzed using a nuclear magnetic resonance (NMR) metabolomics platform. Global gene expression profiles of adipose tissues and skeletal muscle were analyzed using Affymetrix microarrays and quantitative PCR. Muscle protein expression was analyzed by Western blot.

Results

Increased branched-chain amino acid (BCAA), aromatic amino acid (AAA) and orosomucoid were associated with liver fat accumulation already in its early stage, independent of sex, obesity or insulin resistance (p

Conclusions

Liver fat accumulation, already in its early stage, is associated with increased serum branched-chain and aromatic amino acids. The observed associations of decreased BCAA catabolism activity, mitochondrial energy metabolism and serum BCAA concentration with liver fat content suggest that adipose tissue dysfunction may have a key role in the systemic nature of NAFLD pathogenesis.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Univ Jyväskylä, University of Jyväskylä, Dept Hlth Sci, Univ Tampere, University of Tampere, Sch Hlth Sci, Turku Univ Hosp, University of Turku, Univ Eastern Finland, University of Eastern Finland, Dept Appl Phys, Ningbo Univ, Ningbo University, Sch Med, Oulu Univ Hosp, Dept Rehabil Med

Authors: Cheng, S., Wiklund, P., Autio, R., Borra, R., Ojanen, X., Xu, L., Törmäkangas, T., Alen, M.

Number of pages: 17

Publication date: 6 Oct 2015

Peer-reviewed: Yes

Publication information

Journal: PLoS One

Volume: 10

Issue number: 10

Article number: 0138889

ISSN (Print): 1932-6203

Ratings:

Scopus rating (2016): CiteScore 3.11 SJR 1.201 SNIP 1.092

Scopus rating (2015): SJR 1.414 SNIP 1.131 CiteScore 3.32

Scopus rating (2014): SJR 1.545 SNIP 1.141 CiteScore 3.54

Scopus rating (2013): SJR 1.74 SNIP 1.147 CiteScore 3.94

Scopus rating (2012): SJR 1.945 SNIP 1.142 CiteScore 4.15

Scopus rating (2011): SJR 2.369 SNIP 1.23 CiteScore 4.58

Scopus rating (2010): SJR 2.631 SNIP 1.161

Scopus rating (2009): SJR 2.473 SNIP 0.985

Scopus rating (2008): SJR 2.323 SNIP 0.96

Scopus rating (2007): SJR 1.289 SNIP 0.525

Original language: English

Keywords: MUSCLE INSULIN-RESISTANCE, HEPATIC STEATOSIS, SKELETAL-MUSCLE, MAGNETIC-RESONANCE, BODY-COMPOSITION, OBESITY, WOMEN, GIRLS, INFLAMMATION, PATHOGENESIS

DOIs:

10.1371/journal.pone.0138889

Source: WOS

Source-ID: 000362510300007

Research output: Scientific - peer-review › Article

Mobile Applications to Support Physical Exercise - Motivational Factors and Design Strategies

The growing incidence of health problems attributed to contemporary lifestyles, and the limited resources of healthcare, has led several stakeholders to look for alternative preventive healthcare methods. Physical exercise has many good effects for health, but people often lack motivation towards it. Smartphone applications can act as motivational tools, as they are accessible, mobile, and have suitable technological abilities. During past 10 years, a large number of mobile

exercise applications have been launched and, increasingly, wellness technologies have been researched in the field of human-computer interaction (HCI). However, the field lacks a comprehensive overview of the design strategies related to motivational exercise applications. Additionally, research in the field has mostly been conducted in western cultures, and perspectives from the developing world are missing.

This thesis explores the design space of mobile applications that aim to motivate the users to engage in physical exercise. The main foci of the research were to identify the motivational factors towards the use of mobile exercise applications and to formulate a comprehensive overview of design strategies for motivational, mobile exercise applications. The results were gained from a constructive design research process that included user studies, concepting and evaluation of motivational exercise applications, a cross study analysis of motivational factors, and formulating design strategies. The user studies were conducted in Finland and India with working-age participants.

Based on a rich set of empirical studies, this research produces insights for a wide set of motivational factors towards the use of mobile exercise applications. It points out differences in motivational factors between Finnish and Indian participants. For example, the use of surprising elements and certain playful elements as sources of motivation appealed to Indian participants more than Finns, who, in general, had a more pragmatic perspective towards the exercise applications. Finns were motivated by viewing their goals and progress by numbers and graphs, while Indians did not adopt the numerical approaches. The second outcome of the research is a comprehensive, structured and focused model of design strategies for motivational, mobile exercise applications. The model includes 34 design strategies divided into six dimensions. Nine of the strategies are India specific. The design strategies can be utilised in the design work of future exercise applications.

General information

State: Published

Ministry of Education publication type: G5 Doctoral dissertation (article)

Organisations: Department of Pervasive Computing, Research area: User experience

Authors: Ahtinen, A.

Number of pages: 138

Publication date: 2 Oct 2015

Publication information

Publisher: Tampere University of Technology

ISBN (Print): 978-952-15-3562-8

ISBN (Electronic): 978-952-15-3593-2

Original language: English

Publication series

Name: Tampere University of Technology. Publication

Publisher: Tampere University of Technology

Volume: 1318

ISSN (Print): 1459-2045

Electronic versions:

ahtinen_1318

Links:

<http://URN.fi/URN:ISBN:978-952-15-3593-2>

Bibliographical note

Awarding institution: Tampere University of Technology

Versio OK 14.12.2015

Research output: Collection of articles > Doctoral Thesis

750 nm 1.5 W frequency-doubled semiconductor disk laser with a 44 nm tuning range

We demonstrate 1.5 W of output power at the wavelength of 750 nm by intracavity frequency doubling a wafer-fused semiconductor disk laser diode-pumped at 980 nm. An optical-to-optical efficiency of 8.3% was achieved using a bismuth borate crystal. The wavelength of the doubled emission could be tuned from 720 to 764 nm with an intracavity birefringent plate. The beam quality parameter M² of the laser output was measured to be below 1.5 at all pump powers. The laser is a promising tool for biomedical applications that can take advantage of the large penetration depth of light in tissue in the 700–800 nm spectral range.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Optoelectronics Research Centre, Research group: Ultrafast and intense lasers, Research group: Semiconductor Technology and Applications, Frontier Photonics

Authors: Saarinen, E., Lyytikäinen, J., Ranta, S., Rantamäki, A., Sirbu, A., Iakovlev, V., Kapon, E., Okhotnikov, O.

Number of pages: 4

Pages: 4380-4383

Publication date: 1 Oct 2015

Peer-reviewed: Yes

Publication information

Journal: Optics Letters

Volume: 40

Issue number: 19

ISSN (Print): 0146-9592

Ratings:

Scopus rating (2016): SJR 1.864 SNIP 1.658 CiteScore 3.54

Scopus rating (2015): SJR 2.142 SNIP 1.642 CiteScore 3.53

Scopus rating (2014): SJR 2.497 SNIP 2.056 CiteScore 3.86

Scopus rating (2013): SJR 2.458 SNIP 2.095 CiteScore 3.95

Scopus rating (2012): SJR 2.596 SNIP 1.95 CiteScore 3.52

Scopus rating (2011): SJR 2.518 SNIP 2.475 CiteScore 3.69

Scopus rating (2010): SJR 2.669 SNIP 2.293

Scopus rating (2009): SJR 3.167 SNIP 2.665

Scopus rating (2008): SJR 3.408 SNIP 2.378

Scopus rating (2007): SJR 3.489 SNIP 2.102

Scopus rating (2006): SJR 3.143 SNIP 2.334

Scopus rating (2005): SJR 3.251 SNIP 2.483

Scopus rating (2004): SJR 3.521 SNIP 2.718

Scopus rating (2003): SJR 3.708 SNIP 2.573

Scopus rating (2002): SJR 3.702 SNIP 2.39

Scopus rating (2001): SJR 3.62 SNIP 2.244

Scopus rating (2000): SJR 3.416 SNIP 1.705

Scopus rating (1999): SJR 4.044 SNIP 1.699

Original language: English

DOIs:

10.1364/OL.40.004380

Research output: Scientific - peer-review › Article

Erbium-doped borosilicate glasses containing various amounts of P2O5 and Al2O3: Influence of the silica content on the structure and thermal, physical, optical and luminescence properties

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Research group: Biomaterials and Tissue Engineering Group, Department of Electronics and Communications Engineering, BioMediTech, Frontier Photonics, Integrated Technologies for Tissue Engineering Research (ITTE), Politecnico di Torino, DISAT, Istituto di Ingegneria e Fisica dei Materiali, Corso Duca degli Abruzzi 24, I-10129 Torino, Italy, BioMediTech, Åbo Akademi University, Process Chemistry Centre, nLIGHT Corporation, Sorronrinne 9, FI-08500 Lohja, Finland, CNRS, Université de Bordeaux, ISM, 351 Cours de la Libération, F-33405 Talence, France, CNRS, Université de Bordeaux, ICMCB, 87 Avenue du Dr Schweitzer, F-33608 Pessac, France

Authors: Bourhis, K., Massera, J., Petit, L., Koponen, J., Fargues, A., Cardinal, T., Hupa, L., Hupa, M., Dussauze, M., Rodriguez, V., Ferraris, M.

Number of pages: 8

Pages: 47-54

Publication date: 1 Oct 2015

Peer-reviewed: Yes

Publication information

Journal: Materials Research Bulletin

Volume: 70

ISSN (Print): 0025-5408

Ratings:

Scopus rating (2016): SJR 0.71 SNIP 0.855 CiteScore 2.39

Scopus rating (2015): SJR 0.733 SNIP 0.976 CiteScore 2.42

Scopus rating (2014): SJR 0.774 SNIP 1.051 CiteScore 2.47

Scopus rating (2013): SJR 0.712 SNIP 0.993 CiteScore 2.11

Scopus rating (2012): SJR 0.825 SNIP 1.163 CiteScore 2.14

Scopus rating (2011): SJR 0.882 SNIP 1.228 CiteScore 2.26

Scopus rating (2010): SJR 0.979 SNIP 1.17

Scopus rating (2009): SJR 0.922 SNIP 1.225

Scopus rating (2008): SJR 0.843 SNIP 1.207

Scopus rating (2007): SJR 0.866 SNIP 1.19

Scopus rating (2006): SJR 0.811 SNIP 1.153

Scopus rating (2005): SJR 0.609 SNIP 1.184

Scopus rating (2004): SJR 0.669 SNIP 1.296

Scopus rating (2003): SJR 0.745 SNIP 1.017

Scopus rating (2002): SJR 0.588 SNIP 0.788

Scopus rating (2001): SJR 0.496 SNIP 0.765

Scopus rating (2000): SJR 0.498 SNIP 0.87

Scopus rating (1999): SJR 0.552 SNIP 0.879

Original language: English

ASJC Scopus subject areas: Materials Science(all), Condensed Matter Physics, Mechanical Engineering, Mechanics of Materials

Keywords: Glasses, Infrared spectroscopy, Luminescence, Luminescence and optical properties, Photoelectron spectroscopy

DOIs:

10.1016/j.materresbull.2015.04.017

Source: Scopus

Source-ID: 84927652209

Research output: Scientific - peer-review > Article

Noncontact Respiration Monitoring during Sleep with Microwave Doppler Radar

This paper demonstrates the measurement of respiration waveform during sleep with a noncontact radar sensor. Instead of measuring only the respiration rate, the methods that allow monitoring the absolute respiration displacement were studied. Absolute respiration displacement can in theory be measured with a quadrature microwave Doppler radar sensor and using the nonlinear demodulation as the channel combining method. However, in this paper, relative respiration displacement measures were used as a reference. This is the first time that longer data sets have been analyzed successfully with the nonlinear demodulation method. This paper consists of whole-night recordings of three patients in an uncontrolled environment. The reference respiration data were obtained from a full polysomnography recorded simultaneously. The feasibility of the nonlinear demodulation in a real-life setting has been unclear. However, this paper shows that it is successful most of the time. The coverage of successfully demodulated radar data was ~ 58 %-78%. The use of the nonlinear demodulation is not possible in the following cases: 1) if the chest wall displacement is too small compared with the wavelength of the radar; 2) if the radar data do not form an arc-like shape in the IQ\$ -plot; or 3) if there are large movement artifacts present in the data. Both in academic literature and in commercial radar devices, the data are processed based on the presumption that it forms either an arc or a line in the IQ -plot. Our measurements show that the presumption is not always valid.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Personal Electronics Group , Department of Automation Science and Engineering, Research area: Microsystems, Research area: Measurement Technology and Process Control, Augmented Human Activities (AHA), Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Zakrzewski, M., Vehkaoja, A., Joutsen, A. S., Palovuori, K. T., Vanhala, J. J.

Number of pages: 11

Pages: 5683-5693

Publication date: 1 Oct 2015

Peer-reviewed: Yes

Publication information

Journal: IEEE Sensors Journal

Volume: 15

Issue number: 10

ISSN (Print): 1530-437X

Ratings:

Scopus rating (2016): CiteScore 3.12 SJR 0.706 SNIP 1.689

Scopus rating (2015): SJR 0.684 SNIP 1.908 CiteScore 2.85

Scopus rating (2014): SJR 0.799 SNIP 1.934 CiteScore 2.5

Scopus rating (2013): SJR 0.666 SNIP 1.811 CiteScore 2.6

Scopus rating (2012): SJR 0.602 SNIP 1.445 CiteScore 2.09

Scopus rating (2011): SJR 0.572 SNIP 1.421 CiteScore 2.13

Scopus rating (2010): SJR 0.533 SNIP 1.077

Scopus rating (2009): SJR 0.631 SNIP 1.351

Scopus rating (2008): SJR 0.641 SNIP 1.371

Scopus rating (2007): SJR 0.785 SNIP 1.484

Scopus rating (2006): SJR 0.631 SNIP 1.627

Scopus rating (2005): SJR 0.596 SNIP 1.968

Scopus rating (2004): SJR 0.772 SNIP 1.934

Scopus rating (2003): SJR 0.622 SNIP 2.018

Scopus rating (2002): SJR 0.465 SNIP 2.1

Original language: English

ASJC Scopus subject areas: Electrical and Electronic Engineering, Instrumentation

Keywords: breathing patterns, Doppler radar, non-contact respiration measurement, radar measurements

DOIs:

10.1109/JSEN.2015.2446616

Links:

<http://www.scopus.com/inward/record.url?scp=84939488373&partnerID=8YFLogxK> (Link to publication in Scopus)

Bibliographical note

ORG=elt,0.75

ORG=ase,0.25

Source: Scopus

Source-ID: 84939488373

Research output: Scientific - peer-review › Article

Transcriptome sequencing reveals PCAT5 as a Novel ERG-Regulated long Noncoding RNA in prostate cancer

Castration-resistant prostate cancers (CRPC) that arise after the failure of androgen-blocking therapies cause most of the deaths from prostate cancer, intensifying the need to fully understand CRPC pathophysiology. In this study, we characterized the transcriptomic differences between untreated prostate cancer and locally recurrent CRPC. Here, we report the identification of 145 previously unannotated intergenic long noncoding RNA transcripts (lncRNA) or isoforms that are associated with prostate cancer or CRPC. Of the one third of these transcripts that were specific for CRPC, we defined a novel lncRNA termed PCAT5 as a regulatory target for the transcription factor ERG, which is activated in approximately 50% of human prostate cancer. Genome-wide expression analysis of a PCAT5-positive prostate cancer after PCAT5 silencing highlighted alterations in cell proliferation pathways. Strikingly, an in vitro validation of these alterations revealed a complex integrated phenotype affecting cell growth, migration, invasion, colony-forming potential, and apoptosis. Our findings reveal a key molecular determinant of differences between prostate cancer and CRPC at the level of the transcriptome. Furthermore, they establish PCAT5 as a novel oncogenic lncRNA in ERGpositive prostate cancers, with implications for defining CRPC biomarkers and new therapeutic interventions.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: BioMediTech, Department of Signal Processing, Research group: Computational Systems Biology, Tampere University of Technology, Prostate cancer research center (PCRC), University of Tampere, Tampere University Hospital, Department of Pathology, University of Texas, M. D. Anderson Cancer Center, Cancer Genomics Laboratory, Houston, TX, USA

Authors: Ylipää, A., Kivinummi, K., Kohvakka, A., Annala, M., Latonen, L., Scaravilli, M., Kartasalo, K., Leppänen, S. P., Karakurt, S., Seppälä, J., Yli-Harja, O., Tammela, T. L. J., Zhang, W., Visakorpi, T., Nykter, M.

Number of pages: 6

Pages: 4026-4031

Publication date: 1 Oct 2015

Peer-reviewed: Yes

Publication information

Journal: Cancer Research

Volume: 75

Issue number: 19

ISSN (Print): 0008-5472

Ratings:

Scopus rating (2016): SJR 4.753 SNIP 1.986 CiteScore 8.55

Scopus rating (2015): SJR 5.324 SNIP 2.017 CiteScore 8.57

Scopus rating (2014): SJR 5.655 SNIP 2.092 CiteScore 8.69

Scopus rating (2013): SJR 5.624 SNIP 2.098 CiteScore 8.75

Scopus rating (2012): SJR 5.028 SNIP 2.033 CiteScore 8.38

Scopus rating (2011): SJR 5.288 SNIP 1.838 CiteScore 7.88

Scopus rating (2010): SJR 5.345 SNIP 1.805

Scopus rating (2009): SJR 5.205 SNIP 1.795

Scopus rating (2008): SJR 5.175 SNIP 1.773

Scopus rating (2007): SJR 5.019 SNIP 1.76

Scopus rating (2006): SJR 4.457 SNIP 1.727

Scopus rating (2005): SJR 4.413 SNIP 1.8

Scopus rating (2004): SJR 4.185 SNIP 1.893

Scopus rating (2003): SJR 4.446 SNIP 1.963

Scopus rating (2002): SJR 4.388 SNIP 1.85

Scopus rating (2001): SJR 4.44 SNIP 2.015

Scopus rating (2000): SJR 4.458 SNIP 2.08

Scopus rating (1999): SJR 4.629 SNIP 2.22

Original language: English

ASJC Scopus subject areas: Cancer Research, Oncology

DOIs:

10.1158/0008-5472.CAN-15-0217

Source: Scopus

Source-ID: 84945395861

Research output: Scientific - peer-review > Article

Strontium- and calcium-containing, titanium-stabilised phosphate-based glasses with prolonged degradation for orthopaedic tissue engineering

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Biomaterials and Tissue Engineering Group, BioMediTech, Integrated Technologies for Tissue Engineering Research (ITTE), BioMediTech - Institute of Biosciences and Medical Technology, Adult Stem Cell Group, CREST - University College London, Division of Biomaterials and Tissue Engineering, UCL Eastman Dental Institute, Faculty of Mathematical and Physical Sciences, Department of Nanobiomedical Science, BK21 Plus NBM Global Research Center for Regenerative Medicine, Dankook University, Institute of Tissue Regeneration Engineering, College of Dentistry, Unit of Orthodontics, Department of Craniofacial Growth and Development

Authors: Al Qaysi, M., Walters, N. J., Foroutan, F., Owens, G. J., Kim, H. W., Shah, R., Knowles, J. C.

Number of pages: 11

Pages: 300-310

Publication date: 24 Sep 2015

Peer-reviewed: Yes

Publication information

Journal: Journal of Biomaterials Applications

Volume: 30

Issue number: 3

ISSN (Print): 0885-3282

Ratings:

Scopus rating (2016): SJR 0.554 SNIP 0.76 CiteScore 2.24
Scopus rating (2015): SJR 0.634 SNIP 0.755 CiteScore 2.15
Scopus rating (2014): SJR 0.659 SNIP 1.004 CiteScore 2.53
Scopus rating (2013): SJR 0.72 SNIP 1.026 CiteScore 2.35
Scopus rating (2012): SJR 0.792 SNIP 0.958 CiteScore 2.08
Scopus rating (2011): SJR 0.804 SNIP 1.089 CiteScore 2.16
Scopus rating (2010): SJR 0.921 SNIP 1.068
Scopus rating (2009): SJR 0.67 SNIP 1.082
Scopus rating (2008): SJR 0.603 SNIP 0.758
Scopus rating (2007): SJR 0.682 SNIP 0.801
Scopus rating (2006): SJR 0.585 SNIP 0.823
Scopus rating (2005): SJR 0.327 SNIP 0.591
Scopus rating (2004): SJR 0.354 SNIP 0.446
Scopus rating (2003): SJR 0.436 SNIP 0.514
Scopus rating (2002): SJR 0.597 SNIP 0.875
Scopus rating (2001): SJR 0.553 SNIP 0.896
Scopus rating (2000): SJR 0.417 SNIP 0.583
Scopus rating (1999): SJR 0.228 SNIP 0.556

Original language: English

Keywords: biomaterial, calcium, Phosphate-based glass, strontium, tissue engineering

ASJC Scopus subject areas: Biomedical Engineering, Biomaterials

DOIs:

10.1177/0885328215588898

Source: Scopus

Source-ID: 84942088463

Research output: Scientific - peer-review > Article

Building new computational models to support health behavior change and maintenance: new opportunities in behavioral research

Adverse and suboptimal health behaviors and habits are responsible for approximately 40 % of preventable deaths, in addition to their unfavorable effects on quality of life and economics. Our current understanding of human behavior is largely based on static “snapshots” of human behavior, rather than ongoing, dynamic feedback loops of behavior in response to ever-changing biological, social, personal, and environmental states. This paper first discusses how new technologies (i.e., mobile sensors, smartphones, ubiquitous computing, and cloud-enabled processing/computing) and emerging systems modeling techniques enable the development of new, dynamic, and empirical models of human behavior that could facilitate just-in-time adaptive, scalable interventions. The paper then describes concrete steps to the creation of robust dynamic mathematical models of behavior including: (1) establishing “gold standard” measures, (2) the creation of a behavioral ontology for shared language and understanding tools that both enable dynamic theorizing across disciplines, (3) the development of data sharing resources, and (4) facilitating improved sharing of mathematical models and tools to support rapid aggregation of the models. We conclude with the discussion of what might be incorporated into a “knowledge commons,” which could help to bring together these disparate activities into a unified system and structure for organizing knowledge about behavior.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Research group: Personal Health Informatics-PHI, Research Community on Data-to-Decision (D2D), University of Southern California, Arizona State University, Northeastern University, National Institutes of Health, Bethesda, Northwestern University, Wharton School, University of Pennsylvania, Scientific Institute Hospital San Raffaele, Valencia Polytechnical University, Columbia University in the City of New York, VTT Technical Research Centre of Finland

Authors: Spruijt-Metz, D., Hekler, E., Saranummi, N., Intille, S., Korhonen, I., Nilsen, W., Rivera, D. E., Spring, B., Michie, S., Asch, D. A., Sanna, A., Salcedo, V. T., Kukakfa, R., Pavel, M.

Number of pages: 12

Pages: 335-346

Publication date: 17 Sep 2015

Peer-reviewed: Yes

Publication information

Journal: Translational Behavioral Medicine

Volume: 5

Issue number: 3
ISSN (Print): 1869-6716
Ratings:

Scopus rating (2016): SJR 1.064 SNIP 0.937

Scopus rating (2015): SJR 0.744 SNIP 0.894

Scopus rating (2014): SJR 0.764 SNIP 0.813

Scopus rating (2013): SJR 0.532 SNIP 0.759

Scopus rating (2012): SJR 0.359 SNIP 0.38

Original language: English

ASJC Scopus subject areas: Behavioral Neuroscience, Applied Psychology

Keywords: Computational models of behavior, Connected health, Health-related behavior, Just-in-time adaptive interventions, mHealth, Mobile health, Real-time interventions

DOIs:

10.1007/s13142-015-0324-1

Source: Scopus

Source-ID: 84939204163

Research output: Scientific - peer-review > Article

Synthetic Genetic Circuits: Plasticity and Robustness

Living organisms have evolved to survive in a multitude of environmental conditions. This plasticity, and the robustness to environmental fluctuations, is achieved by altering gene expression levels in response to perturbations while maintaining the basic processes essential for survival. Genetic circuits, which are networks of interacting genes, are responsible for carrying out both the basic processes to sustain life, such as counting time, as well as the specific processes that provide them with adaptability to various environmental conditions while maintaining homeostasis.

Gene expression and its regulation are dynamic, stochastic processes. Namely, although gene expression was previously considered to be identical in cells arising from common ancestors, the observation of multiple, single cells expressing fluorescent proteins has shown that gene expression is noisy, which allows genetically identical cells in a homogeneous environment to behave differently, a phenomenon known as cell-to-cell phenotypic variability. Noise in gene expression arises from the fact that most of the underlying biochemical reactions involve small molecular numbers, which leads to infrequent, to some extent random in time, interactions and processes. While initially noise in gene expression was considered to be disadvantageous to the organisms, a number of recent studies suggest significant functional roles for noise in intracellular processes.

The complexity and size of natural genetic circuits hampers their detailed study at present. One approach to overcome this problem is based on design of small, and thus more tractable, artificial circuits. Aside from its small size, in such circuits, all components are known and there is less chance that they interact with unknown cellular components. This strategy offers additional advantages, such as testability of whether a certain architecture is able to generate a desired trait or function without affecting natural cellular processes e.g., by inducing other downstream effectors that affect cell functioning. Moreover, it provides an opportunity to compare different circuit designs and determine which circuit architecture is preferable. Finally, due to detailed knowledge of their structure, the behavior of these circuits can be computationally simulated to assist, e.g., the study of their long-term behaviors, among other. Previous studies based on synthetic circuits have already provided key insights into the design principles and architecture of genetic circuits, such as how these organize genes so as to gain the ability to make decisions or track time. These circuits are also expected to become of great use in therapeutic and industrial applications.

In this thesis, we focused on the study of the phenotypic plasticity and robustness of synthetic genetic clocks. We focused on the effects of temperature, copy number and the role of components; proteins and promoters, of the circuit. For this, we made use of the well-known genetic Repressilator, a synthetic genetic clock that is also one of the simplest genetic circuits known to be functional in a living system. To assist the studies, aside from techniques from cell and molecular biology, we made use of state of the art techniques in microscopy and image analysis. From the data, we characterized, first, the phenotypic plasticity of individual genes in *Escherichia coli*, as these are the main components of the Repressilator. Next, we performed a study of the effects of temperature on the dynamics of the genetic Repressilator. Subsequently, we studied the degree of synchrony between sister cells, each containing the Repressilator, in order to evaluate the extent to which cell division affects the dynamics of this circuit. Finally, we inserted the Repressilator genetic code into a single-copy vector so as to, by comparison with the original construct, study the effects of copy numbers on the dynamics of the circuit.

General information

State: Published

Ministry of Education publication type: G5 Doctoral dissertation (article)

Organisations: Department of Signal Processing, Research group: Laboratory of Biosystem Dynamics-LBD

Authors: Chandraseelan, J.

Number of pages: 68

Publication date: 17 Sep 2015

Publication information

Publisher: Tampere University of Technology
ISBN (Print): 978-952-15-3560-4
ISBN (Electronic): 978-952-15-3592-5
Original language: English

Publication series

Name: Tampere University of Technology. Publication
Publisher: Tampere University of Technology
Volume: 1316
ISSN (Print): 1459-2045
Electronic versions:
chandrasedan_1316
Links:
<http://URN.fi/URN:ISBN:978-952-15-3592-5>

Bibliographical note

Awarding institution: Tampere University of Technology
Version: 14.12.2015
Research output: Collection of articles > Doctoral Thesis

Redox-induced activation of the proton pump in the respiratory complex I

Complex I functions as a redox-linked proton pump in the respiratory chains of mitochondria and bacteria, driven by the reduction of quinone (Q) by NADH. Remarkably, the distance between the Q reduction site and the most distant proton channels extends nearly 200 Å. To elucidate the molecular origin of this long-range coupling, we apply a combination of large-scale molecular simulations and a site-directed mutagenesis experiment of a key residue. In hybrid quantum mechanics/molecular mechanics simulations, we observe that reduction of Q is coupled to its local protonation by the His-38/Asp-139 ion pair and Tyr-87 of subunit Nqo4. Atomistic classical molecular dynamics simulations further suggest that formation of quinol (QH₂) triggers rapid dissociation of the anionic Asp-139 toward the membrane domain that couples to conformational changes in a network of conserved charged residues. Site-directed mutagenesis data confirm the importance of Asp-139; upon mutation to asparagine the Q reductase activity is inhibited by 75%. The current results, together with earlier biochemical data, suggest that the proton pumping in complex I is activated by a unique combination of electrostatic and conformational transitions.

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Department of Physics, Research group: Biological Physics and Soft Matter, Computational Science X (CompX), Institute of Molecular Biotechnology, Jena, Germany, Technische Universität München, Institut für Informatik, Department of Theoretical Biophysics, Helsinki Bioenergetics Group Programme for Structural Biology and Biophysics, University of Helsinki Institute of Biotechnology, Max Planck Institute of Biophysics
Authors: Sharma, V., Belevich, G., Gamiz-Hernandez, A. P., Róg, T., Vattulainen, I., Verkhovskaya, M. L., Wikström, M., Hummer, G., Kaila, V. R. I.
Number of pages: 6
Pages: 11571-11576
Publication date: 15 Sep 2015
Peer-reviewed: Yes

Publication information

Journal: Proceedings of the National Academy of Sciences of the United States of America
Volume: 112
Issue number: 37
ISSN (Print): 0027-8424
Ratings:
Scopus rating (2016): SJR 6.321 SNIP 2.629 CiteScore 8.56
Scopus rating (2015): SJR 6.767 SNIP 2.682 CiteScore 8.84
Scopus rating (2014): SJR 6.853 SNIP 2.725 CiteScore 8.86
Scopus rating (2013): SJR 6.989 SNIP 2.73 CiteScore 9.5
Scopus rating (2012): SJR 6.792 SNIP 2.682 CiteScore 9.49
Scopus rating (2011): SJR 6.771 SNIP 2.636 CiteScore 9.31
Scopus rating (2010): SJR 6.769 SNIP 2.529
Scopus rating (2009): SJR 6.913 SNIP 2.544
Scopus rating (2008): SJR 6.899 SNIP 2.445

Scopus rating (2007): SJR 6.766 SNIP 2.441
Scopus rating (2006): SJR 6.734 SNIP 2.434
Scopus rating (2005): SJR 6.784 SNIP 2.551
Scopus rating (2004): SJR 7.026 SNIP 2.622
Scopus rating (2003): SJR 7.018 SNIP 2.501
Scopus rating (2002): SJR 7.183 SNIP 2.471
Scopus rating (2001): SJR 7.192 SNIP 2.463
Scopus rating (2000): SJR 7.731 SNIP 2.475
Scopus rating (1999): SJR 8.271 SNIP 2.446

Original language: English

Keywords: Cell respiration, Electron transfer, Molecular dynamics simulations, NADH-quinone oxidoreductase, QM/MM simulations

ASJC Scopus subject areas: General

DOIs:

[10.1073/pnas.1503761112](https://doi.org/10.1073/pnas.1503761112)

Links:

<http://www.scopus.com/inward/record.url?scp=84941671298&partnerID=8YFLogxK> (Link to publication in Scopus)

Source: Scopus

Source-ID: 84941671298

Research output: Scientific - peer-review › Article

Response patterns in finger and central body skin temperatures under mild whole body cooling in an elderly and in a young male - a pre-study

General information

State: Published

Organisations: Department of Electronics and Communications Engineering, Research group: Physiological Measurement Systems and Methods Group

Authors: Kuklane, K., Vanggaard, L., Smolander, J., Halder, A., Lundgren, K., Gao, C., Viik, J., Alametsä, J.

Publication date: 14 Sep 2015

Peer-reviewed: Yes

Publication information

Journal: Extreme Physiology & Medicine

Volume: 4

Issue number: Suppl 1

Article number: A32

ISSN (Print): 2046-7648

Ratings:

Scopus rating (2016): SJR 0.293 SNIP 0.938 CiteScore 0.57

Scopus rating (2015): SJR 0.62 SNIP 1.538 CiteScore 1.69

Scopus rating (2014): SJR 0.666 SNIP 1.482 CiteScore 2.2

Scopus rating (2013): SJR 0.297 SNIP 0.745 CiteScore 2.33

Original language: English

ASJC Scopus subject areas: Biomedical Engineering

DOIs:

[10.1186/2046-7648-4-S1-A32](https://doi.org/10.1186/2046-7648-4-S1-A32)

Links:

<http://www.extremephysiolmed.com/content/4/S1/A32>

Research output: Scientific - peer-review › Meeting Abstract

Methods for Doppler Radar Monitoring of Physiological Signals

Unobtrusive health monitoring includes advantages such as long-term monitoring of rarely occurring conditions or of slow changes in health, at reasonable costs. In addition, the preparation of electrodes or other sensors is not needed.

Currently, the main limitation of remote patient monitoring is not in the existing communication infrastructure but the lack of reliable, easy-to-use, and well-studied sensors.

The aim of this thesis was to develop methods for monitoring cardiac and respiratory activity with microwave continuous wave (CW) Doppler radar. When considering cardiac and respiration monitoring, the heart and respiration rates are often the first monitored parameters. The motivation of this thesis, however, is to measure not only rate-related parameters but also the cardiac and respiratory waveforms, including the chest wall displacement information.

This dissertation thoroughly explores the signal processing methods for accurate chest wall displacement measurement with a radar sensor. The sensor prototype and measurement setup choices are reported. The contributions of this dissertation encompass an I/Q imbalance estimation method and a nonlinear demodulation method for a quadrature radar sensor. Unlike the previous imbalance estimation methods, the proposed method does not require the use of laboratory equipment. The proposed nonlinear demodulation method, on the other hand, is shown to be more accurate than other methods in low-noise cases. In addition, the separation of the cardiac and respiratory components with independent component analysis (ICA) is discussed. The developed methods were validated with simulations and with simplified measurement setups in an office environment. The performance of the nonlinear demodulation method was also studied with three patients for sleep-time respiration monitoring. This is the first time that whole-night measurements have been analyzed with the method in an uncontrolled environment. Data synchronization between the radar sensor and a commercial polysomnographic (PSG) device was assured with a developed infrared (IR) link, which is reported as a side result.

The developed methods enable the extraction of more useful information from a radar sensor and extend its application. This brings Doppler radar sensors one step closer to large-scale commercial use for a wide range of applications, including home health monitoring, sleep-time respiration monitoring, and measuring gating signals for medical imaging.

General information

State: Published

Ministry of Education publication type: G5 Doctoral dissertation (article)

Organisations: Department of Electronics and Communications Engineering, Research group: Personal Electronics Group

Authors: Zakrzewski, M.

Number of pages: 92

Publication date: 11 Sep 2015

Publication information

Place of publication: Tampere

Publisher: Tampere University of Technology

ISBN (Print): 978-952-15-3559-8

ISBN (Electronic): 978-952-15-3574-1

Original language: English

Publication series

Name: Tampere University of Technology. Publication

Publisher: Tampere University of Technology

Volume: 1315

ISSN (Print): 1459-2045

Electronic versions:

zakrzewski_1315

Links:

<http://URN.fi/URN:ISBN:978-952-15-3574-1>

Bibliographical note

Awarding institution: Tampere University of Technology

Versio ok 16.12.2015

Research output: Collection of articles > Doctoral Thesis

Effects of subsampling on characteristics of RNA-seq data from triple-negative breast cancer patients

Background: Data from RNA-seq experiments provide a wealth of information about the transcriptome of an organism. However, the analysis of such data is very demanding. In this study, we aimed to establish robust analysis procedures that can be used in clinical practice. Methods: We studied RNA-seq data from triple-negative breast cancer patients. Specifically, we investigated the subsampling of RNA-seq data. Results: The main results of our investigations are as follows: (1) the subsampling of RNA-seq data gave biologically realistic simulations of sequencing experiments with smaller sequencing depth but not direct scaling of count matrices; (2) the saturation of results required an average sequencing depth larger than 32 million reads and an individual sequencing depth larger than 46 million reads; and (3) for an abrogated feature selection, higher moments of the distribution of all expressed genes had a higher sensitivity for signal detection than the corresponding mean values. Conclusions: Our results reveal important characteristics of RNA-seq data that must be understood before one can apply such an approach to translational medicine.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Queen's University, Belfast, Northern Ireland, University of Arkansas for Medical Sciences

Authors: Stupnikov, A., Glazko, G. V., Emmert-Streib, F.

Publication date: 8 Sep 2015

Peer-reviewed: Yes

Publication information

Journal: Chinese Journal of Cancer

Volume: 34

Issue number: 10

ISSN (Print): 1944-446X

Original language: English

Keywords: Computational genomics, High-dimensional biology, RNA-seq data, Statistical robustness, Triple-negative breast cancer

ASJC Scopus subject areas: Oncology

DOIs:

10.1186/s40880-015-0040-8

Source: Scopus

Source-ID: 84944199836

Research output: Scientific - peer-review › Article

An estimation method of the kinetic rates of transcription initiation by $E\sigma 70$ and $E\sigma 38$ from measurements of individual RNA productions

One of the global regulators of transcription dynamics in *Escherichia coli* is the intracellular population of σ factors, due to their role in gene selection for transcription. It is unknown to which degree σ factors affect the dynamics of transcription initiation, following the binding between the RNAP holoenzyme ($E\sigma$) and the promoter, and the closed complex formation. Proposed here is a new method to study the kinetics of the underlying steps in transcription initiation from time-lapse imaging of transcription events at the single RNA level in live cells. Namely, assuming a promoter that can be transcribed by $E\sigma 70$ or $E\sigma 38$, the researchers make use of in silico data from a stochastic model of transcription dynamics of that promoter, to show that the method estimates consistently and effectively the kinetics rates of closed and open complex formation by $E\sigma 70$ and $E\sigma 38$. In the end, the necessary measurement procedures for acquiring the data needed to apply this new methodology are described.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Research group: Computational Systems Biology, Research group: Laboratory of Biosystem Dynamics-LBD

Authors: Tran, H., Ribeiro, A. S.

Number of pages: 7

Pages: 151-157

Publication date: 6 Sep 2015

Peer-reviewed: Yes

Publication information

Journal: International Journal of Pharma Medicine and Biological Sciences

Volume: 4

Issue number: 3

ISSN (Print): 2278-5221

Ratings:

Scopus rating (2015): SJR 0.124 SNIP 0

Scopus rating (2014): SJR 0.123 SNIP 0

Scopus rating (2013): SJR 0.122 SNIP 0

Original language: English

DOIs:

10.18178/ijpmbs.4.3.151-157

Research output: Scientific - peer-review › Article

Detection and Assessment of Sleep-Disordered Breathing with Special Interest of Prolonged Partial Obstruction

Sleep-disordered breathing (SDB) has become more common and puts more strain on public health services than ever before. Obstructive sleep apnea (OSA) and its health consequences such as different cardiovascular diseases are nowadays well recognized. In addition to OSA, attention has recently been paid to another SDB; prolonged partial obstruction. However, it is often undiagnosed and easily left untreated because of the low number of respiratory events during polysomnography recording. This patient group has found to present with more atypical subjective symptoms than OSA patients.

Polysomnography (PSG) is considered to be the gold standard in reference methods in SDB diagnostics. PSG is a demanding and laborious multichannel recording method and often requires subjects to spend one night in a sleep

laboratory. There is long tradition in Finland to use mattress sensors in SDB diagnostics. Recently, smaller electromechanical film transducer (Emfit) mattresses have replaced the old Static Charge-Sensitive Bed (SCSB) mattresses. However, a proper clinical validation of Emfit mattresses in SDB diagnostics has not been carried out.

In this work, the use of Emfit recording in the detection of sleep apneas, hypopneas, and prolonged partial obstruction with increased respiratory effort was evaluated. The general aim of the thesis is to develop and improve the diagnostic methods for sleep-related breathing disorders.

Comparisons with both PSG with nasal pressure recording and transesophageal pressure were made. Special attention was paid to the existence of the spiking phenomenon in the Emfit mattress in relation to changes in negative intrathoracic pressure in estimating increased respiratory effort. This entails monitoring the esophageal pressure as a part of nocturnal polysomnography. The recording method is demanding and uncomfortable and is usually not used with ordinary sleep laboratory patients. Thus, reliable and easy indirect quantification methods for respiratory effort are needed in clinical work. According to the results presented in this work, the Emfit signal reveals increased respiratory effort as well as apneas/hypopneas.

To find out the prevalence and consequences of prolonged partial obstruction among sleep laboratory patients was another aim of this thesis. This was done by retrospective analyses of sleep laboratory patients from one year. The prevalence of patients with prolonged partial obstruction was 11%. They were as sleepy as OSA patients, but their life quality was worse, as assessed by a survey. These results, along with the findings of the heart rate variation evaluation carried out in this thesis, suggest that prolonged partial obstruction and OSA should be considered as different entities of SDB.

With the Emfit mattress sensor, the SDB types can be differentiated, which is expected to enhance the accuracy of diagnostics. However, there is increasing need for easy and cheap screening methods to evaluate nocturnal breathing. In this respect, the usability of compressed tracheal sound signal scoring in SDB screening was estimated. The method reveals apneas and hypopneas but, according to the present findings, it can also be used in the detection of prolonged partial obstruction. The findings encourage the use of compressed tracheal sound analysis in screening different SDB.

The analysis of sleep recordings is still based on a doctor's subjective and visual estimation. To date, no generally accepted and sufficiently reliable automatic analysis method exists. Robust, automatic quantification methods with easier techniques for non-invasive sleep recording would enable the analysis methods to be also used for screening purposes. In this technology-orientated world, people could take much more responsibility and take care of themselves better by following their own biosignals and by changing their health habits earlier. The need for good sleep as a necessity for good life and health is widely recognized.

General information

State: Published

Ministry of Education publication type: G5 Doctoral dissertation (article)

Organisations: Department of Electronics and Communications Engineering

Authors: Tenhunen, M.

Number of pages: 77

Publication date: 4 Sep 2015

Publication information

Place of publication: Tampere

Publisher: Tampere University of Technology

ISBN (Print): 978-952-15-3531-4

ISBN (Electronic): 978-952-15-3556-7

Original language: English

Publication series

Name: Tampere University of Technology. Publication

Publisher: Tampere University of Technology

Volume: 1304

ISSN (Print): 1459-2045

Electronic versions:

tenhunen_1304

Links:

<http://URN.fi/URN:ISBN:978-952-15-3556-7>

Bibliographical note

Awarding institution: Tampere University of Technology

Versio ok 16.12.2015

Research output: Collection of articles > Doctoral Thesis

A single aspiration of rod-like carbon nanotubes induces asbestos-like pulmonary inflammation mediated in part by the IL-1 receptor

Carbon nanotubes (CNT) have been eagerly studied because of their multiple applications in product development and potential risks on health. We investigated the difference of two different CNT and asbestos in inducing proinflammatory reactions in C57BL/6 mice after single pharyngeal aspiration exposure. We used long tangled and long rod-like CNT, as well as crocidolite asbestos at a dose of 10 or 40 µg/mouse. The mice were sacrificed 4 and 16h or 7, 14, and 28 days after the exposure. To find out the importance of a major inflammatory marker IL-1β in CNT-induced pulmonary inflammation, we used etanercept and anakinra as antagonists as well as Interleukin 1 (IL-1) receptor (IL-1R^{-/-}) mice. The results showed that rod-like CNT, and asbestos in lesser extent, induced strong pulmonary neutrophilia accompanied by the proinflammatory cytokines and chemokines 16h after the exposure. Seven days after the exposure, neutrophilia had essentially disappeared but strong pulmonary eosinophilia peaked in rod-like CNT and asbestos-exposed groups. After 28 days, pulmonary granulomas, goblet cell hyperplasia, and Charcot-Leyden-like crystals containing acidophilic macrophages were observed especially in rod-like CNT-exposed mice. IL-1R^{-/-} mice and antagonists-treated mice exhibited a significant decrease in neutrophilia and messenger ribonucleic acid (mRNA) levels of proinflammatory cytokines at 16 h. However, rodlike CNT-induced Th2-type inflammation evidenced by the expression of IL-13 and mucus production was unaffected in IL-1R^{-/-} mice at 28 days. This study provides knowledge about the pulmonary effects induced by a single exposure to the CNT and contributes to hazard assessment of carbon nanomaterials on airway exposure.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Materials Science, Research group: Materials Characterization, Engineering materials science and solutions (EMASS), Finnish Institute of Occupational Health, University of Eastern Finland

Authors: Rydman, E. M., Ilves, M., Vanhala, E., Vippola, M., Lehto, M., Kinaret, P. A. S., Pylkkänen, L., Happonen, M., Hirvonen, M. R., Greco, D., Savolainen, K., Wolff, H., Alenius, H.

Number of pages: 16

Pages: 140-155

Publication date: 1 Sep 2015

Peer-reviewed: Yes

Publication information

Journal: Toxicological Sciences

Volume: 147

Issue number: 1

ISSN (Print): 1096-6080

Ratings:

Scopus rating (2016): SJR 1.53 SNIP 1.142 CiteScore 3.88

Scopus rating (2015): SJR 1.65 SNIP 1.208 CiteScore 4.06

Scopus rating (2014): SJR 1.809 SNIP 1.355 CiteScore 4.24

Scopus rating (2013): SJR 1.712 SNIP 1.353 CiteScore 4.45

Scopus rating (2012): SJR 1.771 SNIP 1.436 CiteScore 4.48

Scopus rating (2011): SJR 1.838 SNIP 1.374 CiteScore 4.4

Scopus rating (2010): SJR 1.846 SNIP 1.365

Scopus rating (2009): SJR 1.992 SNIP 1.57

Scopus rating (2008): SJR 1.736 SNIP 1.285

Scopus rating (2007): SJR 1.459 SNIP 1.294

Scopus rating (2006): SJR 1.31 SNIP 1.167

Scopus rating (2005): SJR 1.264 SNIP 1.196

Scopus rating (2004): SJR 1.292 SNIP 1.204

Scopus rating (2003): SJR 1.112 SNIP 1.183

Scopus rating (2002): SJR 1.161 SNIP 1.278

Scopus rating (2001): SJR 1.036 SNIP 1.189

Scopus rating (2000): SJR 0.668 SNIP 0.867

Scopus rating (1999): SJR 0.429 SNIP 0.618

Original language: English

Keywords: Asbestos, Charcot-Leyden-like crystals, IL-1β, Multiwalled carbon nanotubes, Th2

ASJC Scopus subject areas: Toxicology

DOIs:

10.1093/toxsci/kfv112

Links:

<http://www.scopus.com/inward/record.url?scp=84940658114&partnerID=8YFLogxK> (Link to publication in Scopus)

Source: Scopus

Source-ID: 84940658114

Research output: Scientific - peer-review > Article

Distinct electrophysiological and mechanical beating phenotypes of long QT syndrome type 1-specific cardiomyocytes carrying different mutations

Background: Long QT syndrome (LQTS) is associated with increased risk of ventricular arrhythmias and cardiac arrest. LQTS type 1 (LQT1), the most prevalent subtype of LQTS, is caused by defects of slow delayed rectifier potassium current (I_{Kr}) that lead to abnormal cardiac repolarization. Here we used pluripotent stem cell (iPSC)-technology to investigate both the electrophysiological and also for the first time the mechanical beating behavior of genetically defined, LQT1 specific cardiomyocytes (CMs) carrying different mutations. **Methods:** We established in vitro models for LQT1 caused by two mutations (G589D or ivs7-2A>G). LQT1 specific CMs were derived from patient specific iPSCs and characterized for their electrophysiology using a current clamp and Ca^{2+} -imaging. Their mechanical beating characteristics were analyzed with video-image analysis method. **Results and conclusions:** Both LQT1-CM-types showed prolonged repolarization, but only those with G589D presented early after-depolarizations at baseline. Increased amounts of abnormal Ca^{2+} transients were detected in both types of LQT1-CMs. Surprisingly, also the mechanical beating behavior demonstrated clear abnormalities and additionally the abnormalities were different with the two mutations: prolonged contraction was seen in G589D-CMs while impaired relaxation was observed in ivs7-2A>G-CMs. The CMs carrying two different LQT1 specific mutations (G589D or ivs7-2A>G) presented clear differences in their electrical properties as well as in their mechanical beating behavior. Results from different methods correlated well with each other suggesting that simply mechanical beating behavior of CMs could be used for screening of diseased CMs and possibly for diagnostic purposes in the future.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Computational Biophysics and Imaging Group, BioMediTech, Integrated Technologies for Tissue Engineering Research (ITTE), Tampere University Hospital, BioMediTech, Heart and Lung Center, University of Helsinki, Helsinki University Central Hospital

Authors: Kiviahho, A. L., Ahola, A., Larsson, K., Penttinen, K., Swan, H., Pekkanen-Mattila, M., Venäläinen, H., Paavola, K., Hyttinen, J., Aalto-Setälä, K.

Number of pages: 13

Pages: 19-31

Publication date: 1 Sep 2015

Peer-reviewed: Yes

Publication information

Journal: IJC Heart and Vasculature

Volume: 8

ISSN (Print): 2352-9067

Ratings:

Scopus rating (2016): SJR 0.26 SNIP 0.519

Scopus rating (2015): SJR 0.195 SNIP 0.127

Original language: English

ASJC Scopus subject areas: Cardiology and Cardiovascular Medicine

Keywords: Arrhythmia, Calcium imaging, Digital image correlation, Induced pluripotent stem cell, Long QT syndrome, Patch clamp

DOIs:

10.1016/j.ijcha.2015.04.008

Source: Scopus

Source-ID: 84934929449

Research output: Scientific - peer-review > Article

Er³⁺-Al₂O₃ nanoparticles doping of borosilicate glass

Novel borosilicate glasses were developed by adding in the glass batch Er³⁺-Al₂O₃ nanoparticles synthesized by using a soft chemical method. A similar nanoparticle doping with modified chemical vapour deposition (MCVD) process was developed to increase the efficiency of the amplifying silica fibre in comparison to using MCVD and solution doping. It was shown that with the melt quench technique, a Er³⁺-Al₂O₃ nanoparticle doping neither leads to an increase in the Er³⁺ luminescence properties nor allows one to control the rare-earth chemical environment in a borosilicate glass. The site of Er³⁺ in the Er³⁺-Al₂O₃ nanoparticle containing glass seems to be similar as in glasses with the same composition prepared using standard raw materials. We suspect the Er³⁺ ions to diffuse from the nanoparticles into the glass matrix. There was no clear evidence of the presence of Al₂O₃ nanoparticles in the glasses after melting.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Biomaterials and Tissue Engineering Group, Frontier Photonics, Integrated Technologies for Tissue Engineering Research (ITTE), Light Corporation, CNRS, Université de Bordeaux, ICMCB, Johan Gadolin Process Chemistry Centre, Abo Akademi University

Authors: Massera, J., Petit, L., Koponen, J., Glorieux, B., Hupa, L., Hupa, M.

Number of pages: 4

Pages: 1407-1410

Publication date: Sep 2015

Peer-reviewed: Yes

Publication information

Journal: Bulletin of Materials Science

Volume: 38

Issue number: 5

ISSN (Print): 0250-4707

Ratings:

Scopus rating (2016): SJR 0.3 SNIP 0.486 CiteScore 0.9

Scopus rating (2015): SJR 0.358 SNIP 0.703 CiteScore 1.11

Scopus rating (2014): SJR 0.437 SNIP 0.982 CiteScore 1.31

Scopus rating (2013): SJR 0.402 SNIP 0.866 CiteScore 1.09

Scopus rating (2012): SJR 0.317 SNIP 0.811 CiteScore 1.04

Scopus rating (2011): SJR 0.448 SNIP 0.955 CiteScore 1.14

Scopus rating (2010): SJR 0.493 SNIP 0.784

Scopus rating (2009): SJR 0.426 SNIP 0.681

Scopus rating (2008): SJR 0.415 SNIP 0.812

Scopus rating (2007): SJR 0.439 SNIP 0.7

Scopus rating (2006): SJR 0.318 SNIP 0.715

Scopus rating (2005): SJR 0.409 SNIP 1.021

Scopus rating (2004): SJR 0.378 SNIP 0.708

Scopus rating (2003): SJR 0.345 SNIP 0.705

Scopus rating (2002): SJR 0.341 SNIP 0.576

Scopus rating (2001): SJR 0.302 SNIP 0.653

Scopus rating (2000): SJR 0.278 SNIP 0.367

Scopus rating (1999): SJR 0.191 SNIP 0.529

Original language: English

ASJC Scopus subject areas: Materials Science(all), Mechanics of Materials

Keywords: Glass, optical fibre, IR photoluminescence, nanoparticles, doping, LUMINESCENCE, IONS

DOIs:

10.1007/s12034-015-1028-3

Source: Scopus

Source-ID: 84942788436

Research output: Scientific - peer-review > Article

Sleep stage classification using sparse rational decomposition of single channel EEG records

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Signal Processing, Research group: Video, Research group: Filterbanks, Research Community on Data-to-Decision (D2D), Eötvös Loránd University

Authors: Samiee, K., Kovacs, P., Kiranyaz, S., Gabbouj, M., Saramäki, T.

Number of pages: 5

Pages: 1905-1909

Publication date: 31 Aug 2015

Host publication information

Title of host publication: 2015 23rd European Signal Processing Conference (EUSIPCO)

Publisher: IEEE

ISBN (Print): 978-0-9928626-3-3

Links:

<http://www.eurasip.org/Proceedings/Eusipco/Eusipco2015/papers/1570096711.pdf>

Research output: Scientific - peer-review › Conference contribution

Examples of electromagnetic field (50–100 kHz) emissions from smart meters in Finland

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Environmental Health, TMI Rauno Pääkkönen, Tampereen Sähköverkko Oy

Authors: Pääkkönen, R., Lundström, M., Mustaparta, J., Korpinen, L.

Number of pages: 3

Pages: 225 - 227

Publication date: 28 Aug 2015

Peer-reviewed: Yes

Publication information

Journal: Radioprotection

Volume: 50

Issue number: 3

ISSN (Print): 0033-8451

Ratings:

Scopus rating (2016): SJR 0.238 SNIP 0.454 CiteScore 0.34

Scopus rating (2015): SJR 0.246 SNIP 0.385 CiteScore 0.33

Scopus rating (2014): SJR 0.226 SNIP 0.33 CiteScore 0.3

Scopus rating (2013): SJR 0.262 SNIP 0.326 CiteScore 0.24

Scopus rating (2012): SJR 0.238 SNIP 0.234 CiteScore 0.13

Scopus rating (2011): SJR 0.258 SNIP 0.597 CiteScore 0.33

Scopus rating (2010): SJR 0.237 SNIP 0.383

Scopus rating (2009): SJR 0.18 SNIP 0.351

Scopus rating (2008): SJR 0.228 SNIP 0.471

Scopus rating (2007): SJR 0.253 SNIP 0.705

Scopus rating (2006): SJR 0.152 SNIP 0.264

Scopus rating (2005): SJR 0.197 SNIP 0.47

Scopus rating (2004): SJR 0.184 SNIP 0.497

Scopus rating (2003): SJR 0.148 SNIP 0.331

Scopus rating (2002): SJR 0.146 SNIP 0.171

Scopus rating (2001): SJR 0.162 SNIP 0.253

Scopus rating (2000): SJR 0.225 SNIP 0.507

Scopus rating (1999): SJR 0.846 SNIP 0.652

Original language: English

ASJC Scopus subject areas: Electrical and Electronic Engineering

DOIs:

10.1051/radiopro/2015004

Research output: Scientific - peer-review › Article

Examples of extremely low-frequency magnetic fields in a Finnish metro station

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Environmental Health, Research group: Wireless Identification and Sensing Systems Research Group, Sensing Systems for Wireless Medicine (MediSense), Helsinki City Transport, Combinova, Rejlers Oy

Authors: Korpinen, L., Lähdetie, A., Amundin, Å., Piippo, H., Sydänheimo, L.

Number of pages: 4

Pages: 229 - 232

Publication date: 28 Aug 2015

Peer-reviewed: Yes

Publication information

Journal: Radioprotection

Volume: 50

Issue number: 3

ISSN (Print): 0033-8451

Ratings:

Scopus rating (2016): SJR 0.238 SNIP 0.454 CiteScore 0.34

Scopus rating (2015): SJR 0.246 SNIP 0.385 CiteScore 0.33

Scopus rating (2014): SJR 0.226 SNIP 0.33 CiteScore 0.3

Scopus rating (2013): SJR 0.262 SNIP 0.326 CiteScore 0.24

Scopus rating (2012): SJR 0.238 SNIP 0.234 CiteScore 0.13

Scopus rating (2011): SJR 0.258 SNIP 0.597 CiteScore 0.33

Scopus rating (2010): SJR 0.237 SNIP 0.383

Scopus rating (2009): SJR 0.18 SNIP 0.351

Scopus rating (2008): SJR 0.228 SNIP 0.471

Scopus rating (2007): SJR 0.253 SNIP 0.705

Scopus rating (2006): SJR 0.152 SNIP 0.264

Scopus rating (2005): SJR 0.197 SNIP 0.47

Scopus rating (2004): SJR 0.184 SNIP 0.497

Scopus rating (2003): SJR 0.148 SNIP 0.331

Scopus rating (2002): SJR 0.146 SNIP 0.171

Scopus rating (2001): SJR 0.162 SNIP 0.253

Scopus rating (2000): SJR 0.225 SNIP 0.507

Scopus rating (1999): SJR 0.846 SNIP 0.652

Original language: English

ASJC Scopus subject areas: Electrical and Electronic Engineering

DOIs:

10.1051/radiopro/2015007

Research output: Scientific - peer-review › Article

Estimation of induced currents in the human body exposed to non-uniform ELF electric fields

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Research group: Environmental Health, National Institute of technology, Anan Collage, University of Miyazaki, National Institute of Technology, Kagawa College, Japan, University of Tokushima

Authors: Tarao, H., Miyamoto, H., Hayashi, N., Matsumoto, T., Korpinen, L., Isaka, K.

Number of pages: 4

Publication date: 23 Aug 2015

Host publication information

Title of host publication: ISH2015 - The 19th International Symposium on High Voltage Engineering, Pilsen, Czech Republic, August, 23 – 28, 2015

Place of publication: Pilsen, Czech Republic

Article number: 166

ISBN (Electronic): 978-80-261-0477-3

ASJC Scopus subject areas: Electrical and Electronic Engineering

Links:

<http://www.ish2015.zcu.cz/>

Research output: Scientific - peer-review › Conference contribution

Occupational exposure to magnetic fields while working around a reactor at a 400 kV substation in Finland

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Research group: Environmental Health, TMI Rauno Pääkkönen, University of Modena and Reggio Emilia

Authors: Pääkkönen, R., Korpinen, L., Gobba, F.
Number of pages: 3
Publication date: 23 Aug 2015

Host publication information

Title of host publication: ISH2015 -The 19th International Symposium on High Voltage Engineering, Pilsen, Czech Republic, August, 23 – 28, 2015
Place of publication: Pilsen, Czech Republic
Article number: 163
ISBN (Electronic): 978-80-261-0477-3
ASJC Scopus subject areas: Electrical and Electronic Engineering
Links:
<http://www.ish2015.zcu.cz/>
Research output: Scientific - peer-review › Conference contribution

Possibility of decreasing 50 Hz electric field exposure with different coveralls under 400 kV power lines

General information

State: Published
Ministry of Education publication type: A4 Article in a conference publication
Organisations: Department of Electronics and Communications Engineering, Research group: Environmental Health, Department of Electrical and Computer Engineering Kagawa National College of Technology, TMI Rauno Pääkkönen, University of Modena and Reggio Emilia
Authors: Korpinen, L., Tarao, H., Pääkkönen, R., Gobba, F.
Number of pages: 3
Publication date: 23 Aug 2015

Host publication information

Title of host publication: ISH2015 - The 19th International Symposium on High Voltage Engineering, Pilsen, Czech Republic, August, 23 – 28, 2015
Place of publication: Pilsen, Czech Republic
Article number: 161
ISBN (Electronic): 978-80-261-0477-3
ASJC Scopus subject areas: Electrical and Electronic Engineering
Links:
<http://www.ish2015.zcu.cz/>
Research output: Scientific - peer-review › Conference contribution

Building synthetic sterols computationally: unlocking the secrets of evolution?

Cholesterol is vital in regulating the physical properties of animal cell membranes. While it remains unclear what renders cholesterol so unique, it is known that other sterols are less capable in modulating membrane properties, and there are membrane proteins whose function is dependent on cholesterol. Practical applications of cholesterol include its use in liposomes in drug delivery and cosmetics, cholesterol-based detergents in membrane protein crystallography, its fluorescent analogs in studies of cholesterol transport in cells and tissues, etc. Clearly, in spite of their difficult synthesis, producing the synthetic analogs of cholesterol is of great commercial and scientific interest. In this article, we discuss how synthetic sterols non-existent in nature can be used to elucidate the roles of cholesterol's structural elements. To this end, we discuss recent atomistic molecular dynamics simulation studies that have predicted new synthetic sterols with properties comparable to those of cholesterol. We also discuss more recent experimental studies that have vindicated these predictions. The paper highlights the strength of computational simulations in making predictions for synthetic biology, thereby guiding experiments.

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Department of Physics, Research area: Computational Physics, Research group: Biological Physics and Soft Matter
Authors: Róg, T., Pöyry, S., Vattulainen, I.
Publication date: 21 Aug 2015
Peer-reviewed: Yes

Publication information

Journal: Frontiers in Bioengineering and Biotechnology
Volume: 3
Article number: 00121
ISSN (Print): 2296-4185

Ratings:

Scopus rating (2016): SJR 0.169 SNIP 0.471 CiteScore 1

Scopus rating (2015): SJR 0.124 SNIP 0

Scopus rating (2014): SJR 0.123 SNIP 0

Original language: English

DOIs:

10.3389/fbioe.2015.00121

Research output: Scientific - peer-review > Article

Construction of therapeutically relevant human prostate epithelial fate map by utilising miRNA and mRNA microarray expression data

Background: Objective identification of key miRNAs from transcriptomic data is difficult owing to the inherent inconsistencies within miRNA target-prediction algorithms and the promiscuous nature of miRNA-mRNA target relationship. **Methods:** An integrated database of miRNAs and their 'relevant' mRNA targets was generated from validated miRNA and mRNA microarray data sets generated from patient-derived prostate epithelial normal and cancer stem-like cells (SCs) and committed basal (CB) cells. The effect of miR-542-5p inhibition was studied to provide proof-of-principle for database utility. **Results:** Integration of miRNA-mRNA databases showed that signalling pathways and processes can be regulated by a single or relatively few miRNAs, for example, DNA repair/Notch pathway by miR-542-5p, $P=0.008$. Inhibition of miR-542-5p in CB cells (thereby achieving miR-542-5p expression levels similar to SCs) promoted efficient DNA repair and activated expression of Notch reporters, HES1 and Survivin, without inducing dedifferentiation into SCs. **Conclusions:** Our novel framework impartially identifies therapeutically relevant miRNA candidates from transcriptomic data sets.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Research group: Computational Systems Biology, BioMediTech, Prostate cancer research center (PCRC), BioMediTech - Institute of Biosciences and Medical Technology, Hull York Medical School, Department of Urology, University of York, King's College London, University of Hull, Castle Hill Hospital
Authors: Rane, J. K., Ylipää, A., Adamson, R., Mann, V. M., Simms, M. S., Collins, A. T., Visakorpi, T., Nykter, M., Maitland, N. J.

Number of pages: 5

Pages: 611-615

Publication date: 11 Aug 2015

Peer-reviewed: Yes

Publication information

Journal: British Journal of Cancer

Volume: 113

Issue number: 4

ISSN (Print): 0007-0920

Ratings:

Scopus rating (2016): SJR 2.924 SNIP 1.775 CiteScore 5.78

Scopus rating (2015): SJR 2.929 SNIP 1.665 CiteScore 5.39

Scopus rating (2014): SJR 2.596 SNIP 1.542 CiteScore 4.88

Scopus rating (2013): SJR 2.721 SNIP 1.634 CiteScore 5.2

Scopus rating (2012): SJR 2.836 SNIP 1.758 CiteScore 5.47

Scopus rating (2011): SJR 2.581 SNIP 1.589 CiteScore 5.09

Scopus rating (2010): SJR 2.476 SNIP 1.409

Scopus rating (2009): SJR 2.365 SNIP 1.388

Scopus rating (2008): SJR 2.38 SNIP 1.42

Scopus rating (2007): SJR 2.393 SNIP 1.428

Scopus rating (2006): SJR 2.017 SNIP 1.408

Scopus rating (2005): SJR 1.845 SNIP 1.35

Scopus rating (2004): SJR 1.745 SNIP 1.363

Scopus rating (2003): SJR 1.628 SNIP 1.379

Scopus rating (2002): SJR 1.65 SNIP 1.313

Scopus rating (2001): SJR 1.617 SNIP 1.375

Scopus rating (2000): SJR 1.414 SNIP 1.233

Scopus rating (1999): SJR 1.218 SNIP 1.279

Original language: English

Keywords: cancer stem cell, DNA repair, epithelial hierarchy, miRNA-mRNA integration, Notch pathway, prostate cancer
ASJC Scopus subject areas: Cancer Research, Oncology

DOIs:

10.1038/bjc.2015.262

Links:

<http://www.scopus.com/inward/record.url?scp=84939259019&partnerID=8YFLogxK> (Link to publication in Scopus)

Source: Scopus

Source-ID: 84939259019

Research output: Scientific - peer-review > Article

Dynamics of Genetic Circuits with Molecule Partitioning Errors in Cell Division and RNA-RNA Interactions

Many signaling and regulatory molecules within cells exist in very few copies per cell. Any process affecting even limited numbers of these molecules therefore has the potential to affect the dynamics of the biochemical networks of which they are a part. This sensitivity to small copy-number changes is what allows stochasticity in gene expression to introduce a degree of randomness in what cells do. While this randomness can be suppressed, it does not appear to be so in many biological systems, at least not to the maximum degree possible. This suggests that this randomness is not necessarily detrimental to cell populations, as it can produce qualitatively new behaviours in genetic networks which may be utilized by cells.

In this thesis, two other mechanisms are investigated which, through their interaction with low copy-number molecules, are able to produce qualitatively different dynamics in genetic networks: the stochastic partitioning of molecules in cell division, and the direct interaction of two low copy-number molecules. For this, a novel simulator of chemical kinetics is first presented, designed to simulate the dynamics of genetic circuits inside growing populations of cells. It is then used to study a genetic switch where one repressive link is formed by direct interaction between RNA molecules. This arrangement was found to decouple the stability of the two noisy attractors of the network and the speeds of the state transitions. In other words, it allows the network to have two equally-stable noisy attractors, but differing state transition speeds.

Next, the cell-to-cell diversity in RNA numbers (as quantified by the normalized variance) of a single gene over time in a growing model cell population was studied as a function of the division synchrony. In the model, synchronous cell divisions introduce transient increases in the cell-to-cell diversity in RNA numbers of the population, a prediction which was verified using single-molecule measurements of RNA numbers. Finally, the effects of the stochastic partitioning of regulatory molecules in cell division on the dynamics of two genetic circuits, a switch and a clock, were studied. Of these two circuits, the switch has the most dramatic changes in its dynamics, brought on by the inevitable negative correlation in molecule numbers that sister cells inherit. This negative correlation can allow a cell population to partition the phenotypes of the individual cells with less variance than a binomial distribution.

These results advance our understanding of the different behaviours that can be produced in genetic circuits due to these two mechanisms. Since they produce unique behaviours, these mechanisms, and combinations thereof, are expected to be used for specialized purposes in natural genetic circuits. Further, since the downstream effects of these mechanisms may be more predictable than, e.g., modifying promoter sequences, they may also be useful in the design and implementation of future synthetic genetic circuits with specific behaviours.

General information

State: Published

Ministry of Education publication type: G5 Doctoral dissertation (article)

Organisations: Department of Signal Processing, Research group: Laboratory of Biosystem Dynamics-LBD

Authors: Lloyd-Price, J.

Number of pages: 62

Publication date: 7 Aug 2015

Publication information

Publisher: Tampere University of Technology

ISBN (Print): 978-952-15-3546-8

ISBN (Electronic): 978-952-15-3609-0

Original language: English

Publication series

Name: Tampere University of Technology. Publication

Publisher: Tampere University of Technology

Volume: 1310

ISSN (Print): 1459-2045

Electronic versions:

lloyd_price_1310

Links:

<http://URN.fi/URN:ISBN:978-952-15-3609-0>

Bibliographical note

Awarding institution: Tampere University of Technology

Versio ok 16.12.2015

Research output: Collection of articles > Doctoral Thesis

Effect of Phosphatidic Acid on Biomembrane: Experimental and Molecular Dynamics Simulations Study

We consider the impact of phosphatidic acid (namely, 1,2-dioleoyl-sn-glycero-3-phosphate, DOPA) on the properties of a zwitterionic (1,2-dipalmitoyl-sn-glycero-3-phosphocholine, DPPC) bilayer used as a model system for protein-free cell membranes. For this purpose, experimental measurements were performed using differential scanning calorimetry and the Langmuir monolayer technique at physiological pH. Moreover, atomistic-scale molecular dynamics (MD) simulations were performed to gain information on the mixed bilayer's molecular organization. The results of the monolayer studies clearly showed that the DPPC/DOPA mixtures are nonideal and the interactions between lipid species change from attractive, at low contents of DOPA, to repulsive, at higher contents of that component. In accordance with these results, the MD simulations demonstrated that both monoanionic and dianionic forms of DOPA have an ordering and condensing effect on the mixed bilayer at low concentrations. For the DOPA monoanions, this is the result of both (i) strong electrostatic interactions between the negatively charged oxygen of DOPA and the positively charged choline groups of DPPC and (ii) conformational changes of the lipid acyl chains, leading to their tight packing according to the so-called umbrella model, in which large headgroups of DPPC shield the hydrophobic part of DOPA (the conical shape lipid) from contact with water. In the case of the DOPA dianions, cation-mediated clustering was observed. Our results provide a detailed molecular-level description of the lipid organization inside the mixed zwitterionic/PA membranes, which is fully supported by the experimental data.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Physics, Computational Science X (CompX), Jagiellonian University, Faculty of Chemistry

Authors: Kwolek, U., Kulig, W., Wydro, P., Nowakowska, M., Róg, T., Kepczynski, M.

Number of pages: 10

Pages: 10042-10051

Publication date: 6 Aug 2015

Peer-reviewed: Yes

Publication information

Journal: Journal of Physical Chemistry Part B

Volume: 119

Issue number: 31

ISSN (Print): 1520-6106

Ratings:

Scopus rating (2016): SJR 1.348 SNIP 1.02 CiteScore 3.03

Scopus rating (2015): SJR 1.367 SNIP 1.096 CiteScore 3.25

Scopus rating (2014): SJR 1.44 SNIP 1.14 CiteScore 3.28

Scopus rating (2013): SJR 1.494 SNIP 1.2 CiteScore 3.53

Scopus rating (2012): SJR 1.92 SNIP 1.251 CiteScore 3.66

Scopus rating (2011): SJR 1.78 SNIP 1.226 CiteScore 3.62

Scopus rating (2010): SJR 1.849 SNIP 1.214

Scopus rating (2009): SJR 2.232 SNIP 1.349

Scopus rating (2008): SJR 2.543 SNIP 1.381

Scopus rating (2007): SJR 2.346 SNIP 1.282

Scopus rating (2006): SJR 2.369 SNIP 1.415

Scopus rating (2005): SJR 2.275 SNIP 1.474

Scopus rating (2004): SJR 2.148 SNIP 1.511

Scopus rating (2003): SJR 2.034 SNIP 1.47

Scopus rating (2002): SJR 2.118 SNIP 1.496

Scopus rating (2001): SJR 2.053 SNIP 1.508

Scopus rating (2000): SJR 2.145 SNIP 1.527

Scopus rating (1999): SJR 1.713 SNIP 1.8

Original language: English

ASJC Scopus subject areas: Physical and Theoretical Chemistry, Materials Chemistry, Surfaces, Coatings and Films

DOIs:

10.1021/acs.jpcc.5b03604

Links:

<http://www.scopus.com/inward/record.url?scp=84938696964&partnerID=8YFLogxK> (Link to publication in Scopus)

Source: Scopus

Source-ID: 84938696964

Research output: Scientific - peer-review › Article

Comparison of Bispectral Index and Entropy values with electroencephalogram during surgical anaesthesia with sevoflurane

Background Concomitantly recorded Bispectral Index® (BIS) and Entropy™ values sometimes show discordant trends during general anaesthesia. Previously, no attempt had been made to discover which EEG characteristics cause discrepancies between BIS and Entropy. We compared BIS and Entropy values, and analysed the changes in the raw EEG signal during surgical anaesthesia with sevoflurane. Methods In this prospective, open-label study, 65 patients receiving general anaesthesia with sevoflurane were enrolled. BIS, Entropy and multichannel digital EEG were recorded. Concurrent BIS and State Entropy (SE) values were selected. Whenever BIS and SE values showed ≥ 10 -unit disagreement for ≥ 60 s, the raw EEG signal was analysed both in time and frequency domain. Results A ≥ 10 -unit disagreement ≥ 60 s was detected 428 times in 51 patients. These 428 episodes accounted for 5158 (11%) out of 45 918 analysed index pairs. During EEG burst suppression, SE was higher than BIS in 35 out of 49 episodes. During delta-theta dominance, BIS was higher than SE in 141 out of 157 episodes. During alpha or beta activity, SE was higher than BIS in all 49 episodes. During electrocautery, both BIS and SE changed, sometimes in the opposite direction, but returned to baseline values after electrocautery. Electromyography caused index disagreement four times (BIS > SE). Conclusions Certain specific EEG patterns, and artifacts, are associated with discrepancies between BIS and SE. Time and frequency domain analyses of the original EEG improve the interpretation of studies involving BIS, Entropy and other EEG-based indices. Clinical trial registration.ClinicalTrials.gov:identifier NCT01077674.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Department of Anaesthesia, Hospital for Joint Replacement, Tampere University Hospital, Seinäjoki Central Hospital, Department of Clinical Neurophysiology, Osaka University Graduate School of Medicine, University of Tampere

Authors: Aho, A. J., Kamata, K., Jäntti, V., Kulkas, A., Hagihira, S., Huhtala, H., Yli-Hankala, A.

Number of pages: 9

Pages: 258-266

Publication date: 1 Aug 2015

Peer-reviewed: Yes

Publication information

Journal: British Journal of Anaesthesia

Volume: 115

Issue number: 2

ISSN (Print): 0007-0912

Ratings:

Scopus rating (2016): SJR 2.255 SNIP 2.467 CiteScore 3.46

Scopus rating (2015): SJR 2.501 SNIP 2.323 CiteScore 3.43

Scopus rating (2014): SJR 2.181 SNIP 2.386 CiteScore 3.35

Scopus rating (2013): SJR 2.088 SNIP 2.395 CiteScore 3.22

Scopus rating (2012): SJR 2.376 SNIP 2.207 CiteScore 3.12

Scopus rating (2011): SJR 2.075 SNIP 2.448 CiteScore 3.32

Scopus rating (2010): SJR 1.952 SNIP 2.05

Scopus rating (2009): SJR 1.72 SNIP 1.985

Scopus rating (2008): SJR 1.615 SNIP 1.837

Scopus rating (2007): SJR 1.423 SNIP 1.792

Scopus rating (2006): SJR 1.332 SNIP 1.677

Scopus rating (2005): SJR 1.317 SNIP 1.667

Scopus rating (2004): SJR 1.179 SNIP 1.62

Scopus rating (2003): SJR 1.231 SNIP 1.483

Scopus rating (2002): SJR 1.12 SNIP 1.332

Scopus rating (2001): SJR 1.178 SNIP 1.212

Scopus rating (2000): SJR 1.169 SNIP 1.223

Scopus rating (1999): SJR 1.14 SNIP 1.525

Original language: English

Keywords: anaesthetics inhalation, sevoflurane, EEG, electromyography, monitoring, intraoperative

ASJC Scopus subject areas: Anesthesiology and Pain Medicine, Medicine(all)

DOIs:

10.1093/bja/aev206

Bibliographical note

EXT="Kulkas, A."

Source: Scopus

Source-ID: 84938579119

Research output: Scientific - peer-review › Article

Convolutional Neural Networks for patient-specific ECG classification

We propose a fast and accurate patient-specific electrocardiogram (ECG) classification and monitoring system using an adaptive implementation of 1D Convolutional Neural Networks (CNNs) that can fuse feature extraction and classification into a unified learner. In this way, a dedicated CNN will be trained for each patient by using relatively small common and patient-specific training data and thus it can also be used to classify long ECG records such as Holter registers in a fast and accurate manner. Alternatively, such a solution can conveniently be used for real-time ECG monitoring and early alert system on a light-weight wearable device. The experimental results demonstrate that the proposed system achieves a superior classification performance for the detection of ventricular ectopic beats (VEB) and supraventricular ectopic beats (SVEB).

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Signal Processing, Research group: Video, Research Community on Data-to-Decision (D2D), Qatar University, Izmir University of Economics

Authors: Kiranyaz, S., Ince, T., Hamila, R., Gabbouj, M.

Number of pages: 4

Pages: 2608-2611

Publication date: 1 Aug 2015

Host publication information

Title of host publication: 2015 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)

ISBN (Print): 978-1-4244-9270-1

Keywords: electrocardiography, feature extraction, medical signal processing, neural nets, signal classification, 1D convolutional neural network, ECG monitoring, ECG record classification, light-weight wearable device, patient-specific ECG classification, patient-specific electrocardiogram classification, supraventricular ectopic beat detection, Convolution, Databases, Electrocardiography, Feature extraction, Neural networks, Neurons, Training

DOIs:

10.1109/EMBC.2015.7318926

Source: Bibtex

Source-ID: urn:99dead2fb756accbce6c8895038202b3

Research output: Scientific - peer-review › Conference contribution

Evaluation of the different sleep-disordered breathing patterns of the compressed tracheal sound

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, BioMediTech, Tampere University Hospital, Medical Imaging Centre, Department of Clinical Neurophysiology, Medical Imaging Centre and Hospital Pharmacy

Authors: Tenhunen, M., Huupponen, E., Hasan, J., Heino, O., Himanen, S. L.

Number of pages: 7

Pages: 1557-1563

Publication date: 1 Aug 2015

Peer-reviewed: Yes

Publication information

Journal: Clinical Neurophysiology

Volume: 126

Issue number: 8
ISSN (Print): 1388-2457
Ratings:

Scopus rating (2016): SJR 1.379 SNIP 1.394 CiteScore 2.81
Scopus rating (2015): SJR 1.581 SNIP 1.384 CiteScore 2.72
Scopus rating (2014): SJR 1.405 SNIP 1.363 CiteScore 2.61
Scopus rating (2013): SJR 1.523 SNIP 1.468 CiteScore 3
Scopus rating (2012): SJR 1.553 SNIP 1.403 CiteScore 3.03
Scopus rating (2011): SJR 1.713 SNIP 1.678 CiteScore 3.35
Scopus rating (2010): SJR 1.511 SNIP 1.481
Scopus rating (2009): SJR 1.601 SNIP 1.467
Scopus rating (2008): SJR 1.374 SNIP 1.293
Scopus rating (2007): SJR 1.369 SNIP 1.441
Scopus rating (2006): SJR 1.385 SNIP 1.483
Scopus rating (2005): SJR 1.343 SNIP 1.474
Scopus rating (2004): SJR 1.256 SNIP 1.435
Scopus rating (2003): SJR 1.293 SNIP 1.32
Scopus rating (2002): SJR 1.129 SNIP 1.088
Scopus rating (2001): SJR 0.791 SNIP 1.169
Scopus rating (2000): SJR 0.594 SNIP 1.009

Original language: English

Keywords: Flow limitation, Oesophageal pressure, Sleep, Sleep-disordered breathing, Tracheal sound

ASJC Scopus subject areas: Clinical Neurology, Neurology, Physiology (medical), Sensory Systems

DOIs:

10.1016/j.clinph.2014.11.003

Bibliographical note

EXT="Huupponen, Eero"

Source: Scopus

Source-ID: 84937695408

Research output: Scientific - peer-review › Article

X-ray microtomographic confirmation of the reliability of CBCT in identifying the scalar location of cochlear implant electrode after round window insertion

Cone-beam computed tomography (CBCT) plays a key role in cochlear implantation in both planning implantation before surgery and quality control during surgery due to the high spatial resolution and convenience of application in the operation theater. We recently designed a novel, high-resolution cone-beam acquisition system that has been tested in temporal bones with cochlear implantation to identify the scalar localization of the electrode arrays. The current study aimed to verify the reliability of the experimental CBCT set-up using high-resolution invitro X-ray microtomography (μ CT) imaging as a reference. Nine human temporal bones were studied by inserting a straight electrode of a cochlear implant using the round window approach followed by sequential imaging using experimental CBCT and μ CT with and without 1% iodine as the contrast agent. In the CBCT images, the electrodes were located in the scala tympani and near the lateral wall in all temporal bones. In the μ CT images, the cochlear fine structures, including Reissner's membrane, stria vascularis, spiral ligament, basilar membrane, spiral limbus, osseous spiral lamina, and Rosenthal's canal that hosts the spiral ganglion cells, were clearly delineated; the electrode array avoided the lateral wall of the scala tympani in the hook region and then ran along the lateral wall of the scala tympani without any exception, a feature that was also detected in a temporal bone with ruptures in the basilar and Reissner's membranes. In conclusion, the current invitro μ CT imaging system produced high-quality images that could demonstrate the fine cochlear structures faithfully and verify the reliability of a novel experimental CBCT set-up aimed for clinical application in identifying the scalar localization of the electrode array. The straight electrode is safe for cochlear structures with low risk of translocation and is suitable for atraumatic implantation, although a large gap between the contacts and the modiolus exists.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Computational Biophysics and Imaging Group, BioMediTech, Integrated Technologies for Tissue Engineering Research (ITTE), Tampere University Hospital, BioMediTech - Institute of Biosciences and Medical Technology, Medical Imaging Centre, University of Tampere, Changhai Hospital, PlanmecaOy

Authors: Zou, J., Hannula, M., Lehto, K., Feng, H., Lähelmä, J., Aula, A. S., Hyttinen, J., Pyykkö, I.

Number of pages: 7

Pages: 59-65
Publication date: 1 Aug 2015
Peer-reviewed: Yes

Publication information

Journal: Hearing Research
Volume: 326
ISSN (Print): 0378-5955
Ratings:

Scopus rating (2016): SJR 1.512 SNIP 1.358 CiteScore 3.12
Scopus rating (2015): SJR 1.857 SNIP 1.478 CiteScore 3.28
Scopus rating (2014): SJR 1.719 SNIP 1.36 CiteScore 3.11
Scopus rating (2013): SJR 1.512 SNIP 1.488 CiteScore 2.86
Scopus rating (2012): SJR 1.648 SNIP 1.192 CiteScore 2.81
Scopus rating (2011): SJR 1.363 SNIP 1.231 CiteScore 2.73
Scopus rating (2010): SJR 1.485 SNIP 1.137
Scopus rating (2009): SJR 1.31 SNIP 1.105
Scopus rating (2008): SJR 1.521 SNIP 0.997
Scopus rating (2007): SJR 1.165 SNIP 1.061
Scopus rating (2006): SJR 0.981 SNIP 0.927
Scopus rating (2005): SJR 1.023 SNIP 0.956
Scopus rating (2004): SJR 1 SNIP 0.911
Scopus rating (2003): SJR 1.199 SNIP 0.959
Scopus rating (2002): SJR 1.074 SNIP 0.981
Scopus rating (2001): SJR 1.014 SNIP 0.916
Scopus rating (2000): SJR 0.919 SNIP 0.999
Scopus rating (1999): SJR 1.175 SNIP 0.945

Original language: English

ASJC Scopus subject areas: Sensory Systems

DOIs:

10.1016/j.heares.2015.04.005

Source: Scopus

Source-ID: 84929459212

Research output: Scientific - peer-review › Article

Cardiac pacemakers in magnetic fields of a shunt reactor at a 400 kV substation

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Environmental Health, Fingrid Oyj, The Heart Center, Tampere University Hospital

Authors: Korpinen, L., Kuisti, H., Tarao, H., Elovaara, J., Virtanen, V.

Number of pages: 4

Pages: 229-232

Publication date: Aug 2015

Peer-reviewed: Yes

Publication information

Journal: International Journal of Occupational Safety and Ergonomics

Volume: 21

Issue number: 2

ISSN (Print): 1080-3548

Ratings:

Scopus rating (2016): SJR 0.259 SNIP 0.673 CiteScore 0.64
Scopus rating (2015): SJR 0.284 SNIP 0.729 CiteScore 0.65
Scopus rating (2014): SJR 0.23 SNIP 0.62 CiteScore 0.56
Scopus rating (2013): SJR 0.232 SNIP 0.853 CiteScore 0.65
Scopus rating (2012): SJR 0.344 SNIP 0.732 CiteScore 0.77

Scopus rating (2011): SJR 0.286 SNIP 0.578 CiteScore 0.39
Scopus rating (2010): SJR 0.221 SNIP 0.341
Scopus rating (2009): SJR 0.272 SNIP 0.673
Scopus rating (2008): SJR 0.369 SNIP 0.488
Scopus rating (2007): SJR 0.431 SNIP 0.618
Scopus rating (2006): SJR 0.205 SNIP 0.427
Scopus rating (2005): SJR 0.216 SNIP 0.257
Scopus rating (2004): SJR 0.224 SNIP 0.45
Scopus rating (2003): SJR 0.19 SNIP 0.344
Scopus rating (2002): SJR 0.205 SNIP 0.403
Scopus rating (2001): SJR 0.141 SNIP 0.333
Scopus rating (2000): SJR 0.136 SNIP 0.264
Scopus rating (1999): SJR 0.197 SNIP 0.372
Original language: English
ASJC Scopus subject areas: Electrical and Electronic Engineering
DOIs:
10.1080/10803548.2015.1029286
Research output: Scientific - peer-review › Article

Self-reported depression and anxiety symptoms and usage of computers and mobile phones among working-age Finns

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Department of Electronics and Communications Engineering, Research group: Environmental Health, TMI Rauno Pääkkönen
Authors: Korpinen, L., Pääkkönen, R.
Number of pages: 8
Pages: 221-228
Publication date: Aug 2015
Peer-reviewed: Yes

Publication information

Journal: International Journal of Occupational Safety and Ergonomics
Volume: 21
Issue number: 2
ISSN (Print): 1080-3548
Ratings:
Scopus rating (2016): SJR 0.259 SNIP 0.673 CiteScore 0.64
Scopus rating (2015): SJR 0.284 SNIP 0.729 CiteScore 0.65
Scopus rating (2014): SJR 0.23 SNIP 0.62 CiteScore 0.56
Scopus rating (2013): SJR 0.232 SNIP 0.853 CiteScore 0.65
Scopus rating (2012): SJR 0.344 SNIP 0.732 CiteScore 0.77
Scopus rating (2011): SJR 0.286 SNIP 0.578 CiteScore 0.39
Scopus rating (2010): SJR 0.221 SNIP 0.341
Scopus rating (2009): SJR 0.272 SNIP 0.673
Scopus rating (2008): SJR 0.369 SNIP 0.488
Scopus rating (2007): SJR 0.431 SNIP 0.618
Scopus rating (2006): SJR 0.205 SNIP 0.427
Scopus rating (2005): SJR 0.216 SNIP 0.257
Scopus rating (2004): SJR 0.224 SNIP 0.45
Scopus rating (2003): SJR 0.19 SNIP 0.344
Scopus rating (2002): SJR 0.205 SNIP 0.403
Scopus rating (2001): SJR 0.141 SNIP 0.333
Scopus rating (2000): SJR 0.136 SNIP 0.264
Scopus rating (1999): SJR 0.197 SNIP 0.372
Original language: English
ASJC Scopus subject areas: Electrical and Electronic Engineering

DOIs:

10.1080/10803548.2015.1029292

Research output: Scientific - peer-review > Article

Nonlinear Optical Properties of Fluorescent Dyes Allow for Accurate Determination of Their Molecular Orientations in Phospholipid Membranes

Several methods based on single- and two-photon fluorescence detected linear dichroism have recently been used to determine the orientational distributions of fluorescent dyes in lipid membranes. However, these determinations relied on simplified descriptions of nonlinear anisotropic properties of the dye molecules, using a transition dipole-moment-like vector instead of an absorptivity tensor. To investigate the validity of the vector approximation, we have now carried out a combination of computer simulations and polarization microscopy experiments on two representative fluorescent dyes (Dil and F2N12S) embedded in aqueous phosphatidylcholine bilayers. Our results indicate that a simplified vector-like treatment of the two-photon transition tensor is applicable for molecular geometries sampled in the membrane at ambient conditions. Furthermore, our results allow evaluation of several distinct polarization microscopy techniques. In combination, our results point to a robust and accurate experimental and computational treatment of orientational distributions of Dil, F2N12S, and related dyes (including Cy3, Cy5, and others), with implications to monitoring physiologically relevant processes in cellular membranes in a novel way.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Physics, Computational Science X (CompX), Institute of Organic Chemistry and Biochemistry, Academy of Sciences of the Czech Republic, Lawrence Berkeley National Laboratory, Department of Cybernetics, Faculty of Applied Sciences, University of West Bohemia, Institute of Nanobiology and Structural Biology GCRC, V.v.i., Academy of Sciences of the Czech Republic, University of South Bohemia

Authors: Timr, Š., Brabec, J., Bondar, A., Ryba, T., Železný, M., Lazar, J., Jungwirth, P.

Number of pages: 11

Pages: 9706-9716

Publication date: 30 Jul 2015

Peer-reviewed: Yes

Early online date: 21 Jul 2015

Publication information

Journal: Journal of Physical Chemistry Part B

Volume: 119

Issue number: 30

ISSN (Print): 1520-6106

Ratings:

Scopus rating (2016): SJR 1.348 SNIP 1.02 CiteScore 3.03

Scopus rating (2015): SJR 1.367 SNIP 1.096 CiteScore 3.25

Scopus rating (2014): SJR 1.44 SNIP 1.14 CiteScore 3.28

Scopus rating (2013): SJR 1.494 SNIP 1.2 CiteScore 3.53

Scopus rating (2012): SJR 1.92 SNIP 1.251 CiteScore 3.66

Scopus rating (2011): SJR 1.78 SNIP 1.226 CiteScore 3.62

Scopus rating (2010): SJR 1.849 SNIP 1.214

Scopus rating (2009): SJR 2.232 SNIP 1.349

Scopus rating (2008): SJR 2.543 SNIP 1.381

Scopus rating (2007): SJR 2.346 SNIP 1.282

Scopus rating (2006): SJR 2.369 SNIP 1.415

Scopus rating (2005): SJR 2.275 SNIP 1.474

Scopus rating (2004): SJR 2.148 SNIP 1.511

Scopus rating (2003): SJR 2.034 SNIP 1.47

Scopus rating (2002): SJR 2.118 SNIP 1.496

Scopus rating (2001): SJR 2.053 SNIP 1.508

Scopus rating (2000): SJR 2.145 SNIP 1.527

Scopus rating (1999): SJR 1.713 SNIP 1.8

Original language: English

ASJC Scopus subject areas: Physical and Theoretical Chemistry, Materials Chemistry, Surfaces, Coatings and Films

DOIs:

10.1021/acs.jpccb.5b05123

Links:

<http://www.scopus.com/inward/record.url?scp=84938277609&partnerID=8YFLogxK> (Link to publication in Scopus)

Bibliographical note

EXT="Bondar, Alexey"

Source: Scopus

Source-ID: 84938277609

Research output: Scientific - peer-review › Article

615 nm GaInNAs VECSEL with output power above 10 W

A high-power optically-pumped vertical-external-cavity surface-emitting laser (VECSEL) generating 10.5 W of cw output power at 615 nm is reported. The gain mirror incorporated 10 GaInNAs quantum wells and was designed to have an emission peak in the 1230 nm range. The fundamental emission was frequency doubled to the red spectral range by using an intra-cavity nonlinear LBO crystal. The maximum optical-to-optical conversion efficiency was 17.5%. The VECSEL was also operated in pulsed mode by directly modulating the pump laser to produce light pulses with duration of ~1.5 μ s. The maximum peak power for pulsed operation (pump limited) was 13.8 W. This corresponded to an optical-to-optical conversion efficiency of 20.4%.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Optoelectronics Research Centre, Research group: Semiconductor Technology and Applications, Frontier Photonics

Authors: Kantola, E., Leinonen, T., Penttinen, J., Korpijärvi, V., Guina, M.

Number of pages: 8

Pages: 20280-20287

Publication date: 27 Jul 2015

Peer-reviewed: Yes

Publication information

Journal: Optics Express

Volume: 23

Issue number: 16

ISSN (Print): 1094-4087

Ratings:

Scopus rating (2016): SJR 1.487 SNIP 1.589 CiteScore 3.48

Scopus rating (2015): SJR 1.976 SNIP 1.755 CiteScore 3.78

Scopus rating (2014): SJR 2.349 SNIP 2.166 CiteScore 4.18

Scopus rating (2013): SJR 2.358 SNIP 2.226 CiteScore 4.38

Scopus rating (2012): SJR 2.587 SNIP 2.145 CiteScore 3.85

Scopus rating (2011): SJR 2.579 SNIP 2.606 CiteScore 4.04

Scopus rating (2010): SJR 2.943 SNIP 2.466

Scopus rating (2009): SJR 3.092 SNIP 2.669

Scopus rating (2008): SJR 3.195 SNIP 2.393

Scopus rating (2007): SJR 3.27 SNIP 2.032

Scopus rating (2006): SJR 3.233 SNIP 2.326

Scopus rating (2005): SJR 3.334 SNIP 2.379

Scopus rating (2004): SJR 2.833 SNIP 2.499

Scopus rating (2003): SJR 2.688 SNIP 2.193

Scopus rating (2002): SJR 1.547 SNIP 1.673

Scopus rating (2001): SJR 1.442 SNIP 1.39

Scopus rating (2000): SJR 1.246 SNIP 0.714

Scopus rating (1999): SJR 1.381 SNIP 0.838

Original language: English

DOIs:

10.1364/OE.23.020280

Research output: Scientific - peer-review › Article

Improved dimensional stability with bioactive glass fibre skeleton in poly(lactide-co-glycolide) porous scaffolds for tissue engineering

Abstract Bone tissue engineering requires highly porous three-dimensional (3D) scaffolds with preferable osteoconductive properties, controlled degradation, and good dimensional stability. In this study, highly porous 3D poly(d,l-lactide-co-glycolide) (PLGA) - bioactive glass (BG) composites (PLGA/BG) were manufactured by combining highly porous 3D fibrous BG mesh skeleton with porous PLGA in a freeze-drying process. The 3D structure of the scaffolds was investigated as well as in vitro hydrolytic degradation for 10 weeks. The effect of BG on the dimensional stability, scaffold composition, pore structure, and degradation behaviour of the scaffolds was evaluated. The composites showed superior pore structure as the BG fibres inhibited shrinkage of the scaffolds. The BG was also shown to buffer the acidic degradation products of PLGA. These results demonstrate the potential of these PLGA/BG composites for bone tissue engineering, but the ability of this kind of PLGA/BG composites to promote bone regeneration will be studied in forthcoming in vivo studies.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Biomaterials and Tissue Engineering Group, BioMediTech, Integrated Technologies for Tissue Engineering Research (ITTE), BioMediTech - Institute of Biosciences and Medical Technology, Abo Akademi University, BioMediTech, Laboratory of Polymer Technology, Centre of Excellence in Functional Materials at Biological Interfaces, Åbo Akademi University

Authors: Haaparanta, A., Uppstu, P., Hannula, M., Ellä, V., Rosling, A., Kellomäki, M.

Number of pages: 10

Pages: 457-466

Publication date: 20 Jul 2015

Peer-reviewed: Yes

Publication information

Journal: Materials Science and Engineering C: Materials for Biological Applications

Volume: 56

Article number: 5584

ISSN (Print): 0928-4931

Ratings:

Scopus rating (2016): SJR 0.857 SNIP 1.176 CiteScore 3.78

Scopus rating (2015): SJR 1.312 SNIP 1.084 CiteScore 3.13

Scopus rating (2014): SJR 0.716 SNIP 1.196 CiteScore 2.88

Scopus rating (2013): SJR 0.755 SNIP 1.346 CiteScore 3.07

Scopus rating (2012): SJR 0.832 SNIP 1.471 CiteScore 2.78

Scopus rating (2011): SJR 0.849 SNIP 1.353 CiteScore 2.93

Scopus rating (2010): SJR 0.81 SNIP 1.083

Scopus rating (2009): SJR 0.753 SNIP 1.208

Scopus rating (2008): SJR 0.796 SNIP 1.08

Scopus rating (2007): SJR 0.682 SNIP 1.035

Scopus rating (2006): SJR 0.656 SNIP 0.976

Scopus rating (2005): SJR 0.747 SNIP 1.009

Scopus rating (2004): SJR 0.639 SNIP 0.843

Scopus rating (2003): SJR 0.609 SNIP 0.7

Scopus rating (2002): SJR 0.482 SNIP 0.67

Scopus rating (2001): SJR 0.467 SNIP 0.664

Scopus rating (2000): SJR 0.489 SNIP 0.394

Scopus rating (1999): SJR 0.251 SNIP 0.379

Original language: English

Keywords: Bioactive glass, Bone, Composite, Freeze-drying, Poly(d,l-lactide-co-glycolide), Tissue engineering

ASJC Scopus subject areas: Materials Science(all), Condensed Matter Physics, Mechanical Engineering, Mechanics of Materials

DOIs:

10.1016/j.msec.2015.07.013

Source: Scopus

Source-ID: 84937212744

Research output: Scientific - peer-review › Article

Kinetics of the cellular intake of a gene expression inducer at high concentrations

From in vivo single-event measurements of the transient and steady-state transcription activity of a single-copy lac-ara-1 promoter in Escherichia coli, we characterize the intake kinetics of its inducer (IPTG) from the media. We show that the empirical data are well-fit by a model of intake assuming a bilayer membrane, with the passage through the second layer

being rate-limiting, coupled to a stochastic, sub-Poissonian, multi-step transcription process. Using this model, we show that for a wide range of extracellular inducer levels (up to 1.25 mM) the intake process is diffusive-like, suggesting unsaturated membrane permeability. Inducer molecules travel from the periplasm to the cytoplasm in, on average, 31.7 minutes, strongly affecting cells' response time. The novel methodology followed here should aid the study of cellular intake mechanisms at the single-event level.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Research group: Laboratory of Biosystem Dynamics-LBD, Multi-scaled biodata analysis and modelling (MultiBAM)

Authors: Tran, H., Oliveira, S. M. D., Goncalves, N., Ribeiro, A. S.

Number of pages: 9

Pages: 2579-2587

Publication date: 20 Jul 2015

Peer-reviewed: Yes

Publication information

Journal: Molecular Biosystems

Volume: 11

Issue number: 9

ISSN (Print): 1742-206X

Ratings:

Scopus rating (2016): SJR 1.134 SNIP 0.741 CiteScore 2.85

Scopus rating (2015): SJR 1.248 SNIP 0.857 CiteScore 3.04

Scopus rating (2014): SJR 1.323 SNIP 0.829 CiteScore 3.06

Scopus rating (2013): SJR 1.533 SNIP 0.82 CiteScore 3.25

Scopus rating (2012): SJR 1.596 SNIP 0.862 CiteScore 3.43

Scopus rating (2011): SJR 1.944 SNIP 0.842 CiteScore 3.53

Scopus rating (2010): SJR 1.833 SNIP 0.844

Scopus rating (2009): SJR 1.92 SNIP 0.906

Scopus rating (2008): SJR 1.508 SNIP 0.917

Scopus rating (2007): SJR 1.33 SNIP 1.251

Scopus rating (2006): SJR 0.806 SNIP 0.491

Original language: English

ASJC Scopus subject areas: Biotechnology, Molecular Biology

DOIs:

10.1039/c5mb00244c

Source: Scopus

Source-ID: 84938937101

Research output: Scientific - peer-review › Article

In-vivo deformation measurements of the human heart by 3D Digital Image Correlation

Fast and accurate measurements of the kinetics and deformation of the heart during cardiac surgery can be useful for assessing the best strategies for the protection of the myocardium. While measurements based on ultrasonic technology such as the transesophageal echocardiography are rapidly developing in this direction, also other analysis methods based on optical imaging have been developed within the recent decade. The improved quality of digital cameras and increased computational power of personal computers have led to the development of deformation analysis method known as Digital Image Correlation (DIC). This paper presents preliminary results on the application of the DIC technique on analysing of the movement and deformation of the myocardial movement during a cardiopulmonary bypass surgery. The results show that the natural pattern of the heart should be sufficient for DIC, but better and more accurate results could be obtained with improved contrast conditions. DIC has a potential to be used as a sensitive tool for the surgeon to monitor the cardiac function.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Materials Science, Research group: Materials Characterization, Engineering materials science and solutions (EMASS), Heart Surgery, Univesitätsklinikum Giessen und Marburg GMBH, Germany, LaVision

Authors: Hokka, M., Mirow, N., Nagel, H., Irsusi, M., Vogt, S., Kuokkala, V. T.

Number of pages: 4

Pages: 2217-2220

Publication date: 16 Jul 2015

Peer-reviewed: Yes

Publication information

Journal: Journal of Biomechanics

Volume: 48

Issue number: 10

ISSN (Print): 0021-9290

Ratings:

Scopus rating (2016): SJR 1.2 SNIP 1.368 CiteScore 2.84

Scopus rating (2015): SJR 1.276 SNIP 1.46 CiteScore 2.76

Scopus rating (2014): SJR 1.233 SNIP 1.718 CiteScore 3.01

Scopus rating (2013): SJR 1.522 SNIP 1.783 CiteScore 3.14

Scopus rating (2012): SJR 1.326 SNIP 1.733 CiteScore 2.99

Scopus rating (2011): SJR 1.269 SNIP 1.615 CiteScore 2.82

Scopus rating (2010): SJR 1.174 SNIP 1.747

Scopus rating (2009): SJR 1.39 SNIP 1.867

Scopus rating (2008): SJR 1.455 SNIP 1.899

Scopus rating (2007): SJR 1.575 SNIP 2.14

Scopus rating (2006): SJR 1.518 SNIP 2.11

Scopus rating (2005): SJR 1.223 SNIP 2.208

Scopus rating (2004): SJR 1.057 SNIP 1.909

Scopus rating (2003): SJR 1.314 SNIP 1.737

Scopus rating (2002): SJR 1.124 SNIP 1.605

Scopus rating (2001): SJR 1.234 SNIP 2.158

Scopus rating (2000): SJR 1.525 SNIP 1.971

Scopus rating (1999): SJR 1.137 SNIP 1.835

Original language: English

Keywords: Deformation, Digital Image Correlation, Myocardium

ASJC Scopus subject areas: Orthopedics and Sports Medicine, Rehabilitation, Biophysics, Biomedical Engineering

DOIs:

10.1016/j.jbiomech.2015.03.015

Links:

<http://www.scopus.com/inward/record.url?scp=84937519199&partnerID=8YFLogxK> (Link to publication in Scopus)

Source: Scopus

Source-ID: 84937519199

Research output: Scientific - peer-review › Article

Bioactive glass ions as strong enhancers of osteogenic differentiation in human adipose stem cells

Bioactive glasses are known for their ability to induce osteogenic differentiation of stem cells. To elucidate the mechanism of the osteoinductivity in more detail, we studied whether ionic extracts prepared from a commercial glass S53P4 and from three experimental glasses (2-06, 1-06 and 3-06) are alone sufficient to induce osteogenic differentiation of human adipose stem cells. Cells were cultured using basic medium or osteogenic medium as extract basis. Our results indicate that cells stay viable in all the glass extracts for the whole culturing period, 14 days. At 14 days the mineralization in osteogenic medium extracts was excessive compared to the control. Parallel to the increased mineralization we observed a decrease in the cell amount. Raman and Laser Induced Breakdown Spectroscopy analyses confirmed that the mineral consisted of calcium phosphates. Consistently, the osteogenic medium extracts also increased osteocalcin production and collagen Type-I accumulation in the extracellular matrix at 13 days. Of the four osteogenic medium extracts, 2-06 and 3-06 induced the best responses of osteogenesis. However, regardless of the enhanced mineral formation, alkaline phosphatase activity was not promoted by the extracts. The osteogenic medium extracts could potentially provide a fast and effective way to differentiate human adipose stem cells in vitro.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Biomaterials and Tissue Engineering Group, BioMediTech, Integrated Technologies for Tissue Engineering Research (ITTE), Tampere University Hospital, BioMediTech, University of Jyväskylä, Pirkanmaa Hospital District and School of Health Sciences, Adult Stem Cell Research Group, Regenerative Medicine, Adult Stem Cell Group, Johan Gadolin Process Chemistry Centre, Åbo Akademi University

Authors: Ojansivu, M., Vanhatupa, S., Björkvik, L., Häkkinen, H., Kellomäki, M., Autio, R., Ihalainen, J. A., Hupa, L., Miettinen, S.

Number of pages: 14
Pages: 190-203
Publication date: 15 Jul 2015
Peer-reviewed: Yes

Publication information

Journal: Acta Biomaterialia
Volume: 21
ISSN (Print): 1742-7061
Ratings:

Scopus rating (2016): CiteScore 6.66 SJR 1.789 SNIP 1.921

Scopus rating (2015): SJR 1.997 SNIP 1.99 CiteScore 6.58

Scopus rating (2014): SJR 1.814 SNIP 2.324 CiteScore 6.53

Scopus rating (2013): SJR 1.963 SNIP 2.269 CiteScore 6.41

Scopus rating (2012): SJR 1.904 SNIP 2.125 CiteScore 5.51

Scopus rating (2011): SJR 1.808 SNIP 1.91 CiteScore 5.15

Scopus rating (2010): SJR 1.794 SNIP 1.964

Scopus rating (2009): SJR 1.399 SNIP 1.662

Scopus rating (2008): SJR 1.404 SNIP 1.981

Scopus rating (2007): SJR 1.199 SNIP 1.493

Scopus rating (2006): SJR 0.837 SNIP 1.131

Original language: English

ASJC Scopus subject areas: Biomaterials, Biomedical Engineering, Biotechnology, Biochemistry, Molecular Biology

Keywords: Bioactive glass, Bone tissue engineering, Mesenchymal stem cell, Mineralization, Osteogenic differentiation

DOIs:

10.1016/j.actbio.2015.04.017

Bibliographical note

EXT="Autio, Reija"

Source: Scopus

Source-ID: 84929951673

Research output: Scientific - peer-review › Article

Application of Biopolymer Doped Polypyrroles in Biomedical Implants and Electrical Stimulation Devices

Organic conductive polymers are emerging new materials for biomedical engineering. They offer surface properties which are attractive for many biomedical applications, such as surface coatings on metallic or biodegradable polymeric implants, tissue engineering scaffolds, implantable electronic tissue stimulation devices and microelectromechanical systems for the manipulation of single living cells *in vitro*, for example. Owing to the proven compatibility with tissues and cells, conductive polypyrrole (PPy) has been intensively investigated for bone and neural stimulation applications. A salient feature of PPy is its easy modification with bioactive molecules and macromolecules, such as the extracellular matrix (ECM) components of animal tissues. This work assessed the ECM components hyaluronic acid (HA) and chondroitin sulfate (CS) as dopants, which we incorporated into the PPy during the syntheses by electrochemical and oxidative chemical polymerization.

Biopolymer doped PPys have been earlier reported to be good substrates for cell cultures. Furthermore, preceding implantation studies have shown promising results. However, considering clinical application and registration of PPy as a biomaterial in commercial cell culturing or tissue engineering products, there are still many practical aspects requiring more attention, such as the establishment of feasible synthetic routes, sterilizability, preservation of the electronic properties during storage and during the incubation in physiological conditions, possible biodegradation mechanisms, stability and biological elimination of the degradation products *in vivo*, for example. Mass spectroscopy of the hydrolysis products of polylactide (PLA) fibers coated with layer of PPy, suggested that the PPy was biostable in water at neutral pH. Electrical conductivity measurements and Raman spectroscopy showed that the PPy chain was prone to de-doping, and hence the lost its conductivity under biological conditions, but these effects were partly reversible by acid doping and positively biased electrochemical potential. The electrochemical redox activity and electromechanical actuation property of the biopolymer doped PPys was thoroughly studied. It was shown that the biopolymer doped PPy had significant and reversible redox activity, which could be potentially utilized in microelectromechanical stimulation of cells and implantable microscopic actuators.

Practical and reproducible polymerization protocols were developed during this work. We took novel approaches and suggested a relatively simple "one-pot" chemical polymerization scheme, avoiding the complications of biological functionalization using potentially toxic click-chemistry. The developed methods were successfully applied in the deposition of electrically conductive, biopolymer doped PPy coatings on polylactide (PLA) nonwoven tissue engineering scaffolds and commercial poly(lactide-co-glycolide)- β -tricalcium phosphate (PLGA- β -TCP) bone fixation screws.

The physical properties and cell response of HA and CS doped PPys (PPyHA and PPyCS) electrode coatings were investigated by atomic force microscopy (AFM) and electrochemical methods. Drastically different behaviour of adipose stem cells (hASC) was found on the different electrode coatings, highlighting the sensitivity of the hASCs on the nanoscopic and microscopic surface properties of the PPy substrate, such as surface roughness, elasticity and surface potential distribution, factors which could be engineered during the synthesis and affected by external stimuli during incubation in cell culture medium.

In conclusion, the results of this thesis supported the use of PPy coatings in bone tissue engineering. The electropolymerized films and also the chemically polymerized PPyHA and PPyCS coatings on bioabsorbable polymer were highly compatible with hASCs, supported cell adhesion and could be utilized in delivering direct electrical stimulation in vitro. There is also future potential in designing permanently implantable scaffolds and microstimulation devices, but still further insight into the biodegradation mechanism and biological elimination of PPy in vivo is needed.

General information

State: Published

Ministry of Education publication type: G5 Doctoral dissertation (article)

Organisations: Department of Electronics and Communications Engineering

Authors: Pelto, J.

Number of pages: 85

Publication date: 9 Jul 2015

Publication information

Place of publication: Tampere

Publisher: Tampere University of Technology

ISBN (Print): 978-952-15-3543-7

ISBN (Electronic): 978-952-15-3552-9

Original language: English

Publication series

Name: Tampere University of Technology. Publication

Publisher: Tampere University of Technology

Volume: 1307

ISSN (Electronic): 1459-2045

Electronic versions:

pelto_1307

Links:

<http://URN.fi/URN:ISBN:978-952-15-3552-9>

Bibliographical note

Awarding institution: Tampere University of Technology

Versio ok 16.12.2015

Research output: [Collection of articles](#) > [Doctoral Thesis](#)

Real sequence effects on the search dynamics of transcription factors on DNA

Recent experiments show that transcription factors (TFs) indeed use the facilitated diffusion mechanism to locate their target sequences on DNA in living bacteria cells: TFs alternate between sliding motion along DNA and relocation events through the cytoplasm. From simulations and theoretical analysis we study the TF-sliding motion for a large section of the DNA-sequence of a common E. coli strain, based on the two-state TF-model with a fast-sliding search state and a recognition state enabling target detection. For the probability to detect the target before dissociating from DNA the TF-search times self-consistently depend heavily on whether or not an auxiliary operator (an accessible sequence similar to the main operator) is present in the genome section. Importantly, within our model the extent to which the interconversion rates between search and recognition states depend on the underlying nucleotide sequence is varied. A moderate dependence maximises the capability to distinguish between the main operator and similar sequences. Moreover, these auxiliary operators serve as starting points for DNA looping with the main operator, yielding a spectrum of target detection times spanning several orders of magnitude. Auxiliary operators are shown to act as funnels facilitating target detection by TFs.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Physics, University of Potsdam, Technical University Munich, Chemistry and Pharmacy, University of Southern Denmark, Institute for Physics And Astronomy, MEMPHYS - Centre for Biomembrane Physics

Authors: Bauer, M., Rasmussen, E. S., Lomholt, M. A., Metzler, R.

Publication date: 8 Jul 2015

Peer-reviewed: Yes

Publication information

Journal: Scientific Reports

Volume: 5

Article number: 10072

ISSN (Print): 2045-2322

Ratings:

Scopus rating (2016): CiteScore 4.63 SJR 1.625 SNIP 1.401

Scopus rating (2015): SJR 2.057 SNIP 1.684 CiteScore 5.3

Scopus rating (2014): SJR 2.103 SNIP 1.544 CiteScore 4.75

Scopus rating (2013): SJR 1.886 SNIP 1.51 CiteScore 4.06

Scopus rating (2012): SJR 1.458 SNIP 0.896 CiteScore 2.44

Original language: English

ASJC Scopus subject areas: General

DOIs:

[10.1038/srep10072](https://doi.org/10.1038/srep10072)

Links:

<http://www.scopus.com/inward/record.url?scp=84936946155&partnerID=8YFLogxK> (Link to publication in Scopus)

Source: Scopus

Source-ID: 84936946155

Research output: Scientific - peer-review > Article

Emission of Smart Meter Electric Fields (50 -100 kHz) in Finland

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Research group: Environmental Health

Authors: Pääkkönen, R., Lundström, M., Mustaparta, J., Korpinen, L.

Number of pages: 3

Pages: 565 - 567

Publication date: 6 Jul 2015

Host publication information

Title of host publication: Progress In Electromagnetics Research Symposium, July 6-9, 2015, Prague, Czech Republic

Publisher: Electromagnetics Academy

ISBN (Electronic): 978-1-934142-30-1

Publication series

Name: Progress in electromagnetics research symposium

ISSN (Electronic): 1559-9450

ASJC Scopus subject areas: Electrical and Electronic Engineering

Links:

<http://piers.org/piersproceedings/piers2015PragueProc.php?searchname=korpinen>

Research output: Scientific - peer-review > Conference contribution

Examples of Electromagnetic Field Sources in an Indoor Distribution Substation

The paper presents example measurements of electromagnetic fields in an indoor distribution substation. We measured at different places: At Place A (near the fuse panel), using (1) frequency bandwidth (FB) 40kHz-100kHz, fields varied 0.011-0.039 μT and using (2) FB 5Hz-100kHz, fields varied 67-74 μT ; at Place B (the surface of the collector meter), the fields varied from 0.022 to 0.083 μT (40kHz-100kHz); at Place C (near the antenna of the collector meter), the maximum radio frequency field was 1.0 W/m², and at Place D (the surface of the antenna), it was 1.8 W/m². The measured values were below ICNIRP guidelines.

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Research group: Environmental Health, TMI

Rauno Pääkkönen, Turku Energia Sähköverkot Oy, Tampereen Sähköverkko Oy

Authors: Pääkkönen, R., Lundström, M., Mustaparta, J., Korpinen, L.

Number of pages: 4

Pages: 561 - 564

Publication date: 6 Jul 2015

Host publication information

Title of host publication: Progress In Electromagnetics Research Symposium, July 6-9, 2015, Prague, Czech Republic
Publisher: Electromagnetics Academy
ISBN (Electronic): 978-1-934142-30-1

Publication series

Name: Progress in electromagnetics research symposium
ISSN (Print): 1559-9450
ASJC Scopus subject areas: Engineering(all), Electrical and Electronic Engineering
Links:
<http://piers.org/piersproceedings/piers2015PragueProc.php?searchname=korpinen>
Research output: Scientific - peer-review > Conference contribution

Examples of Variation in Measured ELF Electric Fields under 400 kV Power Lines

General information

State: Published
Ministry of Education publication type: A4 Article in a conference publication
Organisations: Department of Electronics and Communications Engineering, Research group: Environmental Health, Sensing Systems for Wireless Medicine (MediSense), TMI Rauno Pääkkönen, Department of Electrical and Computer Engineering Kagawa National College of Technology, Department of Electrical Energy National Technical University, Kharkiv Polytechnic Institute
Authors: Korpinen, L., Pääkkönen, R., Tarao, H., Okun, O., Sydänheimo, L.
Number of pages: 3
Pages: 1104 - 1106
Publication date: 6 Jul 2015

Host publication information

Title of host publication: Progress In Electromagnetics Research Symposium, July 6-9, 2015, Prague, Czech Republic
Publisher: Electromagnetics Academy
ISBN (Electronic): 978-1-934142-30-1

Publication series

Name: Progress in electromagnetics research symposium
ISSN (Electronic): 1559-9450
ASJC Scopus subject areas: Electrical and Electronic Engineering
Links:
<http://piers.org/piersproceedings/piers2015PragueProc.php?searchname=korpinen>
Research output: Scientific - peer-review > Conference contribution

Influences of High Relative Humidity on Extremely Low Frequency Electric Field Measurements

General information

State: Published
Ministry of Education publication type: A4 Article in a conference publication
Organisations: Department of Electronics and Communications Engineering, Research group: Environmental Health, Sensing Systems for Wireless Medicine (MediSense), Department of Electrical and Computer Engineering Kagawa National College of Technology, TMI Rauno Pääkkönen, Department of Electrical Energy National Technical University, Kharkiv Polytechnic Institute
Authors: Korpinen, L., Tarao, H., Pääkkönen, R., Okun, O., Sydänheimo, L.
Number of pages: 4
Pages: 1100 - 1103
Publication date: 6 Jul 2015

Host publication information

Title of host publication: Progress In Electromagnetics Research Symposium, July 6-9, 2015, Prague, Czech Republic
Publisher: Electromagnetics Academy
ISBN (Electronic): 978-1-934142-30-1

Publication series

Name: Progress in electromagnetics research symposium
ISSN (Electronic): 1559-9450
ASJC Scopus subject areas: Electrical and Electronic Engineering
Links:

<http://piers.org/piersproceedings/piers2015PragueProc.php?searchname=korpinen>
Research output: Scientific - peer-review › Conference contribution

Numerical Estimation of Muscle Conductivity in Terms of Human Body Internal Resistance

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Research group: Environmental Health, National Institute of Technology, Kagawa College, Japan, National Technical University

Authors: Tarao, H., Aga, K., Okun, O., Korpinen, L.

Number of pages: 3

Pages: 439 - 441

Publication date: 6 Jul 2015

Host publication information

Title of host publication: Progress In Electromagnetics Research Symposium, July 6-9, 2015, Prague, Czech Republic

Publisher: Electromagnetics Academy

ISBN (Electronic): 978-1-934142-30-1

Publication series

Name: Progress in electromagnetics research symposium

ISSN (Electronic): 1559-9450

ASJC Scopus subject areas: Engineering(all)

Links:

<http://piers.org/piersproceedings/piers2015PragueProc.php?searchname=korpinen>

Research output: Scientific - peer-review › Conference contribution

Possible Methods for Limiting Exposure to the Electric Fields of High Voltage Power Lines on Active Implantable Medical Devices in the Human Body

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Research group: Environmental Health, Sensing Systems for Wireless Medicine (MediSense), Department of Electrical Energy National Technical University, Kharkiv Polytechnic Institute

Authors: Korpinen, L., Okun, O., Sydänheimo, L.

Number of pages: 4

Pages: 1107 - 1110

Publication date: 6 Jul 2015

Host publication information

Title of host publication: Progress In Electromagnetics Research Symposium, July 6-9, 2015, Prague, Czech Republic

Publisher: Electromagnetics Academy

ISBN (Electronic): 978-1-934142-30-1

Publication series

Name: Progress in electromagnetics research symposium

ISSN (Electronic): 1559-9450

ASJC Scopus subject areas: Electrical and Electronic Engineering

Links:

<http://piers.org/piersproceedings/piers2015PragueProc.php?searchname=korpinen>

Research output: Scientific - peer-review › Conference contribution

Signal focusing through active transport

The accuracy of molecular signaling in biological cells and novel diagnostic devices is ultimately limited by the counting noise floor imposed by the thermal diffusion. Motivated by the fact that messenger RNA and vesicle-engulfed signaling molecules transiently bind to molecular motors and are actively transported in biological cells, we show here that the random active delivery of signaling particles to within a typical diffusion distance to the receptor generically reduces the correlation time of the counting noise. Considering a variety of signaling particle sizes from mRNA to vesicles and cell sizes from prokaryotic to eukaryotic cells, we show that the conditions for active focusing - faster and more precise signaling - are indeed compatible with observations in living cells. Our results improve the understanding of molecular cellular signaling and novel diagnostic devices.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Physics, Institute for Physics and Astronomy, University of Potsdam, Laboratory for Molecular Modeling, National Institute of Chemistry Ljubljana

Authors: Godec, A., Metzler, R.

Number of pages: 6

Publication date: 2 Jul 2015

Peer-reviewed: Yes

Publication information

Journal: Physical Review E

Volume: 92

Issue number: 1

Article number: 010701

ISSN (Print): 1539-3755

Ratings:

Scopus rating (2016): SJR 0.993 SNIP 0.896 CiteScore 1.95

Scopus rating (2015): SJR 1.047 SNIP 0.978 CiteScore 1.89

Scopus rating (2014): SJR 1.22 SNIP 1.123 CiteScore 2.05

Scopus rating (2013): SJR 1.311 SNIP 1.239 CiteScore 2.28

Scopus rating (2012): SJR 1.42 SNIP 1.226 CiteScore 2.28

Scopus rating (2011): SJR 1.485 SNIP 1.225 CiteScore 2.28

Scopus rating (2010): SJR 1.69 SNIP 1.215

Scopus rating (2009): SJR 1.694 SNIP 1.259

Scopus rating (2008): SJR 1.96 SNIP 1.314

Scopus rating (2007): SJR 1.926 SNIP 1.332

Scopus rating (2006): SJR 1.787 SNIP 1.324

Scopus rating (2005): SJR 1.71 SNIP 1.302

Scopus rating (2004): SJR 1.672 SNIP 1.214

Scopus rating (2003): SJR 1.303 SNIP 1.166

Scopus rating (2002): SJR 0.936 SNIP 1.241

Scopus rating (2001): SJR 0.709 SNIP 1.429

Scopus rating (2000): SJR 0.299 SNIP 1.252

Scopus rating (1999): SJR 0.381 SNIP 1.232

Original language: English

ASJC Scopus subject areas: Condensed Matter Physics, Statistical and Nonlinear Physics, Statistics and Probability

DOIs:

10.1103/PhysRevE.92.010701

Links:

<http://www.scopus.com/inward/record.url?scp=84937010360&partnerID=8YFLogxK> (Link to publication in Scopus)

Source: Scopus

Source-ID: 84937010360

Research output: Scientific - peer-review > Article

μ CT based assessment of mechanical deformation of designed PTMC scaffolds

BACKGROUND: Advances in rapid-prototyping and 3D printing technologies have enhanced the possibilities in preparing designed architectures for tissue engineering applications. A major advantage in custom designing is the ability to create structures with desired mechanical properties. While the behaviour of a designed scaffold can be simulated using bulk material properties, it is important to verify the behaviour of a printed scaffold at the microstructure level. **OBJECTIVE:** In this study we present an effective method in validating the mechanical behaviour of designed scaffolds using a CT with an in-situ mechanical deformation device. **METHODS:** The scaffolds were prepared from biodegradable poly(trimethylene carbonate) (PTMC) by stereolithography and images obtained using a high-resolution CT with 12.25 μ m isometric voxels. The data was processed (filtering, segmentation) and analysed (surface generation, registration) to extract relevant deformation features. **RESULTS:** The computed local deformation fields, calculated at sub-pore resolutions, displayed expected linear behaviour within the scaffold along the compressions axis. On planes perpendicular to this axis, the deformations varied by 150-200 μ m. **CONCLUSIONS:** μ CT based imaging with in-situ deformation provides a vital tool in validating the design parameters of printed scaffolds. Deformation fields obtained from micro-tomographic image volumes can serve to corroborate the simulated ideal design with the realized product.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Computational Biophysics and Imaging Group, BioMediTech, Integrated Technologies for Tissue Engineering Research (ITTE), Department of Biomaterials Science and Technology, University of Twente

Authors: Narra, N., Blanquer, S. B. G., Haimi, S. P., Grijpma, D. W., Hyttinen, J.

Number of pages: 10

Pages: 99-108

Publication date: 2 Jul 2015

Peer-reviewed: Yes

Publication information

Journal: Clinical Hemorheology and Microcirculation

Volume: 60

Issue number: 1

ISSN (Print): 1386-0291

Ratings:

Scopus rating (2016): SJR 0.533 SNIP 0.957 CiteScore 1.73

Scopus rating (2015): SJR 0.708 SNIP 0.887 CiteScore 1.52

Scopus rating (2014): SJR 0.801 SNIP 1.037 CiteScore 1.95

Scopus rating (2013): SJR 0.582 SNIP 0.801 CiteScore 2.03

Scopus rating (2012): SJR 0.52 SNIP 1.035 CiteScore 2.42

Scopus rating (2011): SJR 0.549 SNIP 0.942 CiteScore 2.24

Scopus rating (2010): SJR 0.558 SNIP 1.07

Scopus rating (2009): SJR 0.553 SNIP 0.715

Scopus rating (2008): SJR 0.534 SNIP 0.837

Scopus rating (2007): SJR 0.442 SNIP 0.639

Scopus rating (2006): SJR 0.447 SNIP 0.919

Scopus rating (2005): SJR 0.422 SNIP 0.742

Scopus rating (2004): SJR 0.279 SNIP 0.771

Scopus rating (2003): SJR 0.371 SNIP 0.723

Scopus rating (2002): SJR 0.302 SNIP 0.607

Scopus rating (2001): SJR 0.245 SNIP 0.451

Scopus rating (2000): SJR 0.271 SNIP 0.468

Scopus rating (1999): SJR 0.274 SNIP 0.698

Original language: English

Keywords: 3D-printing, in-situ deformation, MicroCT, poly(trimethylene carbonate), PTMC, scaffold design

ASJC Scopus subject areas: Hematology, Physiology, Physiology (medical), Cardiology and Cardiovascular Medicine

DOIs:

10.3233/CH-151931

Source: Scopus

Source-ID: 84936887279

Research output: Scientific - peer-review › Article

Cholesterol under oxidative stress: How lipid membranes sense oxidation as cholesterol is being replaced by oxysterols

The behavior of oxysterols in phospholipid membranes and their effects on membrane properties were investigated by means of dynamic light scattering, fluorescence spectroscopy, NMR, and extensive atomistic simulations. Two families of oxysterols were scrutinized - tail-oxidized sterols, which are mostly produced by enzymatic processes, and ring-oxidized sterols, formed mostly via reactions with free radicals. The former family of sterols was found to behave similar to cholesterol in terms of molecular orientation, roughly parallel to the bilayer normal, leading to increasing membrane stiffness and suppression of its membrane permeability. In contrast, ring-oxidized sterols behave quantitatively differently from cholesterol. They acquire tilted orientations and therefore disrupt the bilayer structure with potential implications for signaling and other biochemical processes in the membranes.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Physics, Research area: Computational Physics, Research group: Biological Physics and Soft Matter, Computational Science X (CompX), University of Oulu, Tallinn Technical University, Institute of Chemistry, University of Southern Denmark, J. Heyrovský Institute of Physical Chemistry, Academy of Sciences of the Czech Republic, Department of Physics and Chemistry, Weill Cornell Medical College, Fritz Haber Research Center, Hebrew University of Jerusalem

Authors: Kulig, W., Olżyńska, A., Jurkiewicz, P., Kantola, A. M., Komulainen, S., Manna, M., Pourmoussa, M., Vazdar, M., Cwiklik, L., Rog, T., Khelashvili, G., Harries, D., Telkki, V. V., Hof, M., Vattulainen, I., Jungwirth, P.
Number of pages: 12
Pages: 30-41
Publication date: 1 Jul 2015
Peer-reviewed: Yes

Publication information

Journal: Free Radical Biology and Medicine

Volume: 84

ISSN (Print): 0891-5849

Ratings:

Scopus rating (2016): SJR 2.276 SNIP 1.529 CiteScore 5.66

Scopus rating (2015): SJR 2.511 SNIP 1.627 CiteScore 5.89

Scopus rating (2014): SJR 2.458 SNIP 1.664 CiteScore 5.86

Scopus rating (2013): SJR 2.218 SNIP 1.691 CiteScore 5.81

Scopus rating (2012): SJR 2.099 SNIP 1.67 CiteScore 5.51

Scopus rating (2011): SJR 2.172 SNIP 1.734 CiteScore 5.66

Scopus rating (2010): SJR 2.312 SNIP 1.68

Scopus rating (2009): SJR 2.191 SNIP 1.524

Scopus rating (2008): SJR 2.204 SNIP 1.463

Scopus rating (2007): SJR 2.167 SNIP 1.56

Scopus rating (2006): SJR 2.169 SNIP 1.632

Scopus rating (2005): SJR 2.3 SNIP 1.642

Scopus rating (2004): SJR 2.307 SNIP 1.778

Scopus rating (2003): SJR 2.377 SNIP 1.812

Scopus rating (2002): SJR 2.137 SNIP 1.794

Scopus rating (2001): SJR 1.831 SNIP 1.598

Scopus rating (2000): SJR 1.582 SNIP 1.499

Scopus rating (1999): SJR 1.878 SNIP 1.723

Original language: English

ASJC Scopus subject areas: Biochemistry, Physiology (medical)

Keywords: Phospholipid bilayers, Oxysterols, Molecular dynamics simulations, DPH anisotropy, NMR measurements, Laurdan fluorescence, Liposomes, Tilt modulus, FLUORESCENCE SOLVENT RELAXATION, MOLECULAR-DYNAMICS METHOD, MODEL MEMBRANES, FOURIER TRANSFORMATION, POTENTIAL FUNCTIONS, SOLVATION DYNAMICS, BENDING RIGIDITY, ORDER PARAMETERS, BILAYERS, PROTEINS

DOIs:

10.1016/j.freeradbiomed.2015.03.006

Links:

<http://www.scopus.com/inward/record.url?scp=84928530055&partnerID=8YFLogxK> (Link to publication in Scopus)

Source: WOS

Source-ID: 000355896500004

Research output: Scientific - peer-review > Article

Molecular Communication Modeling of Antibody-Mediated Drug Delivery Systems

Antibody-mediated Drug Delivery Systems (ADDS) are emerging as one of the most encouraging therapeutic solutions for treating several diseases such as human cancers. ADDS use small molecules (antibodies) that propagate in the body and bind selectively to their corresponding receptors (antigens) expressed at the surface of the diseased cells. In this paper, the Molecular Communication (MC) paradigm, where information is conveyed through the concentration of molecules, is advocated for the engineering of ADDS and modeling their complex behavior, to provide a realistic model without the over-complication of system biology models, and the limitations of experimental approaches. The peculiarities of antibodies, including their anisotropic transport and complex electrochemical structure, are taken into account to develop an analytical model of the ADDS transport and antigen-binding kinetics. The end-to-end response of ADDS, from the drug injection to the drug absorption, is mathematically derived based on the geometry of the antibody molecule, the electrochemical structure of the antibody-antigen complex, and the physiology of the patient. The accuracy of the MC model is validated by finite-element (COMSOL) simulations. The implications of the complex interplay between the transport and kinetics parameters on the performance of ADDS are effectively captured by the proposed MC model. The MC model of ADDS will enable the discovery and optimization of drugs in a versatile, cost-efficient, and reliable manner.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Emerging Technologies for Nano-Bio-Info-Cogno, Wireless Communications and Positioning (WICO), Georgia Institute of Technology

Authors: Chahibi, Y., Akyildiz, I. F., Balasubramaniam, S., Koucheryavy, Y.

Number of pages: 13

Pages: 1683-1695

Publication date: 1 Jul 2015

Peer-reviewed: Yes

Publication information

Journal: IEEE Transactions on Biomedical Engineering

Volume: 62

Issue number: 7

ISSN (Print): 0018-9294

Ratings:

Scopus rating (2016): SJR 1.214 SNIP 1.995 CiteScore 4.2

Scopus rating (2015): SJR 1.132 SNIP 2.083 CiteScore 3.74

Scopus rating (2014): SJR 0.84 SNIP 1.973 CiteScore 3.34

Scopus rating (2013): SJR 1.081 SNIP 2.073 CiteScore 3.53

Scopus rating (2012): SJR 0.816 SNIP 1.706 CiteScore 3

Scopus rating (2011): SJR 0.7 SNIP 1.715 CiteScore 3.04

Scopus rating (2010): SJR 0.686 SNIP 1.637

Scopus rating (2009): SJR 0.81 SNIP 1.94

Scopus rating (2008): SJR 0.826 SNIP 1.719

Scopus rating (2007): SJR 1.144 SNIP 2.187

Scopus rating (2006): SJR 1.317 SNIP 2.426

Scopus rating (2005): SJR 1.023 SNIP 2.252

Scopus rating (2004): SJR 0.73 SNIP 1.689

Scopus rating (2003): SJR 0.849 SNIP 1.367

Scopus rating (2002): SJR 0.888 SNIP 1.428

Scopus rating (2001): SJR 0.767 SNIP 1.578

Scopus rating (2000): SJR 0.942 SNIP 1.505

Scopus rating (1999): SJR 0.613 SNIP 2.187

Original language: English

ASJC Scopus subject areas: Biomedical Engineering

Keywords: molecular communication, pharmacokinetics, protein-protein interactions, Targeted drug delivery systems

DOIs:

10.1109/TBME.2015.2400631

Source: Scopus

Source-ID: 84933048987

Research output: Scientific - peer-review > Article

MRI Texture Analysis and Diffusion Tensor Imaging in Chronic Right Hemisphere Ischemic Stroke

BACKGROUND AND PURPOSE: Diffusion tensor imaging (DTI) is shown to reveal changes caused by cerebral infarction. The aim of this study is to reveal those changes also in the conventional magnetic resonance (MR) images using a quantitative image analysis method, texture analysis (TA). **METHODS:** Thirty patients who had suffered their first ever infarction located on the right hemisphere underwent DTI and conventional MRI studies in the chronic phase. DTI parameters fractional anisotropy and mean diffusivity, as well as four second-order texture parameters were calculated. Interhemispheric differences and correlations between DTI and TA parameters were evaluated. **RESULTS:** Our DTI findings supported earlier studies as fractional anisotropy values were lowered and mean diffusivity values elevated in the lesion site, and ipsilateral cerebral peduncle, thalamus, and centrum semiovale compared to the unaffected side. Textural homogeneity parameters showed lower and complexity parameters higher values in the lesion site and ipsilateral centrum semiovale compared to the contralateral hemisphere. Correlation between the two methods was found in ipsilateral mesencephalon. **CONCLUSIONS:** In addition to DTI method, TA could assist in revealing the changes caused by infarction, also outside the lesion site. Damaged areas were found more heterogeneous and random in texture compared to unaffected sites.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Quantative medical imaging , Integrated Technologies for Tissue Engineering Research (ITTE), Tampere University Hospital, Department of Radiology

, Medical Imaging Center and Hospital Pharmacy
Authors: Sikiö, M., Köhli, P., Ryymin, P., Eskola, H. J., Dastidar, P.
Number of pages: 6
Pages: 614-619
Publication date: 1 Jul 2015
Peer-reviewed: Yes

Publication information

Journal: Journal of Neuroimaging
Volume: 25
Issue number: 4
ISSN (Print): 1051-2284
Ratings:

Scopus rating (2016): SJR 0.695 SNIP 0.632 CiteScore 1.55
Scopus rating (2015): SJR 0.793 SNIP 0.87 CiteScore 1.74
Scopus rating (2014): SJR 0.798 SNIP 0.984 CiteScore 1.63
Scopus rating (2013): SJR 0.761 SNIP 0.843 CiteScore 1.55
Scopus rating (2012): SJR 0.693 SNIP 0.824 CiteScore 1.36
Scopus rating (2011): SJR 0.672 SNIP 0.713 CiteScore 1.31
Scopus rating (2010): SJR 0.795 SNIP 0.665
Scopus rating (2009): SJR 0.891 SNIP 0.917
Scopus rating (2008): SJR 0.902 SNIP 0.904
Scopus rating (2007): SJR 1.193 SNIP 1.048
Scopus rating (2006): SJR 0.807 SNIP 0.879
Scopus rating (2005): SJR 0.696 SNIP 0.793
Scopus rating (2004): SJR 0.525 SNIP 0.658
Scopus rating (2003): SJR 0.475 SNIP 0.671
Scopus rating (2002): SJR 0.559 SNIP 0.703
Scopus rating (2001): SJR 0.414 SNIP 0.564
Scopus rating (2000): SJR 0.662 SNIP 0.829
Scopus rating (1999): SJR 0.559 SNIP 0.613

Original language: English

ASJC Scopus subject areas: Radiology Nuclear Medicine and imaging, Clinical Neurology

Keywords: Chronic infarction, Diffusion tensor imaging, Magnetic resonance imaging, Texture analysis

DOIs:

10.1111/jon.12185

Bibliographical note

EXT="Dastidar, Prasun"

Source: Scopus

Source-ID: 84937031387

Research output: Scientific - peer-review > Article

On the threshold based neuronal spike detection, and an objective criterion for setting the threshold

In this paper, we investigate the workings of threshold (TH) based spike detection for neuronal extracellular field potential spikes. Thresholding is the most used spike detection method. In general, it is employed by setting the TH as per convention and without considering either the undetected or spurious spikes. In this paper, we provide insight in to the workings of thresholding, and proposed a new objective way to set the TH based on spike count histogram analysis. We illustrate the method with 2D and 3D simulations and analysis of measured data.

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Research group: Computational Biophysics and Imaging Group, BioMediTech, Integrated Technologies for Tissue Engineering Research (ITTE), BioMediTech

Authors: Tanskanen, J. M. A., Kapucu, F. E., Hyttinen, J. A. K.

Number of pages: 4

Pages: 1016-1019

Publication date: 1 Jul 2015

Host publication information

Title of host publication: International IEEE/EMBS Conference on Neural Engineering, NER
Publisher: IEEE COMPUTER SOCIETY PRESS
ISBN (Print): 9781467363891
ASJC Scopus subject areas: Artificial Intelligence, Mechanical Engineering
DOIs:
10.1109/NER.2015.7146799
Source: Scopus
Source-ID: 84940384726
Research output: Scientific - peer-review › Conference contribution

Recurrence network analysis of wide band oscillations of local field potentials from the primary motor cortex reveals rich dynamics.

Aggregate signals that reflect activities of a large number of neurons in the cerebral cortex, local field potentials (LFPs) have been observed to mediate gross functional activities of a relatively small volume of the brain tissues. There are several bands of the oscillations frequencies in LFPs that have been observed across multiple brain areas. The signature oscillation band of the LFPs in the primary motor cortex (MI) is over β range and it has been consistently observed both in human and non-human primates around the time of visual cues and movement onsets. However, its dynamical behavior has not been well characterized. Furthermore, dynamics of β oscillations has been documented based on the phase locking of β oscillations, but not in terms of the inherent dynamics of the oscillations themselves. Here, we used the complexity measure derived from cluster coefficients of a recurrence network and analyzed a pair of wide-band signals, one including β band of the LFPs and the other ranging the low γ band in MI recorded from a non-human primate. We show rather unique temporal profiles of the evoked responses using complexity of the dynamical behavior in both bands of the oscillation, either of which is not simply resembling either the power of the oscillation or the phase locking of β oscillations. Therefore, the current method can reveal a new type of dynamics of the underlying network complexity during the task simply based on event evoked potentials of wide-band oscillatory signals.

General information

State: Published
Ministry of Education publication type: A4 Article in a conference publication
Organisations: Department of Electronics and Communications Engineering, Research group: Computational Biophysics and Imaging Group, BioMediTech, Integrated Technologies for Tissue Engineering Research (ITTE), Department of Organismal Biology and Anatomy, University of Chicago
Authors: Subramaniam, N. P., Hyttinen, J., Hatsopoulos, N. G., Takahashi, K.
Number of pages: 4
Pages: 960-963
Publication date: 1 Jul 2015

Host publication information

Title of host publication: International IEEE/EMBS Conference on Neural Engineering, NER
Publisher: IEEE COMPUTER SOCIETY PRESS
ISBN (Print): 9781467363891
Keywords: event evoked potentials, functional connectivity, Local field potentials, motor cortex, recurrence network, temporal dynamics
ASJC Scopus subject areas: Artificial Intelligence, Mechanical Engineering
DOIs:
10.1109/NER.2015.7146785
Source: Scopus
Source-ID: 84940371617
Research output: Scientific - peer-review › Conference contribution

Hemispheric asymmetry measured by texture analysis and diffusion tensor imaging in two multiple sclerosis subtypes

Background: This paper addresses two subtypes of multiple sclerosis (MS), primary progressive multiple sclerosis (PPMS) and relapsing-remitting multiple sclerosis (RRMS). The separation of PPMS and RRMS is challenging in certain cases.

Purpose: To quantitatively determine MS subtypes using texture analysis (TA) and diffusion tensor imaging (DTI).

Material and Methods: T1-weighted (T1W) magnetic resonance imaging (MRI) and DTI of the left and right brain hemispheres of 17 patients with PPMS and 19 patients with RRMS were studied. Areas of the caudate nucleus and thalamus were investigated as normal appearing gray matter (NAGM), and areas of the cerebral peduncle and centrum semiovale were investigated as normal appearing white matter (NAWM). The described locations were symmetrical and were accurately marked. TA was performed on the T1W images, and the fractional anisotropy and apparent diffusion coefficient were determined from the DTI data.

Results: Hemispherical differences were found with both TA and DTI. Several texture and diffusion tensor parameter values calculated for the left and right hemispheres of the patients showed statistically significant differences. The patients

with RRMS had greater significant differences (P

Conclusion: TA can be helpful when distinguishing between PPMS and RRMS, while DTI appears to reveal the hemispherical asymmetry of RRMS patients.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Savio, S., Hakulinen, U., Ryymin, P., Hagman, S., Dastidar, P., Soimakallio, S., Elovaara, I., Eskola, H.

Number of pages: 8

Pages: 844-851

Publication date: Jul 2015

Peer-reviewed: Yes

Publication information

Journal: Acta Radiologica

Volume: 56

Issue number: 7

ISSN (Print): 0284-1851

Ratings:

Scopus rating (2016): SJR 0.693 SNIP 0.909 CiteScore 1.54

Scopus rating (2015): SJR 0.741 SNIP 0.953 CiteScore 1.64

Scopus rating (2014): SJR 0.761 SNIP 0.993 CiteScore 1.54

Scopus rating (2013): SJR 0.694 SNIP 0.91 CiteScore 1.58

Scopus rating (2012): SJR 0.659 SNIP 0.879 CiteScore 1.55

Scopus rating (2011): SJR 0.703 SNIP 0.795 CiteScore 1.47

Scopus rating (2010): SJR 0.76 SNIP 0.887

Scopus rating (2009): SJR 0.642 SNIP 0.839

Scopus rating (2008): SJR 0.585 SNIP 0.771

Scopus rating (2007): SJR 0.584 SNIP 0.814

Scopus rating (2006): SJR 0.531 SNIP 0.747

Scopus rating (2005): SJR 0.523 SNIP 0.826

Scopus rating (2004): SJR 0.65 SNIP 0.984

Scopus rating (2003): SJR 0.578 SNIP 0.883

Scopus rating (2002): SJR 0.552 SNIP 0.745

Scopus rating (2001): SJR 0.565 SNIP 0.775

Scopus rating (2000): SJR 0.677 SNIP 0.764

Scopus rating (1999): SJR 0.571 SNIP 0.847

Original language: English

DOIs:

10.1177/0284185114539323

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-08-19
Publisher name: Sage Publications

Source: researchoutputwizard

Source-ID: 1469

Research output: Scientific - peer-review > Article

How To Minimize Artifacts in Atomistic Simulations of Membrane Proteins, Whose Crystal Structure Is Heavily Engineered: beta(2)-Adrenergic Receptor in the Spotlight

Atomistic molecular dynamics (MD) simulations are used extensively to elucidate membrane protein properties. These simulations are based on three-dimensional protein structures that in turn are often based on crystallography. The protein structures resolved in crystallographic studies typically do not correspond to pristine proteins, however. Instead the crystallized proteins are commonly engineered, including structural modifications (mutations, replacement of protein sequences by antibodies, bound ligands, etc.) whose impact on protein structure and dynamics is largely unknown. Here we explore this issue through atomistic MD simulations (5 its in total), focusing on the beta(2)-adrenergic receptor (beta(2)AR) that is one of the most studied members of the G-protein coupled receptor superfamily. Starting from an inactive-state crystal structure beta(2)AR, we remove the many modifications in beta(2)AR systematically one at a time, in six consecutive steps. After each step, we equilibrate the system and simulate it quite extensively. The results of this step-by-step approach highlight that the structural modifications used in crystallization can affect ligand and G-protein binding

sites, packing at the transmembrane-helix interface region, and the dynamics of connecting loops in beta(2)AR. When the results of the systematic step-by-step approach are compared to an all-at-once technique where all modifications done on beta(2)AR are removed instantaneously at the same time, it turns out that the step-by-step method provides results that are superior in terms of maintaining protein structural stability. The results provide compelling evidence that for membrane proteins whose 3D structure is based on structural engineering, the preparation of protein structure for atomistic MD simulations is a delicate and sensitive process. The results show that most valid results are found when the structural modifications are reverted slowly, one at a time.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Physics, Research group: Biological Physics and Soft Matter, Computational Science X (CompX), Multi-scaled biodata analysis and modelling (MultiBAM), Swiss Fed Inst Technol, Swiss Federal Institute of Technology Zurich, Dept Biosyst Sci & Engrn DBSSE

Authors: Manna, M., Kulig, W., Javanainen, M., Tynkkynen, J., Hensen, U., Mueller, D. J., Rog, T., Vattulainen, I.

Number of pages: 14

Pages: 3432-3445

Publication date: Jul 2015

Peer-reviewed: Yes

Publication information

Journal: Journal of Chemical Theory and Computation

Volume: 11

Issue number: 7

ISSN (Print): 1549-9618

Ratings:

Scopus rating (2016): SJR 2.801 SNIP 1.589 CiteScore 5.37

Scopus rating (2015): SJR 2.795 SNIP 1.748 CiteScore 5.65

Scopus rating (2014): SJR 2.777 SNIP 1.603 CiteScore 5.63

Scopus rating (2013): SJR 2.409 SNIP 1.578 CiteScore 5.41

Scopus rating (2012): SJR 2.744 SNIP 1.608 CiteScore 5.34

Scopus rating (2011): SJR 2.742 SNIP 1.815 CiteScore 5.82

Scopus rating (2010): SJR 2.372 SNIP 1.46

Scopus rating (2009): SJR 2.616 SNIP 1.273

Scopus rating (2008): SJR 2.367 SNIP 1.173

Scopus rating (2007): SJR 2.3 SNIP 1.401

Scopus rating (2006): SJR 1.77 SNIP 1.062

Original language: English

Keywords: BETA-ADRENERGIC-RECEPTOR, MOLECULAR-DYNAMICS SIMULATIONS, ATOM FORCE-FIELD, COUPLED RECEPTORS, DRUG DESIGN, IONIC LOCK, CHOLESTEROL, BINDING, ACTIVATION, HELIX

DOIs:

10.1021/acs.jctc.5b00070

Bibliographical note

AUX=fys,"Tynkkynen, Joona"

Source: WOS

Source-ID: 000358104800052

Research output: Scientific - peer-review > Article

Membrane targeting of the yeast exocyst complex

The exocytosis is a process of fusion of secretory vesicles with plasma membrane, which plays a prominent role in many crucial cellular processes, e.g. secretion of neurotransmitters, cytokinesis or yeast budding. Prior to the SNARE-mediated fusion, the initial contact of secretory vesicle with the target membrane is mediated by an evolutionary conserved vesicle tethering protein complex, the exocyst. In all eukaryotic cells, the exocyst is composed of eight subunits - Sec5, Sec6, Sec8, Sec10, Sec15, Exo84 and two membrane-targeting landmark subunits Sec3 and Exo70, which have been described to directly interact with phosphatidylinositol (4,5)-bisphosphate (PIP2) of the plasma membrane. In this work, we utilized coarse-grained molecular dynamics simulations to elucidate structural details of the interaction of yeast Sec3p and Exo70p with lipid bilayers containing PIP2. We found that PIP2 is coordinated by the positively charged pocket of N-terminal part of Sec3p, which folds into unique Pleckstrin homology domain. Conversely, Exo70p interacts with the lipid bilayer by several binding sites distributed along the structure of this exocyst subunit. Moreover, we observed that the interaction of Exo70p with the membrane causes clustering of PIP2 in the adjacent leaflet. We further revealed that PIP2 is required for the correct positioning of small GTPase Rho1p, a direct Sec3p interactor, prior to the formation of the functional Rho1p-exocyst-membrane assembly. Our results show the critical importance of the plasma membrane pool of PIP2 for the exocyst function and suggest that specific interaction with acidic phospholipids represents an ancestral

mechanism for the exocyst regulation. (C) 2015 Elsevier B.V. All rights reserved.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Physics, Research area: Computational Physics, Computational Science X (CompX), Acad Sci Czech Republic, Czech Academy of Sciences, Inst Expt Bot, Vvi, Acad Sci Czech Republic, Czech Academy of Sciences, Inst Organ Chem & Biochem, Charles Univ Prague, Charles University Prague, Dept Expt Plant Biol

Authors: Pleskot, R., Cwiklik, L., Jungwirth, P., Zarsky, V., Potocky, M.

Number of pages: 9

Pages: 1481-1489

Publication date: Jul 2015

Peer-reviewed: Yes

Publication information

Journal: Biochimica et Biophysica Acta: Biomembranes

Volume: 1848

Issue number: 7

ISSN (Print): 0005-2736

Ratings:

Scopus rating (2016): SJR 1.511 SNIP 1.101 CiteScore 3.55

Scopus rating (2015): SJR 1.782 SNIP 1.142 CiteScore 3.8

Scopus rating (2014): SJR 1.869 SNIP 1.09 CiteScore 3.64

Scopus rating (2013): SJR 1.592 SNIP 0.975 CiteScore 3.45

Scopus rating (2012): SJR 1.833 SNIP 1.156 CiteScore 3.99

Scopus rating (2011): SJR 1.644 SNIP 1.227 CiteScore 4.17

Scopus rating (2010): SJR 2.179 SNIP 1.291

Scopus rating (2009): SJR 2.152 SNIP 1.298

Scopus rating (2008): SJR 2.035 SNIP 1.123

Scopus rating (2007): SJR 2.021 SNIP 1.158

Scopus rating (2006): SJR 1.922 SNIP 1.212

Scopus rating (2005): SJR 2.037 SNIP 1.231

Scopus rating (2004): SJR 1.5 SNIP 1.147

Scopus rating (2003): SJR 1.401 SNIP 1.115

Scopus rating (2002): SJR 1.594 SNIP 1.228

Scopus rating (2001): SJR 1.509 SNIP 1.053

Scopus rating (2000): SJR 1.089 SNIP 0.907

Scopus rating (1999): SJR 0.95 SNIP 0.841

Original language: English

Keywords: The exocyst complex, Exo70p, Sec3p, Rho1p, Phosphatidylinositol (4,5)-bisphosphate, Molecular dynamics simulation, GRAINED FORCE-FIELD, PLASMA-MEMBRANE, SACCHAROMYCES-CEREVISIAE, MOLECULAR SIMULATION, SECRETORY PATHWAY, CLUSTER FORMATION, CRYSTAL-STRUCTURE, SUBUNIT SEC3, EXOCYTOSIS, EXO70

DOIs:

10.1016/j.bbamem.2015.03.026

Source: WOS

Source-ID: 000355350800004

Research output: Scientific - peer-review > Article

Self-reported ache, pain, or numbness in hip and lower back and use of computers and cell phones amongst Finns aged 18–65

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Environmental Health, TMI Rauno Pääkkönen, Department of Public Health Sciences, University of Modena and Reggio Emili

Authors: Korpinen, L., Pääkkönen, R., Gobba, F.

Number of pages: 7

Pages: 70-76

Publication date: Jul 2015

Peer-reviewed: Yes

Publication information

Journal: International Journal of Industrial Ergonomics

Volume: 48

ISSN (Print): 0169-8141

Ratings:

Scopus rating (2016): SJR 0.564 SNIP 1.51 CiteScore 1.66

Scopus rating (2015): SJR 0.631 SNIP 1.32 CiteScore 1.4

Scopus rating (2014): SJR 0.648 SNIP 2.057 CiteScore 1.71

Scopus rating (2013): SJR 0.797 SNIP 1.937 CiteScore 2.05

Scopus rating (2012): SJR 0.898 SNIP 1.805 CiteScore 1.8

Scopus rating (2011): SJR 0.606 SNIP 1.762 CiteScore 1.76

Scopus rating (2010): SJR 0.652 SNIP 1.368

Scopus rating (2009): SJR 0.873 SNIP 1.382

Scopus rating (2008): SJR 0.56 SNIP 1.28

Scopus rating (2007): SJR 0.507 SNIP 1.236

Scopus rating (2006): SJR 0.319 SNIP 0.858

Scopus rating (2005): SJR 0.602 SNIP 1.143

Scopus rating (2004): SJR 0.592 SNIP 1.276

Scopus rating (2003): SJR 0.666 SNIP 0.871

Scopus rating (2002): SJR 0.558 SNIP 0.919

Scopus rating (2001): SJR 0.346 SNIP 0.688

Scopus rating (2000): SJR 0.44 SNIP 0.797

Scopus rating (1999): SJR 0.343 SNIP 0.539

Original language: English

ASJC Scopus subject areas: Electrical and Electronic Engineering

DOIs:

10.1016/j.ergon.2015.04.002

Research output: Scientific - peer-review > Article

Superdiffusion dominates intracellular particle motion in the supercrowded cytoplasm of pathogenic *Acanthamoeba castellanii*

Acanthamoebae are free-living protists and human pathogens, whose cellular functions and pathogenicity strongly depend on the transport of intracellular vesicles and granules through the cytosol. Using high-speed live cell imaging in combination with single-particle tracking analysis, we show here that the motion of endogenous intracellular particles in the size range from a few hundred nanometers to several micrometers in *Acanthamoeba castellanii* is strongly superdiffusive and influenced by cell locomotion, cytoskeletal elements, and myosin II. We demonstrate that cell locomotion significantly contributes to intracellular particle motion, but is clearly not the only origin of superdiffusivity. By analyzing the contribution of microtubules, actin, and myosin II motors we show that myosin II is a major driving force of intracellular motion in *A. castellanii*. The cytoplasm of *A. castellanii* is supercrowded with intracellular vesicles and granules, such that significant intracellular motion can only be achieved by actively driven motion, while purely thermally driven diffusion is negligible.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Physics, Institute for Physics and Astronomy, University of Potsdam, Institute for Materials Science, Biocompatible Nanomaterials, Christian-Albrechts-Universität zu Kiel, Zoological Institute, Comparative Immunobiology, Korea Institute for Advanced Study

Authors: Reverey, J. F., Jeon, J., Bao, H., Leippe, M., Metzler, R., Selhuber-Unkel, C.

Publication date: 30 Jun 2015

Peer-reviewed: Yes

Publication information

Journal: Scientific Reports

Volume: 5

Article number: 11690

ISSN (Print): 2045-2322

Ratings:

Scopus rating (2016): CiteScore 4.63 SJR 1.625 SNIP 1.401

Scopus rating (2015): SJR 2.057 SNIP 1.684 CiteScore 5.3
Scopus rating (2014): SJR 2.103 SNIP 1.544 CiteScore 4.75
Scopus rating (2013): SJR 1.886 SNIP 1.51 CiteScore 4.06
Scopus rating (2012): SJR 1.458 SNIP 0.896 CiteScore 2.44

Original language: English
ASJC Scopus subject areas: General
DOIs:

10.1038/srep11690

Links:

<http://www.scopus.com/inward/record.url?scp=84934784474&partnerID=8YFLogxK> (Link to publication in Scopus)

Bibliographical note

EXT="Jeon, Jae-Hyung"

Source: Scopus

Source-ID: 84934784474

Research output: Scientific - peer-review › Article

The influence of SrO and CaO in silicate and phosphate bioactive glasses on human gingival fibroblasts

In this paper, we investigate the effect of substituting SrO for CaO in silicate and phosphate bioactive glasses on the human gingival fibroblast activity. In both materials the presence of SrO led to the formation of a CaP layer with partial Sr substitution for Ca. The layer at the surface of the silicate glass consisted of HAP whereas at the phosphate glasses it was close to the DCPD composition. In silicate glasses, SrO gave a faster initial dissolution and a thinner reaction layer probably allowing for a continuous ion release into the solution. In phosphate glasses, SrO decreased the dissolution process and gave a more strongly bonded reaction layer. Overall, the SrO-containing silicate glass led to a slight enhancement in the activity of the gingival fibroblasts cells when compared to the SrO-free reference glass, S53P4. The cell activity decreased up to 3 days of culturing for all phosphate glasses containing SrO. Whereas culturing together with the SrO-free phosphate glass led to complete cell death at 7 days. The glasses containing SrO showed rapid cell proliferation and growth between 7 and 14 days, reaching similar activity than glass S53P4. The addition of SrO in both silicate and phosphate glasses was assumed beneficial for proliferation and growth of human gingival fibroblasts due to Sr incorporation in the reaction layer at the glass surface and released in the cell culture medium.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Biomaterials and Tissue Engineering Group, Integrated Technologies for Tissue Engineering Research (ITTE), Turun Yliopisto/Turun Biomateriaalikeskus, Åbo Akademi University, Process Chemistry Centre, University of Turku, Department of Prosthetic Dentistry, Clinic of Oral Diseases, Turku University Central Hospital

Authors: Massera, J., Kokkari, A., Närhi, T., Hupa, L.

Publication date: 25 Jun 2015

Peer-reviewed: Yes

Publication information

Journal: Journal of Materials Science: Materials in Medicine

Volume: 26

Issue number: 6

Article number: 196

ISSN (Print): 0957-4530

Ratings:

Scopus rating (2016): SJR 0.533 SNIP 0.739 CiteScore 2.02

Scopus rating (2015): SJR 0.738 SNIP 0.952 CiteScore 2.46

Scopus rating (2014): SJR 0.739 SNIP 1.348 CiteScore 2.52

Scopus rating (2013): SJR 0.825 SNIP 1.349 CiteScore 3.02

Scopus rating (2012): SJR 0.861 SNIP 1.305 CiteScore 2.68

Scopus rating (2011): SJR 1.006 SNIP 1.228 CiteScore 2.8

Scopus rating (2010): SJR 0.949 SNIP 1.06

Scopus rating (2009): SJR 0.817 SNIP 0.996

Scopus rating (2008): SJR 0.686 SNIP 0.997

Scopus rating (2007): SJR 0.803 SNIP 0.979

Scopus rating (2006): SJR 0.724 SNIP 1.034

Scopus rating (2005): SJR 0.548 SNIP 1.046

Scopus rating (2004): SJR 0.465 SNIP 0.955
Scopus rating (2003): SJR 1.109 SNIP 0.808
Scopus rating (2002): SJR 0.923 SNIP 1.072
Scopus rating (2001): SJR 0.755 SNIP 1.378
Scopus rating (2000): SJR 0.707 SNIP 1.048
Scopus rating (1999): SJR 0.66 SNIP 1.078
Original language: English
ASJC Scopus subject areas: Biophysics, Biomaterials, Bioengineering, Biomedical Engineering
DOIs:
10.1007/s10856-015-5528-x
Source: Scopus
Source-ID: 84935013205
Research output: Scientific - peer-review › Article

High power GaInNAs VECSEL emitting at 1230/615 nm

We report a frequency-doubled VECSEL operating at 1230/615 nm. The gain chip was grown by plasma-assisted MBE and comprised 10 GaInNAs quantum wells. Preliminary experiments show an output power of >8 W at 615 nm.

General information

State: Published
Ministry of Education publication type: A4 Article in a conference publication
Organisations: Optoelectronics Research Centre, Research group: Semiconductor Technology and Applications
Authors: Penttinen, J., Leinonen, T., Korpijärvi, V., Kantola, E., Guina, M.
Publication date: 22 Jun 2015

Host publication information

Title of host publication: The European Conference on Lasers and Electro-Optics 2015
Publisher: OSA
ISBN (Print): 978-1-4673-7475-0
Links:
https://www.osapublishing.org/abstract.cfm?uri=cleo_europe-2015-CB_P_1&origin=search
Research output: Scientific - peer-review › Conference contribution

A Quantitative Method for Monitoring Wound Healing

Assessment and monitoring of chronic wounds is primarily based on visual inspection by medical professionals. The method is subjective and its reliability depends on the assessment criteria of the evaluator. This may cause problems in articular at home care where caretakers are not usually wound care specialists. Wound dressings have to be removed for each assessment which disturbs the wound healing process. Additionally this increases both workload and cost, as the wound dressings are often changed without medical necessity. Our research group has developed a quantitative method for evaluation and monitoring of the wound healing process. The method is based on differences in electrical conductivity of tissue types and is addressed using the bioimpedance measurement. The results indicate that the method is a potential tool for evaluating the status of a wound.

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Department of Electronics and Communications Engineering, Research group: Physiological Measurement Systems and Methods Group
Authors: Kekonen, A., Bergelin, M., Eriksson, J., Ylänen, H., Viik, J.
Number of pages: 6
Pages: 36-41
Publication date: 16 Jun 2015
Peer-reviewed: Yes

Publication information

Journal: International Journal of Bioelectromagnetism
Volume: 17
Issue number: 1
ISSN (Print): 1456-7857
Original language: English
ASJC Scopus subject areas: Biomedical Engineering
Keywords: Bioimpedance, chronic, monitoring; skin, two-electrode, Wound healing
Links:

http://www.ijbem.org/volume17/number1/ijbem_vol17_no1_pp36-41.pdf

Links:

<http://www.isbem.org/conf/2015/proc/10.pdf>

Research output: Scientific - peer-review > Article

Emission of smart meter electromagnetic field (50-100 kHz) in Finland

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Research group: Environmental Health, TMI Rauno Pääkkönen

Authors: Pääkkönen, R., Korpinen, L.

Number of pages: 5

Pages: 1-4

Publication date: 15 Jun 2015

Host publication information

Title of host publication: 23rd international conference and exhibition on electricity distribution, CIRED, 15-18 June 2015, Lyon, France

Article number: 1484

Publication series

Name: International conference and exhibition on electricity distribution

ISSN (Electronic): 2032-9644

ASJC Scopus subject areas: Electrical and Electronic Engineering

Links:

http://cired.net/publications/cired2015/papers/CIRED2015_1484_final.pdf

Research output: Scientific - peer-review > Conference contribution

New Directive 2013/35/EU on Occupational Exposure to Magnetic Fields and Electrical Workers Use of Active Implanted Medical Devices (AIMDS)

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Research group: Environmental Health, TMI Rauno Pääkkönen, The Heart Center, Tampere University Hospital

Authors: Korpinen, L., Pääkkönen, R., Virtanen, V.

Number of pages: 5

Pages: 1-5

Publication date: 15 Jun 2015

Host publication information

Title of host publication: 23rd international conference and exhibition on electricity distribution, CIRED, 15-18 June 2015, Lyon, France

Publication series

Name: International conference and exhibition on electricity distribution

ISSN (Print): 2032-9644

ASJC Scopus subject areas: Electrical and Electronic Engineering

Links:

http://cired.net/publications/cired2015/papers/CIRED2015_1478_final.pdf

Research output: Scientific - peer-review > Conference contribution

Dynamics of the peripheral membrane protein P2 from human myelin measured by neutron scattering: A Comparison between wild-type protein and a hinge mutant

Myelin protein P2 is a fatty acid-binding structural component of the myelin sheath in the peripheral nervous system, and its function is related to its membrane binding capacity. Here, the link between P2 protein dynamics and structure and function was studied using elastic incoherent neutron scattering (EINS). The P38G mutation, at the hinge between the β barrel and the α -helical lid, increased the lipid stacking capacity of human P2 in vitro, and the mutated protein was also functional in cultured cells. The P38G mutation did not change the overall structure of the protein. For a deeper insight into P2 structure-function relationships, information on protein dynamics in the 10 ps to 1 ns time scale was obtained using EINS. Values of mean square displacements mainly from protein H atoms were extracted for wild-type P2 and the P38G

mutant and compared. Our results show that at physiological temperatures, the P38G mutant is more dynamic than the wild-type P2 protein, especially on a slow 1-ns time scale. Molecular dynamics simulations confirmed the enhanced dynamics of the mutant variant, especially within the portal region in the presence of bound fatty acid. The increased softness of the hinge mutant of human myelin P2 protein is likely related to an enhanced flexibility of the portal region of this fatty acid-binding protein, as well as to its interactions with the lipid bilayer surface requiring conformational adaptations.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Physics, Research group: Biological Physics and Soft Matter, Computational Science X (CompX), University of Oulu, Univ Bergen, University of Bergen, Dept Phys & Technol, Biochemistry and Molecular Medicine and Biocenter Oulu, German Electron Synchrotron (DESY), European Spallation Source (ESS), Max Planck Institute for Experimental Medicine, Institut Laue-Langevin, Department of Biomedicine, CNR-IOM

Authors: Laulumaa, S., Nieminen, T., Lehtimäki, M., Aggarwal, S., Simons, M., Koza, M. M., Vattulainen, I., Kursula, P., Natali, F.

Publication date: 11 Jun 2015

Peer-reviewed: Yes

Publication information

Journal: PLoS One

Volume: 10

Issue number: 6

Article number: e128954

ISSN (Print): 1932-6203

Ratings:

Scopus rating (2016): CiteScore 3.11 SJR 1.201 SNIP 1.092

Scopus rating (2015): SJR 1.414 SNIP 1.131 CiteScore 3.32

Scopus rating (2014): SJR 1.545 SNIP 1.141 CiteScore 3.54

Scopus rating (2013): SJR 1.74 SNIP 1.147 CiteScore 3.94

Scopus rating (2012): SJR 1.945 SNIP 1.142 CiteScore 4.15

Scopus rating (2011): SJR 2.369 SNIP 1.23 CiteScore 4.58

Scopus rating (2010): SJR 2.631 SNIP 1.161

Scopus rating (2009): SJR 2.473 SNIP 0.985

Scopus rating (2008): SJR 2.323 SNIP 0.96

Scopus rating (2007): SJR 1.289 SNIP 0.525

Original language: English

ASJC Scopus subject areas: Agricultural and Biological Sciences(all), Biochemistry, Genetics and Molecular Biology(all), Medicine(all)

DOIs:

10.1371/journal.pone.0128954

Links:

<http://www.scopus.com/inward/record.url?scp=84935462119&partnerID=8YFLogxK> (Link to publication in Scopus)

Source: Scopus

Source-ID: 84935462119

Research output: Scientific - peer-review › Article

The effects of neuron morphology on graph theoretic measures of network connectivity: The analysis of a two-level statistical model

We developed a two-level statistical model that addresses the question of how properties of neurite morphology shape the large-scale network connectivity. We adopted a low-dimensional statistical description of neurites. From the neurite model description we derived the expected number of synapses, node degree, and the effective radius, the maximal distance between two neurons expected to form at least one synapse. We related these quantities to the network connectivity described using standard measures from graph theory, such as motif counts, clustering coefficient, minimal path length, and small-world coefficient. These measures are used in a neuroscience context to study phenomena from synaptic connectivity in the small neuronal networks to large scale functional connectivity in the cortex. For these measures we provide analytical solutions that clearly relate different model properties. Neurites that sparsely cover space lead to a small effective radius. If the effective radius is small compared to the overall neuron size the obtained networks share similarities with the uniform random networks as each neuron connects to a small number of distant neurons. Large neurites with densely packed branches lead to a large effective radius. If this effective radius is large compared to the neuron size, the obtained networks have many local connections. In between these extremes, the networks maximize the variability of connection repertoires. The presented approach connects the properties of neuron morphology with large scale network properties without requiring heavy simulations with many model parameters. The two-steps procedure provides an easier interpretation of the role of each modeled parameter. The model is flexible and each of its components can be further

expanded. We identified a range of model parameters that maximizes variability in network connectivity, the property that might affect network capacity to exhibit different dynamical regimes.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Research group: Computational Neuro Science-CNS, University of Oslo

Authors: Acimovic, J., Mäki-Marttunen, T., Linne, M.

Publication date: 10 Jun 2015

Peer-reviewed: Yes

Publication information

Journal: *Frontiers in Neuroanatomy*

Volume: 9

Issue number: June

Article number: 76

ISSN (Print): 1662-5129

Ratings:

Scopus rating (2016): SJR 1.981 SNIP 0.932 CiteScore 3.05

Scopus rating (2015): SJR 1.854 SNIP 0.762 CiteScore 2.73

Scopus rating (2014): SJR 2.086 SNIP 1.015 CiteScore 3.06

Scopus rating (2013): SJR 2.609 SNIP 1.023 CiteScore 3.27

Scopus rating (2012): SJR 2.486 SNIP 1.124 CiteScore 3.62

Scopus rating (2011): SJR 2.134 SNIP 0.803 CiteScore 2

Scopus rating (2010): SJR 2.093 SNIP 0.985

Scopus rating (2009): SJR 1.816 SNIP 0.868

Scopus rating (2008): SJR 0.378 SNIP 0.05

Original language: English

ASJC Scopus subject areas: Anatomy, Neuroscience (miscellaneous), Cellular and Molecular Neuroscience

Keywords: Graph theory, Motifs, Network connectivity, Neurite density field, Neuron morphology, Theoretical model

DOIs:

10.3389/fnana.2015.00076

Source: Scopus

Source-ID: 84935865748

Research output: Scientific - peer-review > Article

Long-term epileptic EEG classification via 2D mapping and textural features

Interpretation of long-term Electroencephalography (EEG) records is a tiresome task for clinicians. This paper presents an efficient, low cost and novel approach for patient-specific classification of long-term epileptic EEG records. We aim to achieve this with the minimum supervision from the neurologist. To accomplish this objective, first a novel feature extraction method is proposed based on the mapping of EEG signals into two dimensional space, resulting into a texture image. The texture image is constructed by mapping and scaling EEG signals and their associated frequency sub-bands into the gray-level image domain. Image texture analysis using gray level co-occurrence matrix (GLCM) is then applied in order to extract multivariate features which are able to differentiate between seizure and seizure-free events. To evaluate the discriminative power of the proposed feature extraction method, a comparative study is performed, against other dedicated feature extraction methods. The comparative performance evaluations show that the proposed feature extraction method can outperform other state-of-art feature extraction methods with a low computational cost. With a training rate of 25%, the overall sensitivity of 70.19% and specificity of 97.74% are achieved in the classification of over 163 h of EEG records using support vector machine (SVM) classifiers with linear kernels and trained by the stochastic gradient descent (SGD) algorithm.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Research group: Video, Research group: Filterbanks, Research

Community on Data-to-Decision (D2D), Qatar University

Authors: Samiee, K., Kiranyaz, S., Gabbouj, M., Saramäki, T.

Number of pages: 11

Pages: 7175-7185

Publication date: 8 Jun 2015

Peer-reviewed: Yes

Publication information

Journal: Expert Systems with Applications

Volume: 42

Issue number: 20

ISSN (Print): 0957-4174

Ratings:

Scopus rating (2016): CiteScore 4.7 SJR 1.433 SNIP 2.492

Scopus rating (2015): SJR 1.561 SNIP 2.625 CiteScore 4.11

Scopus rating (2014): SJR 1.578 SNIP 2.632 CiteScore 3.63

Scopus rating (2013): SJR 1.364 SNIP 2.408 CiteScore 3.31

Scopus rating (2012): SJR 1.198 SNIP 2.475 CiteScore 3.38

Scopus rating (2011): SJR 1.153 SNIP 2.574 CiteScore 3.76

Scopus rating (2010): SJR 1.081 SNIP 1.829

Scopus rating (2009): SJR 0.967 SNIP 2.57

Scopus rating (2008): SJR 1.146 SNIP 2.238

Scopus rating (2007): SJR 1.051 SNIP 1.771

Scopus rating (2006): SJR 0.738 SNIP 1.407

Scopus rating (2005): SJR 0.714 SNIP 1.705

Scopus rating (2004): SJR 0.63 SNIP 1.882

Scopus rating (2003): SJR 0.541 SNIP 1.217

Scopus rating (2002): SJR 0.524 SNIP 0.898

Scopus rating (2001): SJR 0.33 SNIP 0.656

Scopus rating (2000): SJR 0.478 SNIP 0.793

Scopus rating (1999): SJR 0.307 SNIP 0.796

Original language: English

Keywords: CHB-MIT dataset, Electroencephalography, Epileptic seizure classification, Haralick, Stochastic gradient descent, Textural features

ASJC Scopus subject areas: Artificial Intelligence, Computer Science Applications, Engineering(all)

DOIs:

10.1016/j.eswa.2015.05.002

Source: Scopus

Source-ID: 84930636361

Research output: Scientific - peer-review > Article

Fabrication of electrospun poly(D,L lactide-co-glycolide)80/20 scaffolds loaded with diclofenac sodium for tissue engineering Surgery

Background: Adaptation of nanotechnology into materials science has also advanced tissue engineering research. Tissues are basically composed of nanoscale structures hence making nanofibrous materials closely resemble natural fibers. Adding a drug release function to such material may further advance their use in tissue repair. **Methods:** In the current study, bioabsorbable poly(D,L lactide-co-glycolide)80/20 (PDLGA80/20) was dissolved in a mixture of acetone/dimethylformamide. Twenty percent of diclofenac sodium was added to the solution. Nanofibers were manufactured using electrospinning. The morphology of the obtained scaffolds was analyzed by scanning electron microscopy (SEM). The release of the diclofenac sodium was assessed by UV/Vis spectroscopy. Mouse fibroblasts (MC3T3) were seeded on the scaffolds, and the cell attachment was evaluated with fluorescent microscopy. **Results:** The thickness of electrospun nanomats was about 1 mm. SEM analysis showed that polymeric nanofibers containing drug particles formed very interconnected porous nanostructures. The average diameter of the nanofibers was 500 nm. Drug release was measured by means of UV/Vis spectroscopy. After a high start peak, the release rate decreased considerably during 11 days and lasted about 60 days. During the evaluation of the release kinetics, a material degradation process was observed. MC3T3 cells attached to the diclofenac sodium-loaded scaffold. **Conclusions:** The nanofibrous porous structure made of PDLGA polymer loaded with diclofenac sodium is feasible to develop, and it may help to improve biomaterial properties for controlled tissue repair and regeneration.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Department of Materials Science, Keele University, United Kingdom, AUVVA Research Center, Austrian Cluster for Tissue Regeneration, Ludwig Boltzmann Institute for Experimental and Clinical Traumatology, Department of Experimental Trauma Surgery, Technical University Munich

Authors: Nikkola, L., Morton, T., Balmayor, E. R., Jukola, H., Harlin, A., Redl, H., Van Griensven, M., Ashammakhi, N.

Publication date: 5 Jun 2015

Peer-reviewed: Yes

Publication information

Journal: European Journal of Medical Research

Volume: 20

Issue number: 1

Article number: 54

ISSN (Print): 0949-2321

Ratings:

Scopus rating (2016): SJR 0.529 SNIP 0.712

Scopus rating (2015): SJR 0.552 SNIP 0.802

Scopus rating (2014): SJR 0.562 SNIP 0.937

Scopus rating (2013): SJR 0.508 SNIP 0.753

Scopus rating (2012): SJR 0.463 SNIP 0.574

Scopus rating (2011): SJR 0.312 SNIP 0.553

Scopus rating (2010): SJR 0.342 SNIP 0.535

Scopus rating (2009): SJR 0.363 SNIP 0.547

Scopus rating (2008): SJR 0.412 SNIP 0.5

Scopus rating (2007): SJR 0.382 SNIP 0.574

Scopus rating (2006): SJR 0.445 SNIP 0.617

Scopus rating (2005): SJR 0.427 SNIP 0.478

Scopus rating (2004): SJR 0.399

Scopus rating (2003): SJR 0.368

Scopus rating (2002): SJR 0.313

Scopus rating (2001): SJR 0.281

Scopus rating (2000): SJR 0.335

Scopus rating (1999): SJR 0.282

Original language: English

ASJC Scopus subject areas: Medicine(all)

Keywords: Biodegradable, Diclofenac sodium, Drug release, Electrospinning, Poly(D,L lactide-co-glycolide), Scaffold

DOIs:

10.1186/s40001-015-0145-1

Links:

<http://www.scopus.com/inward/record.url?scp=84931269207&partnerID=8YFLogxK> (Link to publication in Scopus)

Bibliographical note

ORG=elt,0.5

ORG=mol,0.5

Source: Scopus

Source-ID: 84931269207

Research output: Scientific - peer-review › Article

PEGylated liposomes as carriers of hydrophobic porphyrins

Sterically stabilized liposomes (SSLs) (PEGylated liposomes) are applied as effective drug delivery vehicles.

Understanding the interactions between hydrophobic compounds and PEGylated membranes is therefore important to determine the effectiveness of PEGylated liposomes for delivery of drugs or other bioactive substances. In this study, we have combined fluorescence quenching analysis (FQA) experiments and all-atom molecular dynamics (MD) simulations to study the effect of membrane PEGylation on the location and orientation of 5,10,15,20-tetrakis(4-hydroxyphenyl)porphyrin (p-THPP) that has been used in our study as a model hydrophobic compound. First, we consider the properties of p-THPP in the presence of different fluid phosphatidylcholine bilayers that we use as model systems for protein-free cell membranes. Next, we studied the interaction between PEGylated membranes and p-THPP. Our MD simulation results indicated that the arrangement of p-THPP within zwitterionic membranes is dependent on their free volume, and p-THPP solubilized in PEGylated liposomes is localized in two preferred positions: deep within the membrane (close to the center of the bilayer) and in the outer PEG corona (p-THPP molecules being wrapped with the polymer chains). Fluorescence quenching methods confirmed the results of atomistic MD simulations and showed two populations of p-THPP molecules as in MD simulations. Our results provide both an explanation for the experimental observation that PEGylation improves the drug-loading efficiency of membranes and also a more detailed molecular-level description of the interactions between porphyrins and lipid membranes.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Physics, Research area: Computational Physics, Research group: Biological Physics and Soft Matter, Computational Science X (CompX), University of Cambridge, Faculty of Physics and Chemistry, Helsinki

University, University of Southern Denmark, Jagiellonian University, Centre for Drug Research, Faculty of Pharmacy
Authors: Dzieciuch, M., Rissanen, S., Szydłowska, N., Bunker, A., Kumorek, M., Jamróz, D., Vattulainen, I., Nowakowska, M., Róg, T., Kepczynski, M.
Number of pages: 12
Pages: 6646-6657
Publication date: 4 Jun 2015
Peer-reviewed: Yes

Publication information

Journal: Journal of Physical Chemistry Part B

Volume: 119

Issue number: 22

ISSN (Print): 1520-6106

Ratings:

Scopus rating (2016): SJR 1.348 SNIP 1.02 CiteScore 3.03

Scopus rating (2015): SJR 1.367 SNIP 1.096 CiteScore 3.25

Scopus rating (2014): SJR 1.44 SNIP 1.14 CiteScore 3.28

Scopus rating (2013): SJR 1.494 SNIP 1.2 CiteScore 3.53

Scopus rating (2012): SJR 1.92 SNIP 1.251 CiteScore 3.66

Scopus rating (2011): SJR 1.78 SNIP 1.226 CiteScore 3.62

Scopus rating (2010): SJR 1.849 SNIP 1.214

Scopus rating (2009): SJR 2.232 SNIP 1.349

Scopus rating (2008): SJR 2.543 SNIP 1.381

Scopus rating (2007): SJR 2.346 SNIP 1.282

Scopus rating (2006): SJR 2.369 SNIP 1.415

Scopus rating (2005): SJR 2.275 SNIP 1.474

Scopus rating (2004): SJR 2.148 SNIP 1.511

Scopus rating (2003): SJR 2.034 SNIP 1.47

Scopus rating (2002): SJR 2.118 SNIP 1.496

Scopus rating (2001): SJR 2.053 SNIP 1.508

Scopus rating (2000): SJR 2.145 SNIP 1.527

Scopus rating (1999): SJR 1.713 SNIP 1.8

Original language: English

ASJC Scopus subject areas: Physical and Theoretical Chemistry, Materials Chemistry, Surfaces, Coatings and Films
DOIs:

10.1021/acs.jpcc.5b01351

Links:

<http://www.scopus.com/inward/record.url?scp=84930960276&partnerID=8YFLogxK> (Link to publication in Scopus)

Source: Scopus

Source-ID: 84930960276

Research output: Scientific - peer-review › Article

Optimising polylactide melt spinning using real-time monitoring

Poly(lactide) (PLA) is a synthetic biodegradable polyester and it is usually processed into fibres by two-step melt spinning, which comprises of (i) melting the raw material and pushing the melt through small orifices and (ii) stretching and heat treating the fibre to increase its mechanical properties. However, processing biodegradable polymers is challenging because the polymer degrades thermally which narrows the choice of the processing parameters. Real-time monitoring allows monitoring of the key properties of the material during the production of the fibre.

There were two objectives for this work: (i) upscaling the production of 4-filament PLA fibre with an updated set-up with real-time monitoring and (ii) studying the hydrolytic degradation of PLA fibres manufactured with the conventional set-up. The updated set-up comprised of high-speed spinning plants and a twin-screw extruder equipped with a slit die for later real-time monitoring of parameters related to thermal degradation of the polymer. The processing conditions of polylactide melt spinning were optimised by two sets of trials; initial trials with a packaging grade PLA and a second set of trials with GMP grade poly(L/D)lactide with an L/D ratio of 96/4.

The obtained fibres were characterised by tensile testing and the temperature-induced chain scission was evaluated by inherent viscosity (i.v.) measurements. Goal values were established to enable the post-processing of the fibres. Mechanically adequate fibre was produced in the initial trials regarding the material used and the filament diameters fulfilled the requirements. The packaging grade PLA did not degrade during extrusion but the i.v. of the GMP grade PLA was decreased by one third. The filament diameter and the strain values were at an acceptable level in half of the spools produced in the GMP grade trials. In the initial trials there was a problem with the fluctuation of the filament diameters but it was

largely solved by a change of the feeding equipment in the GMP grade trials. There is a need for further optimisation of the mechanical properties. This should be done by increasing the draw ratio. However, the ultimate tensile strength of the fibre was close to the required value.

In addition a 48-week hydrolysis study was conducted on the fibre produced with the conventional set-up. The molecular, rheological, thermal and mechanical properties of gamma irradiated and non-irradiated fibres were measured. The molecular weights and inherent viscosities of both fibres decreased steadily, but the irradiated fibre degraded more prominently. The mechanical performance of the non-irradiated fibre showed no changes but the irradiated fibre could no longer be tested after 28 weeks. In conclusion, the results of the hydrolytic degradation studies were mainly in line with earlier studies. These results can be used as a reference for the future hydrolytic degradation studies for the fibre manufactured with the upgraded set-up.

General information

State: Published

Ministry of Education publication type: G2 Master's thesis, polytechnic Master's thesis

Organisations: Department of Electronics and Communications Engineering

Authors: Lyyra, I.

Number of pages: 85

Publication date: 3 Jun 2015

Publication information

Publisher: Tampere University of Technology

Original language: English

Keywords: Polylactide, Melt spinning, Real-time monitoring, Hydrolytic degradation

Links:

<http://dspace.cc.tut.fi/dpub/bitstream/handle/123456789/23125/Masters%20Thesis%20Lyyra.pdf?sequence=1>

Research output: Scientific › Master's Thesis

A method for stereoscopic strain analysis of the right ventricle by digital image correlation during coronary bypass surgery: Short communication

Perioperative cardiosurgical management of volume therapy remains one of the challenging tasks in cases of patients with severe heart disease. Early detection of congestive cardiac failure prevents subsequent low output and worse outcome. An effective method for controlling extracorporeal circulation is created by developing a non-invasive intraoperative method for right ventricular strain analysis through digital image contrast correlation.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Materials Science, Research group: Materials Characterization, Engineering materials science and solutions (EMASS), Heart Surgery, Univesitätsklinikum Giessen und Marburg GMBH, Germany, LaVision GmbH, Biochemisch Pharmakologisches Zentrum, Philipps-University Marburg, Cardiovascular Research Lab

Authors: Mirow, N., Hokka, M., Nagel, H., Irgsusi, M., Moosdorf, R. G., Kuokkala, V. T., Vogt, S.

Number of pages: 5

Pages: 257-261

Publication date: 1 Jun 2015

Peer-reviewed: Yes

Publication information

Journal: Biomedizinische Technik

Volume: 60

Issue number: 3

ISSN (Print): 0013-5585

Ratings:

Scopus rating (2016): CiteScore 0.4 SJR 0.178 SNIP 0.191

Scopus rating (2015): CiteScore 0.4 SJR 0.184 SNIP 0.228

Scopus rating (2014): CiteScore 0.45 SJR 0.192 SNIP 0.448

Scopus rating (2013): CiteScore 0.56 SJR 0.183 SNIP 0.276

Scopus rating (2012): CiteScore 0.66 SJR 0.199 SNIP 0.376

Scopus rating (2011): CiteScore 0.79 SJR 0.235 SNIP 0.568

Scopus rating (2010): SJR 0.201 SNIP 0.383

Scopus rating (2009): SJR 0.23 SNIP 0.505

Scopus rating (2008): SJR 0.186 SNIP 0.256

Scopus rating (2007): SJR 0.251 SNIP 0.528

Scopus rating (2006): SJR 0.184 SNIP 0.31

Scopus rating (2005): SJR 0.239 SNIP 0.438

Scopus rating (2004): SJR 0.189 SNIP 0.326

Scopus rating (2003): SJR 0.165 SNIP 0.456

Scopus rating (2002): SJR 0.244 SNIP 0.456

Scopus rating (2001): SJR 0.174 SNIP 0.381

Scopus rating (2000): SJR 0.235 SNIP 0.505

Scopus rating (1999): SJR 0.213 SNIP 0.637

Original language: English

ASJC Scopus subject areas: Biomedical Engineering

Keywords: Digital image correlation, Heart surgery, Right ventricular strain analysis

DOIs:

10.1515/bmt-2014-0123

Links:

<http://www.scopus.com/inward/record.url?scp=84931830600&partnerID=8YFLogxK> (Link to publication in Scopus)

Source: Scopus

Source-ID: 84931830600

Research output: Scientific - peer-review › Article

Apolipoprotein A-I mimetic peptide 4F blocks sphingomyelinase-induced LDL aggregation

Lipolytic modification of LDL particles by SMase generates LDL aggregates with a strong affinity for human arterial proteoglycans and may so enhance LDL retention in the arterial wall. Here, we evaluated the effects of apoA-I mimetic peptide 4F on structural and functional properties of the SMase-modified LDL particles. LDL particles with and without 4F were incubated with SMase, after which their aggregation, structure, and proteoglycan binding were analyzed. At a molar ratio of L-4F to apoB-100 of 2.5 to 20:1, 4F dose-dependently inhibited SMase-induced LDL aggregation. At a molar ratio of 20:1, SMase-induced aggregation was fully blocked. Binding of 4F to LDL particles inhibited SMase-induced hydrolysis of LDL by 10% and prevented SMase-induced LDL aggregation. In addition, the binding of the SMase-modified LDL particles to human aortic proteoglycans was dose-dependently inhibited by pretreating LDL with 4F. The 4F stabilized apoB-100 conformation and inhibited SMase-induced conformational changes of apoB-100. Molecular dynamic simulations showed that upon binding to protein-free LDL surface, 4F locally alters membrane order and fluidity and induces structural changes to the lipid layer. Collectively, 4F stabilizes LDL particles by preventing the SMase-induced conformational changes in apoB-100 and so blocks SMase-induced LDL aggregation and the resulting increase in LDL retention.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Physics, Research group: Biological Physics and Soft Matter, Computational Science X (CompX), Department of Molecular and Cellular Medicine, University of California, Los Angeles, University of Southern Denmark, Wihuri Research Institute, Biomedicum Helsinki, University of Helsinki Institute of Biotechnology, Science Service Center, Kuopio University Hospital, David Geffen School of Medicine at UCLA

Authors: Nguyen, S. D., Javanainen, M., Rissanen, S., Zhao, H., Huusko, J., Kivelä, A. M., Ylä-Herttuala, S., Navab, M., Fogelman, A. M., Vattulainen, I., Kovanen, P. T., Öörni, K.

Number of pages: 16

Pages: 1206-1221

Publication date: 1 Jun 2015

Peer-reviewed: Yes

Publication information

Journal: Journal of Lipid Research

Volume: 56

Issue number: 6

ISSN (Print): 0022-2275

Ratings:

Scopus rating (2016): SJR 2.533 SNIP 1.344 CiteScore 4.46

Scopus rating (2015): SJR 2.583 SNIP 1.329 CiteScore 4.42

Scopus rating (2014): SJR 2.514 SNIP 1.318 CiteScore 4.5

Scopus rating (2013): SJR 2.364 SNIP 1.364 CiteScore 4.93

Scopus rating (2012): SJR 2.618 SNIP 1.549 CiteScore 5.39

Scopus rating (2011): SJR 2.922 SNIP 1.458 CiteScore 4.68

Scopus rating (2010): SJR 2.766 SNIP 1.491

Scopus rating (2009): SJR 2.402 SNIP 1.293

Scopus rating (2008): SJR 2.564 SNIP 1.211

Scopus rating (2007): SJR 2.403 SNIP 1.233

Scopus rating (2006): SJR 2.392 SNIP 1.209

Scopus rating (2005): SJR 1.921 SNIP 1.143

Scopus rating (2004): SJR 1.984 SNIP 1.171

Scopus rating (2003): SJR 1.875 SNIP 1.17

Scopus rating (2002): SJR 1.866 SNIP 1.143

Scopus rating (2001): SJR 2.017 SNIP 1.264

Scopus rating (2000): SJR 1.918 SNIP 1.233

Scopus rating (1999): SJR 1.868 SNIP 1.192

Original language: English

ASJC Scopus subject areas: Biochemistry, Cell Biology, Endocrinology

Keywords: Apolipoprotein B-100, Atherosclerosis, Conformation, Interaction, Low density lipoprotein, Proteoglycans, Retention

DOIs:

10.1194/jlr.M059485

Links:

<http://www.scopus.com/inward/record.url?scp=84937161010&partnerID=8YFLogxK> (Link to publication in Scopus)

Source: Scopus

Source-ID: 84937161010

Research output: Scientific - peer-review > Article

Chitosan membranes in a rat model of full-thickness cutaneous wounds: Healing and IL-4 levels

Objective: The aim of this study was to examine the effect of chitosan membrane on wound healing. **Method:** The effect of chitosan membranes was evaluated in an experimental rat model. On day 0, circular full-thickness skin sections were excised from the scalps of rats. The wounds were then measured and the surrounding area tattooed. Rats were sacrificed either immediately after excision, or randomised into control and chitosan groups and followed up on day 3, 7, 14 or 21. Control group wounds were covered with Aquacel (wound dressing). Chitosan group wounds were covered with chitosan membranes and the wound dressing. Wounds and the distances between the tattooed marks were measured on follow-up, the wound sites were harvested and histologically examined, and serum interleukin (IL-4) levels were analysed.

Results: A total of 54 rats were examined and all time points included 6 control and 6 chitosan treated animals, except for day 0 which consisted of control animals only. On day 3, wounds in the chitosan group were significantly ($p < 0.05$) smaller ($60 \pm 6\%$ versus $78 \pm 19\%$ of the original wound area) than in the control group. Chitosan membranes were found to degrade at the wound sites between days 7 and 14. Leukocyte counts were lower in the chitosan group than in the control group on day seven ($p < 0.05$). IL-4 levels were significantly higher on day 7 ($p < 0.001$) and 14 ($p < 0.001$) in the chitosan group. **Conclusion:** According to our results chitosan membrane may promote early wound healing, reduce inflammation and affect the IL-4 pathway, however, the membrane degrades at the wound site after day 7.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Biomaterials and Tissue Engineering Group, BioMediTech, Integrated Technologies for Tissue Engineering Research (ITTE), Tampere University Hospital, BioMediTech, Department of Plastic Surgery

Authors: Nordback, P. H., Miettinen, S., Kääriäinen, M., Haaparanta, A. M., Kellomäki, M., Kuokkanen, H., Seppänen, R.

Number of pages: 7

Pages: 245-251

Publication date: 1 Jun 2015

Peer-reviewed: Yes

Publication information

Journal: Journal of Wound Care

Volume: 24

Issue number: 6

ISSN (Print): 0969-0700

Ratings:

Scopus rating (2016): SJR 0.526 SNIP 0.725 CiteScore 1.13

Scopus rating (2015): SJR 0.509 SNIP 1.085 CiteScore 1.06

Scopus rating (2014): SJR 0.527 SNIP 0.964 CiteScore 1.07

Scopus rating (2013): SJR 0.655 SNIP 1.129 CiteScore 1.19

Scopus rating (2012): SJR 0.943 SNIP 1.576 CiteScore 1.64

Scopus rating (2011): SJR 0.759 SNIP 1.087 CiteScore 1.58

Scopus rating (2010): SJR 0.573

Scopus rating (2009): SJR 0.281

Scopus rating (2008): SJR 0.332

Scopus rating (2007): SJR 0.301

Scopus rating (2006): SJR 0.283

Scopus rating (2005): SJR 0.214

Scopus rating (2004): SJR 0.143

Scopus rating (2003): SJR 0.132

Scopus rating (2002): SJR 0.139

Scopus rating (2001): SJR 0.146

Scopus rating (2000): SJR 0.154

Scopus rating (1999): SJR 0.144

Original language: English

Keywords: Chitosan, Chitosan membrane, Full-thickness, IL-4, Wound healing

ASJC Scopus subject areas: Nursing (miscellaneous), Fundamentals and skills

DOIs:

10.12968/jowc.2015.24.6.245

Source: Scopus

Source-ID: 84931436829

Research output: Scientific - peer-review > Article

Signal analysis and classification methods for the calcium transient data of stem cell-derived cardiomyocytes

Calcium cycling is crucial in the excitation-contraction coupling of cardiomyocytes, and therefore has a key role in cardiac functionality. Cardiac disorders and different drugs alter the calcium transients of cardiomyocytes and can cause serious dysfunction of the heart. New insights into this biochemical phenomena can be achieved by studying and analyzing calcium transients. Calcium transients of spontaneously beating human induced pluripotent stem cell-derived cardiomyocytes were recorded for a data set of 280 signals. Our objective was to develop and program procedures: (1) to automatically detect cycling peaks from signals and to classify the peaks of signals as either normal or abnormal, and (2) on the basis of the preceding peak detection results, to classify the entire signals into either a normal class or an abnormal class. We obtained a classification accuracy of approximately 80% compared to class decisions made separately by an experienced researcher, which is promising for the further development of an automatic classification approach. Automated classification software would be beneficial in the future for analyzing cardiomyocyte functionality on a large scale when screening for the adverse cardiac effects of new potential compounds, and also in future clinical applications. (C) 2015 Elsevier Ltd. All rights reserved.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Computational Biophysics and Imaging Group, BioMediTech, Augmented Human Activities (AHA), Integrated Technologies for Tissue Engineering Research (ITTE), Univ Tampere, University of Tampere, Sch Informat Sci, Tampere Univ Hosp, University of Tampere, Heart Hosp, BioMediTech, University of Tampere

Authors: Juhola, M., Penttinen, K., Joutsijoki, H., Varpa, K., Saarikoski, J., Rasku, J., Siirtola, H., Iltanen, K., Laurikkala, J., Hyyrö, H., Hyttinen, J., Aalto-Setälä, K.

Number of pages: 7

Pages: 1-7

Publication date: 1 Jun 2015

Peer-reviewed: Yes

Publication information

Journal: Computers in Biology and Medicine

Volume: 61

ISSN (Print): 0010-4825

Ratings:

Scopus rating (2016): SJR 0.547 SNIP 1.031 CiteScore 2.13

Scopus rating (2015): SJR 0.564 SNIP 1.296 CiteScore 2.08

Scopus rating (2014): SJR 0.45 SNIP 1.148 CiteScore 1.72

Scopus rating (2013): SJR 0.575 SNIP 1.5 CiteScore 2.22

Scopus rating (2012): SJR 0.428 SNIP 1.224 CiteScore 1.68

Scopus rating (2011): SJR 0.441 SNIP 1.308 CiteScore 1.86
Scopus rating (2010): SJR 0.434 SNIP 1.035
Scopus rating (2009): SJR 0.462 SNIP 1.448
Scopus rating (2008): SJR 0.449 SNIP 0.843
Scopus rating (2007): SJR 0.459 SNIP 1.408
Scopus rating (2006): SJR 0.442 SNIP 1.216
Scopus rating (2005): SJR 0.647 SNIP 1.234
Scopus rating (2004): SJR 0.394 SNIP 0.871
Scopus rating (2003): SJR 0.393 SNIP 0.937
Scopus rating (2002): SJR 0.297 SNIP 0.625
Scopus rating (2001): SJR 0.288 SNIP 0.978
Scopus rating (2000): SJR 0.19 SNIP 0.554
Scopus rating (1999): SJR 0.242 SNIP 0.486

Original language: English

Keywords: Human pluripotent stem cells, Cardiomyocytes, Calcium cycling abnormalities, Biomedical data analysis, DYSFUNCTION

DOIs:

10.1016/j.combiomed.2015.03.016

Source: WOS

Source-ID: 000356108400001

Research output: Scientific - peer-review > Article

Structural analysis of treatment cycles representing transitions between nursing organizational units inferred from diabetes

In this paper, we investigate treatment cycles inferred from diabetes data by means of graph theory. We define the term treatment cycles graph-theoretically and perform a descriptive as well as quantitative analysis thereof. Also, we interpret our findings in terms of nursing and clinical management.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Research Community on Data-to-Decision (D2D), Department of Mechatronics and Biomedical Computer Science, Universität der Bundeswehr München, UMIT, Yildiz Technical University, Department of Nursing Science and Gerontology, Institute for Nursing Science, Department of Pediatrics, Medical University of Innsbruck

Authors: Dehmer, M., Kurt, Z., Emmert-Streib, F., Them, C., Schulc, E., Hofer, S.

Publication date: 1 Jun 2015

Peer-reviewed: Yes

Publication information

Journal: PLoS One

Volume: 10

Issue number: 6

Article number: e0127152

ISSN (Print): 1932-6203

Ratings:

Scopus rating (2016): CiteScore 3.11 SJR 1.201 SNIP 1.092

Scopus rating (2015): SJR 1.414 SNIP 1.131 CiteScore 3.32

Scopus rating (2014): SJR 1.545 SNIP 1.141 CiteScore 3.54

Scopus rating (2013): SJR 1.74 SNIP 1.147 CiteScore 3.94

Scopus rating (2012): SJR 1.945 SNIP 1.142 CiteScore 4.15

Scopus rating (2011): SJR 2.369 SNIP 1.23 CiteScore 4.58

Scopus rating (2010): SJR 2.631 SNIP 1.161

Scopus rating (2009): SJR 2.473 SNIP 0.985

Scopus rating (2008): SJR 2.323 SNIP 0.96

Scopus rating (2007): SJR 1.289 SNIP 0.525

Original language: English

ASJC Scopus subject areas: Agricultural and Biological Sciences(all), Biochemistry, Genetics and Molecular Biology(all), Medicine(all)

DOIs:

10.1371/journal.pone.0127152

Source: Scopus

Source-ID: 84931274963

Research output: Scientific - peer-review › Article

Using shRNA experiments to validate gene regulatory networks

Quantitative validation of gene regulatory networks (GRNs) inferred from observational expression data is a difficult task usually involving time intensive and costly laboratory experiments. We were able to show that gene knock-down experiments can be used to quantitatively assess the quality of large-scale GRNs via a purely data-driven approach (Olsen et al. 2014). Our new validation framework also enables the statistical comparison of multiple network inference techniques, which was a long-standing challenge in the field. In this Data in Brief we detail the contents and quality controls for the gene expression data (available from NCBI Gene Expression Omnibus repository with accession number GSE53091) associated with our study published in *Genomics* (Olsen et al. 2014). We also provide R code to access the data and reproduce the analysis presented in this article.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, BioMediTech, Research Community on Data-to-Decision (D2D), BioMediTech - Institute of Biosciences and Medical Technology, University of Toronto, Canada, Machine Learning Group, Interuniversity Institute of Bioinformatics in Brussels (IB), Computational Biology and Functional Genomics Laboratory, Dana-Farber Cancer Institute, Harvard School of Public Health, Bioinformatics and Computational Genomics Laboratory, Princess Margaret Cancer Centre, University Health Network University of Toronto, Department of Medical Biophysics, University of Toronto

Authors: Olsen, C., Fleming, K., Prendergast, N., Rubio, R., Emmert-Streib, F., Bontempi, G., Quackenbush, J., Haibe-Kains, B.

Number of pages: 4

Pages: 123-126

Publication date: 1 Jun 2015

Peer-reviewed: Yes

Publication information

Journal: *Genomics Data*

Volume: 4

ISSN (Print): 2213-5960

Ratings:

Scopus rating (2016): SJR 0.388 SNIP 0.241

Scopus rating (2015): SJR 0.226 SNIP 0.089

Scopus rating (2014): SJR 0.238 SNIP 0.111

Original language: English

ASJC Scopus subject areas: Molecular Medicine, Biochemistry, Biotechnology, Genetics

Keywords: Colon cancer, Gene expression, Knock-down, Microarray, ShRNA

DOIs:

10.1016/j.gdata.2015.03.011

Source: Scopus

Source-ID: 84929412251

Research output: Scientific - peer-review › Article

Technologies for Ambient Assisted Living: Ambient Communication and Indoor Positioning

In all industrialised countries, the population is aging rapidly as the average life expectancy continues to rise and the number of younger age groups grows smaller. Hence, due to economical and practical reasons, the elders of the near future will likely live longer in their own apartments, particularly because institutionalization is significantly expensive and there is not room for the entire elderly population in currently existing nursing homes. Even more important, nearly all people would choose to live independently as long as possible before moving into an assisted-living facility.

A longer period of independent living for elders can be enabled by technical solutions. In this work, two technology areas for assisted living are studied. First, the prevention of feelings of loneliness in elders living alone is studied, and a solution for social inclusion and remote presence is presented. The results of long-lasting field trials are presented and analysed. Secondly, as information regarding the location of the inhabitant in the apartment can be used to provide several assistive services, indoor positioning systems are also studied in this work. Several technologies for indoor positioning are presented and compared. Furthermore, a new system based on capacitive measurement and the results of testing of the system are introduced.

Technologies and systems developed here have been implemented into actual systems, and real end users have tested them over long periods of time. Thus, these technologies can be developed into commercial products with reasonable

effort. Moreover, in this work it has been proven that the systems developed can actually be used to support the independent living of elders.

General information

State: Published

Ministry of Education publication type: G5 Doctoral dissertation (article)

Organisations: Department of Electronics and Communications Engineering

Authors: Kivimäki, T.

Number of pages: 54

Publication date: 22 May 2015

Publication information

Publisher: Tampere University of Technology

ISBN (Print): 978-952-15-3514-7

ISBN (Electronic): 978-952-15-3532-1

Original language: English

Publication series

Name: Tampere University of Technology. Publication

Publisher: Tampere University of Technology

Volume: 1295

ISSN (Print): 1459-2045

Electronic versions:

kivimaki_1295

Links:

<http://URN.fi/URN:ISBN:978-952-15-3532-1>

Bibliographical note

Awarding institution: Tampere University of Technology

Versio ok 16.12.2015

Research output: Collection of articles > Doctoral Thesis

Investigating the possible effect of electrode support structure on motion artifact in wearable bioelectric signal monitoring

Background: With advances in technology and increasing demand, wearable biosignal monitoring is developing and new applications are emerging. One of the main challenges facing the widespread use of wearable monitoring systems is the motion artifact. The sources of the motion artifact lie in the skin-electrode interface. Reducing the motion and deformation at this interface should have positive effects on signal quality. In this study, we aim to investigate whether the structure supporting the electrode can be designed to reduce the motion artifact with the hypothesis that this can be achieved by stabilizing the skin deformations around the electrode.

Methods: We compare four textile electrodes with different support structure designs: a soft padding larger than the electrode area, a soft padding larger than the electrode area with a novel skin deformation restricting design, a soft padding the same size as the electrode area, and a rigid support the same size as the electrode. With five subjects and two electrode locations placed over different kinds of tissue at various mounting forces, we simultaneously measured the motion artifact, a motion affected ECG, and the real-time skin-electrode impedance during the application of controlled motion to the electrodes.

Results: The design of the electrode support structure has an effect on the generated motion artifact; good design with a skin stabilizing structure makes the electrodes physically more motion artifact resilient, directly affecting signal quality. Increasing the applied mounting force shows a positive effect up to 1,000 gr applied force. The properties of tissue under the electrode are an important factor in the generation of the motion artifact and the functioning of the electrodes. The relationship of motion artifact amplitude to the electrode movement magnitude is seen to be linear for smaller movements. For larger movements, the increase of motion generated a disproportionately larger artifact. The motion artifact and the induced impedance change were caused by the electrode motion and contained the same frequency components as the applied electrode motion pattern.

Conclusion: We found that stabilizing the skin around the electrode using an electrode structure that manages to successfully distribute the force and movement to an area beyond the borders of the electrical contact area reduces the motion artifact when compared to structures that are the same size as the electrode area.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Computational Biophysics and Imaging Group, BioMediTech, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Cömert, A., Hyttinen, J.

Number of pages: 18

Publication date: 15 May 2015

Peer-reviewed: Yes

Publication information

Journal: Biomedical Engineering Online

Volume: 14

Article number: 44

ISSN (Print): 1475-925X

Ratings:

Scopus rating (2016): CiteScore 2.01 SJR 0.487 SNIP 1.048

Scopus rating (2015): SJR 0.521 SNIP 0.84 CiteScore 1.67

Scopus rating (2014): SJR 0.517 SNIP 1.133 CiteScore 2.02

Scopus rating (2013): SJR 0.577 SNIP 1.007 CiteScore 2.14

Scopus rating (2012): SJR 0.443 SNIP 1.059 CiteScore 1.81

Scopus rating (2011): SJR 0.401 SNIP 1.054 CiteScore 1.73

Scopus rating (2010): SJR 0.428 SNIP 1.102

Scopus rating (2009): SJR 0.521 SNIP 1.408

Scopus rating (2008): SJR 0.537 SNIP 0.97

Scopus rating (2007): SJR 0.453 SNIP 1.205

Scopus rating (2006): SJR 0.622 SNIP 1.282

Scopus rating (2005): SJR 0.502 SNIP 0.947

Scopus rating (2004): SJR 0.404 SNIP 1.181

Scopus rating (2003): SJR 0.151 SNIP 0.313

Original language: English

Keywords: Motion artifact, Surface electrodes, Textile electrodes, Un-gelled electrodes, Electrode design, Electrode structure, Wearable monitoring, Skin-electrode impedance, ECG, EMG, AMERICAN-HEART-ASSOCIATION, TEXTILE ELECTRODES, DRY ELECTRODES, CLINICAL-CARDIOLOGY, SKIN, ELECTROCARDIOGRAPHY, POTENTIALS, IMPEDANCE, STANDARDIZATION, RECOMMENDATIONS

DOIs:

10.1186/s12938-015-0044-2

Source: WOS

Source-ID: 000354424500001

Research output: Scientific - peer-review > Article

Urothelial cancer gene regulatory networks inferred from large-scale RNAseq, Bead and Oligo gene expression data

Background: Urothelial pathogenesis is a complex process driven by an underlying network of interconnected genes. The identification of novel genomic target regions and gene targets that drive urothelial carcinogenesis is crucial in order to improve our current limited understanding of urothelial cancer (UC) on the molecular level. The inference of genome-wide gene regulatory networks (GRN) from large-scale gene expression data provides a promising approach for a detailed investigation of the underlying network structure associated to urothelial carcinogenesis. Methods: In our study we inferred and compared three GRNs by the application of the BC3Net inference algorithm to large-scale transitional cell carcinoma gene expression data sets from Illumina RNAseq (179 samples), Illumina Bead arrays (165 samples) and Affymetrix Oligo microarrays (188 samples). We investigated the structural and functional properties of GRNs for the identification of molecular targets associated to urothelial cancer. Results: We found that the urothelial cancer (UC) GRNs show a significant enrichment of subnetworks that are associated with known cancer hallmarks including cell cycle, immune response, signaling, differentiation and translation. Interestingly, the most prominent subnetworks of co-located genes were found on chromosome regions 5q31.3 (RNAseq), 8q24.3 (Oligo) and 1q23.3 (Bead), which all represent known genomic regions frequently deregulated or aberrated in urothelial cancer and other cancer types. Furthermore, the identified hub genes of the individual GRNs, e.g., *HID1/DMC1* (tumor development), *RNF17/TDRD4* (cancer antigen) and *CYP4A11* (angiogenesis/ metastasis) are known cancer associated markers. The GRNs were highly dataset specific on the interaction level between individual genes, but showed large similarities on the biological function level represented by subnetworks. Remarkably, the RNAseq UC GRN showed twice the proportion of significant functional subnetworks. Based on our analysis of inferential and experimental networks the Bead UC GRN showed the lowest performance compared to the RNAseq and Oligo UC GRNs. Conclusion: To our knowledge, this is the first study investigating genome-scale UC GRNs. RNAseq based gene expression data is the data platform of choice for a GRN inference. Our study offers new avenues for the identification of novel putative diagnostic targets for subsequent studies in bladder tumors.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, BioMediTech, Research Community on Data-to-Decision (D2D), BioMediTech - Institute of Biosciences and Medical Technology, Queen's University, Belfast, Northern Ireland

Authors: Matos Simoes, R. D., Dalleau, S., Williamson, K. E., Emmert-Streib, F.

Publication date: 14 May 2015

Peer-reviewed: Yes

Publication information

Journal: BMC Systems Biology

Volume: 9

Article number: 21

ISSN (Print): 1752-0509

Ratings:

Scopus rating (2016): SJR 1.144 SNIP 0.735 CiteScore 2.11

Scopus rating (2015): SJR 1.47 SNIP 0.912 CiteScore 2.54

Scopus rating (2014): SJR 1.356 SNIP 0.893 CiteScore 2.55

Scopus rating (2013): SJR 1.832 SNIP 0.999 CiteScore 3.42

Scopus rating (2012): SJR 1.563 SNIP 1.001 CiteScore 3.32

Scopus rating (2011): SJR 1.505 SNIP 0.98 CiteScore 3.45

Scopus rating (2010): SJR 1.816 SNIP 1.061

Scopus rating (2009): SJR 1.489 SNIP 0.868

Scopus rating (2008): SJR 1.063 SNIP 0.763

Original language: English

ASJC Scopus subject areas: Molecular Biology, Structural Biology, Applied Mathematics, Modelling and Simulation, Computer Science Applications

Keywords: BC3Net, Computational genomics, Gene regulatory network, Urothelial cancer

DOIs:

10.1186/s12918-015-0165-z

Source: Scopus

Source-ID: 84931068065

Research output: Scientific - peer-review › Article

Age-related circulatory responses to whole body cooling: observations by heart rate variability

The purpose was to study potential age - related changes in the circulatory system via heart rate variability (HRV) by gradually lowering ambient temperature (0.2°C/min) from thermoneutral (32 C°) towards cold (18 C°). ECG was recorded from a young (31 years) and from an older subject (78 years), both males. During the tests, brachium blood pressure (BP) was recorded.

During the cooling, BP increased in both subjects (young from 95/69 to 132/75 mmHg, old from 125/68 to 176/101 mmHg), the latter exhibiting a prominent rise in diastolic values after cooling. HRV parameters increased in both subjects during the cold exposure being modest in the younger subject as compared to the older one. Also, recovery from the cold in terms of HRV was faster in the younger subject. The present preliminary observations indicate that older age is coupled with altered HRV response to a mild whole-body skin cooling.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Physiological Measurement Systems and Methods Group, Lund University

Authors: Alametsä, J., Kuklane, K., Smolander, J., Vanggaard, L., Halder, A., Lundgren, K., Gao, C., Viik, J.

Pages: 57-64

Publication date: 11 May 2015

Peer-reviewed: Yes

Publication information

Journal: Finnish Journal of eHealth and eWelfare

Volume: 7

Issue number: 2-3

ISSN (Print): 1798-0798

Original language: English

Keywords: ECG, Heart rate variability, elderly, thermal balance, mild whole-body cooling, Blood pressure

ASJC Scopus subject areas: Biomedical Engineering

Links:

<http://ojs.tsv.fi/index.php/stty/article/view/50892>

Bibliographical note

EXT="Smolander, Juhani"

Experiments of the sonification of the sleep electroencephalogram

It is becoming possible to perform sleep recordings at home with equipment targeted for the regular consumers. This alleviates the pressures to increase capacity in sleep clinics. The interpretation of the sleep recordings is not very easy for the laymen and alternative assisting methods should be sought for this. Sonification is a method by which a phenomenon is converted to a sound for human listeners. This paper describes experiments made for the sonification of the electric activity of the brain, the electroencephalography (EEG) for the purpose of recognizing the presence and absence of the necessary refreshing components of sleep, deep sleep and rapid eye movement (REM) sleep. The methods are based on the calculation of features of the EEG signal which are characteristic to the deep and REM sleep as well as wakefulness. The features are converted to amplitude modulation functions of artificial and musical instrument sounds by using mathematical transforms such as Principal Component Analysis and Linear Discriminant Analysis. The results indicate that modulated sinusoidal signals are not appropriate for the sonification of sleep EEG but that modulating the sound of musical instruments could be a viable option for making the recognition of good and bad sleep possible.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Research group: Sleep and Sensory Signal Analysis Group-SSSAG, Instituto Superior Tecnico, Lissabon, Portugal

Authors: Franco, P., Värrri, A.

Number of pages: 10

Pages: 65-74

Publication date: 11 May 2015

Peer-reviewed: Yes

Publication information

Journal: Finnish Journal of eHealth and eWelfare

Volume: 7

Issue number: 2-3

ISSN (Print): 1798-0798

Original language: English

ASJC Scopus subject areas: Engineering(all), Neuroscience(all)

Keywords: sonification; sleep; electroencephalogram; sleep stage scoring

Links:

<http://ojs.tsv.fi/index.php/stty/article/view/50893>

Research output: Scientific - peer-review › Article

Microarray analysis of differentially expressed genes in ovarian and fallopian tube epithelium from risk-reducing salpingo-oophorectomies

Mutations in the BRCA1 and BRCA2 genes confer an increased lifetime risk for breast and ovarian cancer. Ovarian cancer risk can be decreased by risk-reducing salpingo-oophorectomy (RRSO). Studies on RRSO material have altered the paradigm of serous ovarian cancer pathogenesis. The purpose of this study was to identify candidate genes possibly involved in the pathogenesis of serous ovarian cancer by carrying out a microarray analysis of differentially expressed genes in BRCA1/2- mutation positive ovarian and fallopian tube epithelium derived from RRSO surgery. Freshly frozen ovarian and fallopian tube samples from nine BRCA1/2 mutation carriers scheduled for RRSO were prospectively collected together with five mutation-negative control patients undergoing salpingo-oophorectomy for benign indications. Microarray analysis of genome-wide gene expression was performed on ovarian and fallopian tube samples from the BRCA1/2 and control patients. The validation of microarray data was performed by quantitative real-time polymerase chain reaction (qRT-PCR) in selected cases of RRSO samples and also in high grade serous carcinoma samples collected from patients with a BRCA phenotype. From 22,733 genes, 454 transcripts were identified that were differentially expressed in BRCA1/2 mutation carriers when compared with controls, pooling all ovarian and fallopian tube samples together. Of these, 299 genes were statistically significantly downregulated and 155 genes upregulated. Differentially expressed genes in BRCA1/2 samples reported here might be involved in serous ovarian carcinogenesis and provide interesting targets for further studies.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Research group: Computational Systems Biology, BioMediTech, Multi-scaled biodata analysis and modelling (MultiBAM), Tampere University Hospital, University of Tampere

Authors: Veskimäe, K., Staff, S., Tabaro, F., Nykter, M., Isola, J., Mäenpää, J.

Number of pages: 12

Pages: 276-287

Publication date: 1 May 2015

Peer-reviewed: Yes

Publication information

Journal: Genes Chromosomes and Cancer

Volume: 54

Issue number: 5

ISSN (Print): 1045-2257

Ratings:

Scopus rating (2016): SJR 1.889 SNIP 1.06 CiteScore 3.69

Scopus rating (2015): SJR 2.202 SNIP 1.058 CiteScore 4.01

Scopus rating (2014): SJR 2.498 SNIP 1.264 CiteScore 4.1

Scopus rating (2013): SJR 2.391 SNIP 1.156 CiteScore 3.96

Scopus rating (2012): SJR 2.165 SNIP 1.163 CiteScore 3.82

Scopus rating (2011): SJR 2.412 SNIP 1.042 CiteScore 3.85

Scopus rating (2010): SJR 2.543 SNIP 1.048

Scopus rating (2009): SJR 2.59 SNIP 1.101

Scopus rating (2008): SJR 2.345 SNIP 0.984

Scopus rating (2007): SJR 2.381 SNIP 1.148

Scopus rating (2006): SJR 2.069 SNIP 1.127

Scopus rating (2005): SJR 2.073 SNIP 1.099

Scopus rating (2004): SJR 1.926 SNIP 1.123

Scopus rating (2003): SJR 2.14 SNIP 1.077

Scopus rating (2002): SJR 1.984 SNIP 1.206

Scopus rating (2001): SJR 2.3 SNIP 1.311

Scopus rating (2000): SJR 2.163 SNIP 1.174

Scopus rating (1999): SJR 2.287 SNIP 1.288

Original language: English

ASJC Scopus subject areas: Cancer Research, Genetics

DOIs:

10.1002/gcc.22241

Source: Scopus

Source-ID: 84925368487

Research output: Scientific - peer-review › Article

Sec14-nodulin proteins and the patterning of phosphoinositide landmarks for developmental control of membrane morphogenesis

Polarized membrane morphogenesis is a fundamental activity of eukaryotic cells. This process is essential for the biology of cells and tissues, and its execution demands exquisite temporal coordination of functionally diverse membrane signaling reactions with high spatial resolution. Moreover, mechanisms must exist to establish and preserve such organization in the face of randomizing forces that would diffuse it. Here we identify the conserved AtSfh1 Sec14-nodulin protein as a novel effector of phosphoinositide signaling in the extreme polarized membrane growth program exhibited by growing Arabidopsis root hairs. The data are consistent with Sec14-nodulin proteins controlling the lateral organization of phosphatidylinositol 4,5-bisphosphate (PtdIns(4,5)P₂) landmarks for polarized membrane morphogenesis in plants. This patterning activity requires both the PtdIns(4,5)P₂ binding and homo-oligomerization activities of the AtSfh1 nodulin domain and is an essential aspect of the polarity signaling program in root hairs. Finally, the data suggest a general principle for how the phosphoinositide signaling landscape is physically bit mapped so that eukaryotic cells are able to convert a membrane surface into a high-definition lipid-signaling screen.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Physics, Research group: Biological Physics and Soft Matter, Computational Science X (CompX), Mahidol Univ, Mahidol University, Phramongkutklao College of Medicine, Fac Dent, Dept Anat, University of Southern Denmark, Department of Molecular and Cellular Medicine, Texas A AndM Health Sciences Center, Center for Plant Molecular Biology, Plant Physiology, Universität Tübingen, Zentrum für Datenverarbeitung, Unidad de Biofísica (CSIC, UPV/EHU), Departamento de Bioquímica, Universidad del País Vasco, Institut de Formation Aux Carrieres de Sante de Rabat, Department of Biochemistry and Biophysics, Texas A AndM University

Authors: Ghosh, R., De Campos, M. K. F., Huang, J., Huh, S. K., Orłowski, A., Yang, Y., Tripathi, A., Nile, A., Lee, H., Dynowski, M., Schäfer, H., Róg, T., Lete, M. G., Ahyayauch, H., Alonso, A., Vattulainen, I., Igumenova, T. I., Schaaf, G., Bankaitis, V. A.

Number of pages: 18

Pages: 1764-1781
Publication date: 1 May 2015
Peer-reviewed: Yes

Publication information

Journal: Molecular Biology of the Cell

Volume: 26

Issue number: 9

ISSN (Print): 1059-1524

Ratings:

Scopus rating (2016): SJR 2.78 SNIP 0.946 CiteScore 3.65

Scopus rating (2015): SJR 3.573 SNIP 1.11 CiteScore 4.03

Scopus rating (2014): SJR 3.693 SNIP 1.145 CiteScore 4.33

Scopus rating (2013): SJR 4.008 SNIP 1.212 CiteScore 4.57

Scopus rating (2012): SJR 4.132 SNIP 1.192 CiteScore 4.97

Scopus rating (2011): SJR 4.83 SNIP 1.221 CiteScore 5.26

Scopus rating (2010): SJR 5.605 SNIP 1.286

Scopus rating (2009): SJR 5.779 SNIP 1.288

Scopus rating (2008): SJR 5.798 SNIP 1.284

Scopus rating (2007): SJR 6.031 SNIP 1.335

Scopus rating (2006): SJR 6.074 SNIP 1.379

Scopus rating (2005): SJR 5.965 SNIP 1.416

Scopus rating (2004): SJR 6.469 SNIP 1.439

Scopus rating (2003): SJR 6.879 SNIP 1.396

Scopus rating (2002): SJR 6.345 SNIP 1.386

Scopus rating (2001): SJR 6.283 SNIP 1.359

Scopus rating (2000): SJR 6.898 SNIP 1.388

Scopus rating (1999): SJR 7.456 SNIP 1.337

Original language: English

ASJC Scopus subject areas: Molecular Biology, Cell Biology

DOIs:

10.1091/mbc.E14-10-1475

Links:

<http://www.scopus.com/inward/record.url?scp=84929485344&partnerID=8YFLogxK> (Link to publication in Scopus)

Source: Scopus

Source-ID: 84929485344

Research output: Scientific - peer-review > Article

Standardized evaluation of algorithms for computer-aided diagnosis of dementia based on structural MRI: The CADDementia challenge

Algorithms for computer-aided diagnosis of dementia based on structural MRI have demonstrated high performance in the literature, but are difficult to compare as different data sets and methodology were used for evaluation. In addition, it is unclear how the algorithms would perform on previously unseen data, and thus, how they would perform in clinical practice when there is no real opportunity to adapt the algorithm to the data at hand. To address these comparability, generalizability and clinical applicability issues, we organized a grand challenge that aimed to objectively compare algorithms based on a clinically representative multi-center data set. Using clinical practice as the starting point, the goal was to reproduce the clinical diagnosis. Therefore, we evaluated algorithms for multi-class classification of three diagnostic groups: patients with probable Alzheimer's disease, patients with mild cognitive impairment and healthy controls. The diagnosis based on clinical criteria was used as reference standard, as it was the best available reference despite its known limitations. For evaluation, a previously unseen test set was used consisting of 354 T1-weighted MRI scans with the diagnoses blinded. Fifteen research teams participated with a total of 29 algorithms. The algorithms were trained on a small training set ($n = 30$) and optionally on data from other sources (e.g., the Alzheimer's Disease Neuroimaging Initiative, the Australian Imaging Biomarkers and Lifestyle flagship study of aging). The best performing algorithm yielded an accuracy of 63.0% and an area under the receiver-operating-characteristic curve (AUC) of 78.8%. In general, the best performances were achieved using feature extraction based on voxel-based morphometry or a combination of features that included volume, cortical thickness, shape and intensity. The challenge is open for new submissions via the web-based framework: <http://caddementia.grand-challenge.org>. (C) 2015 Elsevier Inc. All rights reserved.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Imperial College, London, 24.8.2012, Univ Nacl Colombia, Universidad Nacional de Colombia, Signal Proc & Recognit Grp, Old Dominion Univ, Old Dominion University, Vis Lab, Universite' Pierre et Marie Curie, Sorbonne, France, 13.12.2011, Univ Porto, Universidade do Porto, Fac Med, Dept Med Imaging, Delft University of Technology, Univ Reading, University of Reading, Sch Syst Engr, Hosp Sao Joao, Sao Joao Hospital, Dept Neurol, CNRS, Centre National de la Recherche Scientifique (CNRS), Universite de Bordeaux - PRES, Lab Bordelais Rech Informat, PICTURA Res Grp, UMR 5800, Erasmus University Medical Center, VU University Medical Center, Universitats Klinikum Freiburg und Medizinische Fakultat, Universitat Freiburg im Breisgau, Istituto Nazionale Di Fisica Nucleare, Frascati, Universita degli Studi di Bari, Aarhus Universitet, Montreal Neurological Institute and Hospital, Jena University Hospital, Centre d'Analyse et de Traitement des Images (CATI), Universita degli studi Magna Graecia di Catanzaro, Kobenhavns Universitet, MIT Computer Science and Artificial Intelligence Laboratory, Massachusetts General Hospital

Authors: Bron, E. E., Smits, M., van der Flier, W. M., Vrenken, H., Barkhof, F., Scheltens, P., Papma, J. M., Steketee, R. M. E., Méndez Orellana, C., Meijboom, R., Pinto, M., Meireles, J. R., Garrett, C., Bastos-Leite, A. J., Abdulkadir, A., Ronneberger, O., Amoroso, N., Bellotti, R., Cárdenas-Peña, D., Álvarez-Meza, A. M., Dolph, C. V., Iftekharuddin, K. M., Eskildsen, S. F., Coupé, P., Fonov, V. S., Franke, K., Gaser, C., Ledig, C., Guerrero, R., Tong, T., Gray, K. R., Moradi, E., Tohka, J., Routier, A., Durrleman, S., Sarica, A., Di Fatta, G., Sensi, F., Chincarini, A., Smith, G. M., Stoyanov, Z. V., Sørensen, L., Nielsen, M., Tangaro, S., Inglese, P., Wachinger, C., Reuter, M., van Swieten, J. C., Niessen, W. J., Klein, S.

Number of pages: 18

Pages: 562-579

Publication date: 1 May 2015

Peer-reviewed: Yes

Publication information

Journal: NeuroImage

Volume: 111

ISSN (Print): 1053-8119

Ratings:

Scopus rating (2016): SJR 3.823 SNIP 1.752 CiteScore 6.31

Scopus rating (2015): SJR 4.48 SNIP 1.84 CiteScore 6.71

Scopus rating (2014): SJR 4.201 SNIP 2.029 CiteScore 6.9

Scopus rating (2013): SJR 4.376 SNIP 2.026 CiteScore 7.06

Scopus rating (2012): SJR 3.922 SNIP 1.937 CiteScore 6.86

Scopus rating (2011): SJR 3.626 SNIP 1.81 CiteScore 6.31

Scopus rating (2010): SJR 3.573 SNIP 1.866

Scopus rating (2009): SJR 3.859 SNIP 1.897

Scopus rating (2008): SJR 4.094 SNIP 1.765

Scopus rating (2007): SJR 3.7 SNIP 1.981

Scopus rating (2006): SJR 3.41 SNIP 1.924

Scopus rating (2005): SJR 3.703 SNIP 1.918

Scopus rating (2004): SJR 3.401 SNIP 1.794

Scopus rating (2003): SJR 1.974 SNIP 1.003

Scopus rating (2002): SJR 0.885 SNIP 0.403

Scopus rating (2001): SJR 0.526 SNIP 0.253

Scopus rating (2000): SJR 0.534 SNIP 0.341

Scopus rating (1999): SJR 0.641 SNIP 0.494

Original language: English

ASJC Scopus subject areas: Cognitive Neuroscience, Neurology

Keywords: Alzheimer's disease, Challenge, Classification, Computer-aided diagnosis, Mild cognitive impairment, Structural MRI

DOIs:

10.1016/j.neuroimage.2015.01.048

Source: WOS

Source-ID: 000352224100049

Research output: Scientific - peer-review > Article

Transbilayer lipid interactions mediate nanoclustering of lipid-anchored proteins

Understanding how functional lipid domains in live cell membranes are generated has posed a challenge. Here, we show that transbilayer interactions are necessary for the generation of cholesterol-dependent nanoclusters of GPI-anchored proteins mediated by membrane-adjacent dynamic actin filaments. We find that long saturated acyl-chains are required for forming GPI-anchor nanoclusters. Simultaneously, at the inner leaflet, long acyl-chain-containing phosphatidylserine (PS)

is necessary for transbilayer coupling. All-atom molecular dynamics simulations of asymmetric multicomponent-membrane bilayers in a mixed phase provide evidence that immobilization of long saturated acyl-chain lipids at either leaflet stabilizes cholesterol-dependent transbilayer interactions forming local domains with characteristics similar to a liquid-ordered (lo) phase. This is verified by experiments wherein immobilization of long acyl-chain lipids at one leaflet effects transbilayer interactions of corresponding lipids at the opposite leaflet. This suggests a general mechanism for the generation and stabilization of nanoscale cholesterol-dependent and actin-mediated lipid clusters in live cell membranes.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Physics, National Centre for Biological Sciences (TIFR), Shanmugha Arts Science Technology and Research Academy, Indian Institute of Integrative Medicine (CSIR), Wayne State University, Manipal University Karnataka, Raman Research Institute, Institute for Stem Cell Biology and Regenerative Medicine

Authors: Raghupathy, R., Anilkumar, A. A., Polley, A., Singh, P. P., Yadav, M., Johnson, C., Suryawanshi, S., Saikam, V., Sawant, S. D., Panda, A., Guo, Z., Vishwakarma, R. A., Rao, M., Mayor, S.

Number of pages: 14

Pages: 581-594

Publication date: 23 Apr 2015

Peer-reviewed: Yes

Publication information

Journal: Cell

Volume: 161

Issue number: 3

ISSN (Print): 0092-8674

Ratings:

Scopus rating (2016): SJR 26.947 SNIP 4.959 CiteScore 22.79

Scopus rating (2015): SJR 27.696 SNIP 5.314 CiteScore 23.62

Scopus rating (2014): SJR 28.41 SNIP 5.687 CiteScore 24.91

Scopus rating (2013): SJR 27.895 SNIP 5.887 CiteScore 24.88

Scopus rating (2012): SJR 24.829 SNIP 6.329 CiteScore 23.99

Scopus rating (2011): SJR 25.378 SNIP 6.695 CiteScore 22.29

Scopus rating (2010): SJR 25.195 SNIP 6.355

Scopus rating (2009): SJR 25.796 SNIP 6.389

Scopus rating (2008): SJR 24.783 SNIP 5.621

Scopus rating (2007): SJR 24.913 SNIP 5.511

Scopus rating (2006): SJR 23.449 SNIP 5.496

Scopus rating (2005): SJR 24.633 SNIP 5.466

Scopus rating (2004): SJR 25.051 SNIP 5.584

Scopus rating (2003): SJR 27.793 SNIP 5.482

Scopus rating (2002): SJR 27.652 SNIP 5.315

Scopus rating (2001): SJR 29.301 SNIP 5.604

Scopus rating (2000): SJR 35.861 SNIP 6.434

Scopus rating (1999): SJR 42.324 SNIP 6.799

Original language: English

ASJC Scopus subject areas: Biochemistry, Genetics and Molecular Biology(all), Medicine(all)

DOIs:

10.1016/j.cell.2015.03.048

Links:

<http://www.scopus.com/inward/record.url?scp=84928392356&partnerID=8YFLogxK> (Link to publication in Scopus)

Source: Scopus

Source-ID: 84928392356

Research output: Scientific - peer-review > Article

IGFBP2 potentiates nuclear EGFR-STAT3 signaling

Insulin-like growth factor binding protein 2 (IGFBP2) is a pleiotropic oncogenic protein that has both extracellular and intracellular functions. Despite a clear causal role in cancer development, the tumor-promoting mechanisms of IGFBP2 are poorly understood. The contributions of intracellular IGFBP2 to tumor development and progression are also unclear. Here we present evidence that both exogenous IGFBP2 treatment and cellular IGFBP2 overexpression lead to aberrant activation of epidermal growth factor receptor (EGFR), which subsequently activates signal transducer and activator of transcription factor 3 (STAT3) signaling. Furthermore, we demonstrate that IGFBP2 augments the nuclear accumulation of EGFR to potentiate STAT3 transactivation activities, via activation of the nuclear EGFR signaling pathway. Nuclear

IGFBP2 directly influences the invasive and migratory capacities of human glioblastoma cells, providing a direct link between intracellular (and particularly nuclear) IGFBP2 and cancer hallmarks. These activities are also consistent with the strong association between IGFBP2 and STAT3-activated genes derived from The Cancer Genome Atlas database for human glioma. A high level of all three proteins (IGFBP2, EGFR and STAT3) was strongly correlated with poorer survival in an independent patient data set. These results identify a novel tumor-promoting function for IGFBP2 of activating EGFR/STAT3 signaling and facilitating EGFR accumulation in the nucleus, thereby deregulating EGFR signaling by two distinct mechanisms. As targeting EGFR in glioma has been relatively unsuccessful, this study suggests that IGFBP2 may be a novel therapeutic target. *Oncogene* advance online publication, 20 April 2015; doi:10.1038/onc.2015.131.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Research group: Computational Systems Biology, BioMediTech

Authors: Chua, C. Y., Liu, Y., Granberg, K. J., Hu, L., Haapasalo, H., Annala, M. J., Cogdell, D. E., Verploegen, M., Moore, L. M., Fuller, G. N., Nykter, M., Cavenee, W. K., Zhang, W.

Pages: 738-747

Publication date: 20 Apr 2015

Peer-reviewed: Yes

Publication information

Journal: *Oncogene*

Volume: 35

Issue number: 6

ISSN (Print): 0950-9232

Ratings:

Scopus rating (2016): SJR 3.383 SNIP 1.685

Scopus rating (2015): SJR 3.948 SNIP 1.743

Scopus rating (2014): SJR 4.371 SNIP 1.691

Scopus rating (2013): SJR 4.758 SNIP 1.754

Scopus rating (2012): SJR 4.436 SNIP 1.658

Scopus rating (2011): SJR 4.779 SNIP 1.639

Scopus rating (2010): SJR 5.219 SNIP 1.676

Scopus rating (2009): SJR 5.236 SNIP 1.64

Scopus rating (2008): SJR 4.921 SNIP 1.61

Scopus rating (2007): SJR 4.457 SNIP 1.449

Scopus rating (2006): SJR 4.147 SNIP 1.455

Scopus rating (2005): SJR 4.186 SNIP 1.447

Scopus rating (2004): SJR 3.897 SNIP 1.343

Scopus rating (2003): SJR 4.115 SNIP 1.295

Scopus rating (2002): SJR 4.121 SNIP 1.193

Scopus rating (2001): SJR 4.361 SNIP 1.314

Scopus rating (2000): SJR 4.473 SNIP 1.228

Scopus rating (1999): SJR 4.479 SNIP 1.271

Original language: English

DOIs:

10.1038/onc.2015.131

Source: PubMed

Source-ID: 25893308

Research output: Scientific - peer-review › Article

Highly Porous Freeze-Dried Composite Scaffolds for Cartilage and Osteochondral Tissue Engineering

Cartilage lesions are known to heal poorly and their tissue engineering with optimal scaffolds are widely studied. If the cartilage lesion is deep, there is a need to also repair the underlying bone (i.e. subchondral bone) and the lesion is called an osteochondral lesion. There are several methods used for osteochondral tissue engineering and various scaffold compositions are being studied. The studied scaffold compositions include the one scaffold method, where only one scaffold is used for the osteochondral lesion, or independent structures for cartilage and bone. These two scaffolds could be combined during processing, before surgery or in surgery to obtain osteochondral solutions for cartilage repair. In this thesis, freeze-drying was used to manufacture highly porous scaffolds with an interconnected pore structure. Natural polymer-based scaffolds often lack the required mechanical stability. Therefore, natural polymer-based hybrids with improved stiffness were manufactured for cartilage tissue engineering scaffolds. Synthetic polymer-based composites with improved osteoconductivity were manufactured for bone or osteochondral tissue engineering scaffolds. The scaffolds were studied to determine the structure of the scaffolds, the effect of the fibrous filler mesh or filler particles on the

characteristics of the hybrids or composites, and the suitability of the hybrids for cartilage tissue engineering and the composites for bone or osteochondral tissue engineering. The majority of the studied scaffolds were also cultured with cells in vitro to define the suitability of the scaffolds for tissue engineering. The results show the freeze-drying method to be useful for manufacturing highly porous hybrid and composite scaffolds with improved properties compared with plain polymer scaffolds. Also, all the studied scaffolds had an interconnected porous structure. Improved wettability characteristics showed the method of cross-linking collagen post freeze-drying to be more effective way of cross-linking collagen compared to crosslinking collagen prior to freeze-drying. Synthetic polymer-based composites with an inhomogeneous scaffold structure with β -tricalcium phosphate (TCP) or bioactive glass (BG) filler particles showed improved osteoconductivity. TCP was found to improve the cell proliferation and alkaline phosphatase (ALP) activity of adipose stem cells (ASCs) over plain poly(L/D,L)lactide 70/30 (PLA70) scaffolds or PLA70+BG composites. A porous polymer matrix with a highly porous fibrous filler was successfully combined into highly porous freeze-dried hybrids with a natural polymer matrix (collagen/ chitosan and poly(L/D)lactide 96/4 fibres (PLA96)) and composites with a synthetic polymer matrix (poly(D,L-lactide-co-glycolide)70/30 (PLGA)) with bioactive glass fibres (BGf). The PLA96 fibrous mesh improved the penetration of the chondrocytes into the hybrids compared with plain natural polymer scaffolds. The manufactured scaffolds were found to be applicable for cartilage, bone and osteochondral tissue engineering applications. Based on the structures developed in this thesis, more optimal scaffold structures are currently being studied.

General information

State: Published

Ministry of Education publication type: G5 Doctoral dissertation (article)

Organisations: Department of Electronics and Communications Engineering, Research group: Biomaterials and Tissue Engineering Group

Authors: Haaparanta, A.

Number of pages: 104

Publication date: 17 Apr 2015

Publication information

Publisher: Tampere University of Technology

ISBN (Print): 978-952-15-3484-3

ISBN (Electronic): 978-952-15-3491-1

Original language: English

Publication series

Name: Tampere University of Technology. Publication

Publisher: Tampere University of Technology

Volume: 1290

ISSN (Print): 1459-2045

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haaparanta_1290

Links:

<http://urn.fi/URN:ISBN:978-952-15-3491-1>

Bibliographical note

Awarding institution:Tampereen teknillinen yliopisto - Tampere University of Technology
Submitter:Submitted by Kaisa Kulkki (kaisa.kulkki@tut.fi) on 2015-03-20T10:03:46Z

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Source: researchoutputwizard

Source-ID: 123456789/22848

Research output: Collection of articles > Doctoral Thesis

'miSimBa' - A simulator of synthetic time-lapsed microscopy images of bacterial cells

Escherichia coli is a model organism for the study of multiple biological processes, including gene expression and cellular aging. Recently, these studies started to rely on temporal single cell imaging. To support these efforts, available automated image analysis methods should be improved. One important step is their validation. Ideally, the 'ground truth' of the images should be known, which is possible only in synthetic images. To simulate artificial images of E. coli cells, we are developing the 'miSimBa' tool (Microscopy Image Simulator of Bacterial Cells). 'miSimBa' simulates images that reproduce the spatial and temporal bacterial organization by modelling realistically cell morphology (shape, size and spatial arrangement), cell growth and division, cell motility and some internal functions and intracellular structures, namely, the nucleoid. This tool also incorporates image acquisition parameters that simulate illumination and the primary sources of noise.

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Research group: Laboratory of Biosystem Dynamics-LBD, Department of Signal Processing, Multi-scaled biodata analysis and modelling (MultiBAM), Universidade de Lisboa, CA3, UNINNOVA - Centre of Technology and Systems, Faculdade de Ciências e Tecnologia da Universidade Nova

Authors: Martins, L., Fonseca, J., Ribeiro, A.

Publication date: 17 Apr 2015

Host publication information

Title of host publication: Proceedings - 2015 IEEE 4th Portuguese Meeting on Bioengineering, ENBENG 2015

Publisher: The Institute of Electrical and Electronics Engineers, Inc.

Article number: 7088854

ISBN (Print): 9781479982691

Keywords: Microscopy imaging, Synthetic image simulation, Time-lapse simulation

ASJC Scopus subject areas: Bioengineering

DOIs:

10.1109/ENBENG.2015.7088854

Source: Scopus

Source-ID: 84929250520

Research output: Scientific - peer-review > Conference contribution

Role of subunit III and its lipids in the molecular mechanism of cytochrome c oxidase

The terminal respiratory enzyme cytochrome c oxidase (CcO) reduces molecular oxygen to water, and pumps protons across the inner mitochondrial membrane, or the plasma membrane of bacteria. A two-subunit CcO harbors all the elements necessary for oxygen reduction and proton pumping. However, it rapidly undergoes turnover-induced irreversible damage, which is effectively prevented by the presence of subunit III and its tightly bound lipids. We have performed classical atomistic molecular dynamics (MD) simulations on a three-subunit CcO, which show the formation of water wires between the polar head groups of lipid molecules bound to subunit III and the proton uptake site Asp91 (*Bos taurus* enzyme numbering). Continuum electrostatic calculations suggest that these lipids directly influence the proton affinity of Asp91 by 1-2 pK units. We surmise that lipids bound to subunit III influence the rate of proton uptake through the D-pathway, and therefore play a key role in preventing turnover-induced inactivation. Atomistic MD simulations show that subunit III is rapidly hydrated in the absence of internally bound lipids, which is likely to affect the rate of O₂ diffusion into the active-site. The role of subunit III with its indigenous lipids in the molecular mechanism of CcO is discussed.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Physics, Research area: Computational Physics, Tampere University of Technology, Research group: Biological Physics and Soft Matter, Computational Science X (CompX), University of Southern Denmark, Institute of Molecular Biotechnology, Jena, Germany, Helsinki Bioenergetics Group, University of Helsinki Institute of Biotechnology

Authors: Sharma, V., Ala-Vannesuoma, P., Vattulainen, I., Wikström, M., Róg, T.

Number of pages: 8

Pages: 690-697

Publication date: 17 Apr 2015

Peer-reviewed: Yes

Publication information

Journal: Biochimica et Biophysica Acta: Bioenergetics

Volume: 1847

Issue number: 8

ISSN (Print): 0005-2728

Ratings:

Scopus rating (2016): SJR 2.552 SNIP 1.254 CiteScore 4.71

Scopus rating (2015): SJR 2.619 SNIP 1.374 CiteScore 4.79

Scopus rating (2014): SJR 2.441 SNIP 1.441 CiteScore 4.94

Scopus rating (2013): SJR 2.569 SNIP 1.371 CiteScore 4.79

Scopus rating (2012): SJR 2.816 SNIP 1.531 CiteScore 5.17

Scopus rating (2011): SJR 2.375 SNIP 1.373 CiteScore 4.56

Scopus rating (2010): SJR 2.562 SNIP 1.38

Scopus rating (2009): SJR 2.307 SNIP 1.187

Scopus rating (2008): SJR 2.329 SNIP 1.301

Scopus rating (2007): SJR 2.558 SNIP 1.19

Scopus rating (2006): SJR 2.354 SNIP 1.184

Scopus rating (2005): SJR 2.448 SNIP 1.301

Scopus rating (2004): SJR 2.42 SNIP 1.411

Scopus rating (2003): SJR 2.923 SNIP 1.214

Scopus rating (2002): SJR 2.864 SNIP 1.547

Scopus rating (2001): SJR 3.148 SNIP 1.66

Scopus rating (2000): SJR 3.09 SNIP 1.457

Scopus rating (1999): SJR 2.739 SNIP 1.251

Original language: English

Keywords: Cardiolipin, Continuum electrostatic, Molecular dynamics simulation, Oxygen diffusion, Water molecule

ASJC Scopus subject areas: Biochemistry, Biophysics, Cell Biology

DOIs:

10.1016/j.bbabbio.2015.04.007

Links:

<http://www.scopus.com/inward/record.url?scp=84929657652&partnerID=8YFLogxK> (Link to publication in Scopus)

Bibliographical note

AUX=fys,"Ala-Vannessluoma, Pauliina"

Source: Scopus

Source-ID: 84929657652

Research output: Scientific - peer-review › Article

A prospective biopsychosocial study of the persistent post-concussion symptoms following mild traumatic brain injury

This study examined multiple biopsychosocial factors relating to post-concussion symptom (PCS) reporting in patients with mild traumatic brain injuries (mTBI), including structural (computed tomography and magnetic resonance imaging [MRI]) and microstructural neuroimaging (diffusion tensor imaging [DTI]). Patients with mTBIs completed several questionnaires and cognitive testing at approximately one month (n=126) and one year (n=103) post-injury. At approximately three weeks post-injury, DTI was undertaken using a Siemens 3T scanner in a subgroup (n=71). Measures of fractional anisotropy were calculated for 16 regions of interest (ROIs) and measures of apparent diffusion coefficient were calculated for 10 ROIs. Patients were compared with healthy control subjects. Using International Classification of Diseases, Tenth Revision (ICD-10) PCS criteria and mild or greater symptom reporting, 59% of the mTBI sample met criteria at one month and 38% met criteria at one year. However, 31% of the healthy control sample also met criteria for the syndrome - illustrating a high false-positive rate. Significant predictors of ICD-10 PCS at one month were pre-injury mental health problems and the presence of extra-cranial bodily injuries. Being symptomatic at one month was a significant predictor of being symptomatic at one year, and depression was significantly related to PCS at both one month and one year. Intracranial abnormalities visible on MRI were present in 12.1% of this sample, and multifocal areas of unusual white matter as measured by DTI were present in 50.7% (compared with 12.4% of controls). Structural MRI abnormalities and microstructural white matter findings were not significantly associated with greater post-concussion symptom reporting. The personal experience and reporting of post-concussion symptoms is likely individualized, representing the cumulative effect of multiple variables, such as genetics, mental health history, current life stress, medical problems, chronic pain, depression, personality factors, and other psychosocial and environmental factors. The extent to which damage to the structure of the brain contributes to the persistence of post-concussion symptoms remains unclear.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Integrated Technologies for Tissue Engineering Research (ITTE), Massachusetts General Hospital, University of Tampere, Medical School, Tampere University Hospital, Department of Radiology, Pirkanmaa Hospital District and School of Health Sciences, Department of Physical Medicine and Rehabilitation, Harvard Medical School, Red Sox Foundation and Massachusetts General Hospital Home Base Program, Department of Psychiatry, University of British Columbia, Defense and Veterans Brain Injury Center, Walter Reed National Military Medical Center, Department of Neurosciences and Rehabilitation, Behavioral Neurology Research Unit

Authors: Wäljas, M., Iverson, G. L., Lange, R. T., Hakulinen, U., Dastidar, P., Huhtala, H., Liimatainen, S., Hartikainen, K., Öhman, J.

Number of pages: 14

Pages: 534-547

Publication date: 15 Apr 2015

Peer-reviewed: Yes

Publication information

Journal: Journal of Neurotrauma

Volume: 32

Issue number: 8

ISSN (Print): 0897-7151

Ratings:

Scopus rating (2016): SJR 1.993 SNIP 1.419 CiteScore 4.45

Scopus rating (2015): SJR 2.029 SNIP 1.393 CiteScore 4.24

Scopus rating (2014): SJR 1.958 SNIP 1.41 CiteScore 4.14

Scopus rating (2013): SJR 2.001 SNIP 1.385 CiteScore 4.3

Scopus rating (2012): SJR 1.64 SNIP 1.445 CiteScore 4.49

Scopus rating (2011): SJR 1.447 SNIP 1.359 CiteScore 3.9

Scopus rating (2010): SJR 1.556 SNIP 1.331

Scopus rating (2009): SJR 1.645 SNIP 1.415

Scopus rating (2008): SJR 1.693 SNIP 1.157

Scopus rating (2007): SJR 1.605 SNIP 1.252

Scopus rating (2006): SJR 1.32 SNIP 1.194

Scopus rating (2005): SJR 1.278 SNIP 1

Scopus rating (2004): SJR 1.171 SNIP 1.088

Scopus rating (2003): SJR 1.364 SNIP 1.093

Scopus rating (2002): SJR 1.285 SNIP 0.845

Scopus rating (2001): SJR 1.419 SNIP 1.239

Scopus rating (2000): SJR 1.323 SNIP 0.981

Scopus rating (1999): SJR 1.164 SNIP 0.995

Original language: English

ASJC Scopus subject areas: Clinical Neurology

Keywords: cognitive function, diffusion tensor imaging, outcome measures, prospective study, traumatic brain injury

DOIs:

10.1089/neu.2014.3339

Bibliographical note

EXT="Wäljas, Minna"

EXT="Dastidar, Prasun"

Source: Scopus

Source-ID: 84926678996

Research output: Scientific - peer-review › Article

Cancer research in the era of next-generation sequencing and big data calls for intelligent modeling

We examine the role of big data and machine learning in cancer research. We describe an example in cancer research where gene-level data from The Cancer Genome Atlas (TCGA) consortium is interpreted using a pathway-level model. As the complexity of computational models increases, their sample requirements grow exponentially. This growth stems from the fact that the number of combinations of variables grows exponentially as the number of variables increases. Thus, a large sample size is needed. The number of variables in a computational model can be reduced by incorporating biological knowledge. One particularly successful way of doing this is by using available gene regulatory, signaling, metabolic, or context-specific pathway information. We conclude that the incorporation of existing biological knowledge is essential for the progress in using big data for cancer research.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Research group: Computational Systems Biology

Authors: Yli-Hietanen, J., Ylipää, A., Yli-Harja, O.

Publication date: 11 Apr 2015

Peer-reviewed: Yes

Publication information

Journal: Chinese Journal of Cancer

Volume: 34

Issue number: 10

Article number: 12

ISSN (Print): 1944-446X

Original language: English

Keywords: Cancer research, Big data, Mathematical modeling, GASTRIC-CANCER, MODULES

DOIs:

10.1186/s40880-015-0008-8

Source: WOS

Source-ID: 000360225300001

Research output: Scientific - peer-review › Article

Dissolution behavior of the bioactive glass S53P4 when sodium is replaced by potassium, and calcium with magnesium or strontium

The initial dissolution behavior of glasses based on bioactive glass S53P4 was studied with a dynamic measurement setup in a Tris-buffered solution. The glass composition was modified systematically on a molar basis by replacing sodium oxide with potassium oxide (0-100% K) and calcium oxide with magnesium (0-18% Mg) or strontium oxide (0-100% Sr). The concentrations of the ions dissolving from the glasses were measured continuously on-line in the fluid flow for 15 to 25 min using an inductively coupled plasma emission optical spectrometer. This method enabled attainment of detailed information on the initial dissolution mechanisms without the, for bioactive glasses typical, interference of apatite layer formation. The results showed that initial dissolutions of sodium and potassium were markedly higher from the mixed alkali oxide glasses than from the compositions containing only one alkali oxide. Introducing MgO in S53P4 caused a minor decrease in the dissolution rates of all ions. The glass containing 3 mol% of MgO showed the best chemical durability. In contrast, replacing CaO gradually with SrO increased the dissolution rates of all ions. The glasses with the highest replacement of CaO with SrO showed rapid release of both Sr and Na ions. The results corroborate the overall knowledge of glass durability and can be utilized to design bioactive glasses with controlled ion release rate for tissue engineering applications.

General information

State: E-pub ahead of print

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Biomaterials and Tissue Engineering Group, Johan Gadolin Process Chemistry Centre, Abo Akademi University, Paroc Group Oy, Åbo Akademi University

Authors: Hupa, L., Fagerlund, S., Massera, J., Björkvik, L.

Number of pages: 6

Pages: 41-46

Publication date: 10 Apr 2015

Peer-reviewed: Yes

Publication information

Journal: Journal of Non-Crystalline Solids

ISSN (Print): 0022-3093

Ratings:

Scopus rating (2016): SJR 0.692 SNIP 1.163 CiteScore 2.02

Scopus rating (2015): SJR 0.684 SNIP 1.083 CiteScore 1.85

Scopus rating (2014): SJR 0.803 SNIP 1.194 CiteScore 1.87

Scopus rating (2013): SJR 0.822 SNIP 1.19 CiteScore 1.79

Scopus rating (2012): SJR 0.758 SNIP 1.124 CiteScore 1.64

Scopus rating (2011): SJR 0.836 SNIP 1.272 CiteScore 1.7

Scopus rating (2010): SJR 0.911 SNIP 1.128

Scopus rating (2009): SJR 0.924 SNIP 0.993

Scopus rating (2008): SJR 0.957 SNIP 1.2

Scopus rating (2007): SJR 0.95 SNIP 1.082

Scopus rating (2006): SJR 0.887 SNIP 1.158

Scopus rating (2005): SJR 0.986 SNIP 1.149

Scopus rating (2004): SJR 0.992 SNIP 1.216

Scopus rating (2003): SJR 1.362 SNIP 1.308

Scopus rating (2002): SJR 0.861 SNIP 1.051

Scopus rating (2001): SJR 1.099 SNIP 1.09

Scopus rating (2000): SJR 0.948 SNIP 1.074

Scopus rating (1999): SJR 1.068 SNIP 0.966

Original language: English

Keywords: Bioactive glass, Chemical durability, Dynamic solution, Ion dissolution

ASJC Scopus subject areas: Condensed Matter Physics, Ceramics and Composites, Electronic, Optical and Magnetic Materials, Materials Chemistry

DOIs:

10.1016/j.jnoncrysol.2015.03.026

Source: Scopus

Source-ID: 84948073019

Research output: Scientific - peer-review › Article

Workplace performance of a loose-fitting powered air purifying respirator during nanoparticle synthesis

Nanoparticle (particles with diameter ≤ 100 nm) exposure is recognized as a potentially harmful size fraction for pulmonary particle exposure. During nanoparticle synthesis, the number concentrations in the process room may exceed $10 \times 10^6 \text{ cm}^{-3}$. During such conditions, it is essential that the occupants in the room wear highly reliable high-performance respirators to prevent inhalation exposure. Here we have studied the in-use program protection factor (PPF) of loose-fitting powered air purifying respirators, while workers were coating components with TiO_2 or Cu_xO_y nanoparticles under a hood using a liquid flame spray process. The PPF was measured using condensation particle counters, an electrical low pressure impactor, and diffusion chargers. The room particle concentrations varied from 4×10^6 to $40 \times 10^6 \text{ cm}^{-3}$, and the count median aerodynamic diameter ranged from 32 to 180 nm. Concentrations inside the respirator varied from 0.7 to 7.2 cm^{-3} . However, on average, tidal breathing was assumed to increase the respirator concentration by 2.3 cm^{-3} . The derived PPF exceeded 1.1×10^6 , which is more than 40×10^3 times the respirator assigned protection factor. We were unable to measure clear differences in the PPF of respirators with old and new filters, among two male and one female user, or assess most penetrating particle size. This study shows that the loose-fitting powered air purifying respirator provides very efficient protection against nanoparticle inhalation exposure if used properly.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Physics, Research group: Aerosol Synthesis, National Research Centre for the Working Environment, Finnish Institute of Occupational Health, Helsinki University, TNO

Authors: Koivisto, A. J., Aromaa, M., Koponen, I. K., Fransman, W., Jensen, K. A., Mäkelä, J. M., Hämeri, K. J.

Publication date: 9 Apr 2015

Peer-reviewed: Yes

Publication information

Journal: Journal of Nanoparticle Research

Volume: 17

Issue number: 4

ISSN (Print): 1388-0764

Ratings:

Scopus rating (2016): SJR 0.485 SNIP 0.555

Scopus rating (2015): SJR 0.569 SNIP 0.689

Scopus rating (2014): SJR 0.663 SNIP 0.868

Scopus rating (2013): SJR 0.749 SNIP 1.013

Scopus rating (2012): SJR 0.855 SNIP 1.03

Scopus rating (2011): SJR 1.09 SNIP 1.44

Scopus rating (2010): SJR 0.966 SNIP 1.248

Scopus rating (2009): SJR 0.977 SNIP 1.053

Scopus rating (2008): SJR 0.989 SNIP 1.138

Scopus rating (2007): SJR 0.873 SNIP 1.082

Scopus rating (2006): SJR 0.862 SNIP 1.242

Scopus rating (2005): SJR 0.805 SNIP 1.174

Scopus rating (2004): SJR 0.805 SNIP 1.332

Scopus rating (2003): SJR 0.564 SNIP 0.87

Scopus rating (2002): SJR 0.676 SNIP 1.226

Scopus rating (2001): SJR 0.503 SNIP 0.653

Scopus rating (2000): SJR 0.296 SNIP 0.409

Original language: English

ASJC Scopus subject areas: Atomic and Molecular Physics, and Optics, Condensed Matter Physics, Modelling and Simulation, Chemistry(all), Materials Science(all), Bioengineering

Keywords: Aerosol, Air purifying respirator, Filtration, Occupational safety, Protection factor, Respirator performance

DOIs:

10.1007/s11051-015-2990-9

Links:

<http://www.scopus.com/inward/record.url?scp=84927730047&partnerID=8YFLogxK> (Link to publication in Scopus)

Bibliographical note

EXT="Koivisto, Antti J."

Source: Scopus

Source-ID: 84927730047

Research output: Scientific - peer-review › Article

N-Glycosylation as determinant of epidermal growth factor receptor conformation in membranes

The epidermal growth factor receptor (EGFR) regulates several critical cellular processes and is an important target for cancer therapy. In lieu of a crystallographic structure of the complete receptor, atomistic molecular dynamics (MD) simulations have recently shown that they can excel in studies of the full-length receptor. Here we present atomistic MD simulations of the monomeric N-glycosylated human EGFR in biomimetic lipid bilayers that are, in parallel, also used for the reconstitution of full-length receptors. This combination enabled us to experimentally validate our simulations, using ligand binding assays and antibodies to monitor the conformational properties of the receptor reconstituted into membranes. We find that N-glycosylation is a critical determinant of EGFR conformation, and specifically the orientation of the EGFR ectodomain relative to the membrane. In the absence of a structure for full-length, posttranslationally modified membrane receptors, our approach offers new means to structurally define and experimentally validate functional properties of cell surface receptors in biomimetic membrane environments.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Physics, Tampere University of Technology, Research area: Computational Physics, Research group: Biological Physics and Soft Matter, Computational Science X (CompX), University of Southern Denmark, Paul Langerhans Institute Dresden of the Helmholtz Centre Munich, University Clinic Carl Gustav Carus, TU Dresden, German Center for Diabetes Research (DZD e.V.), Max Planck Institute for Molecular Cell Biology and Genetics

Authors: Kaszuba, K., Grzybek, M., Orłowski, A., Danne, R., Róg, T., Simons, K., Coskun, Ü., Vattulainen, I.

Number of pages: 6

Pages: 4334-4339

Publication date: 7 Apr 2015

Peer-reviewed: Yes

Publication information

Journal: Proceedings of the National Academy of Sciences of the United States of America

Volume: 112

Issue number: 14

ISSN (Print): 0027-8424

Ratings:

Scopus rating (2016): SJR 6.321 SNIP 2.629 CiteScore 8.56

Scopus rating (2015): SJR 6.767 SNIP 2.682 CiteScore 8.84

Scopus rating (2014): SJR 6.853 SNIP 2.725 CiteScore 8.86

Scopus rating (2013): SJR 6.989 SNIP 2.73 CiteScore 9.5

Scopus rating (2012): SJR 6.792 SNIP 2.682 CiteScore 9.49

Scopus rating (2011): SJR 6.771 SNIP 2.636 CiteScore 9.31

Scopus rating (2010): SJR 6.769 SNIP 2.529

Scopus rating (2009): SJR 6.913 SNIP 2.544

Scopus rating (2008): SJR 6.899 SNIP 2.445

Scopus rating (2007): SJR 6.766 SNIP 2.441

Scopus rating (2006): SJR 6.734 SNIP 2.434

Scopus rating (2005): SJR 6.784 SNIP 2.551

Scopus rating (2004): SJR 7.026 SNIP 2.622

Scopus rating (2003): SJR 7.018 SNIP 2.501

Scopus rating (2002): SJR 7.183 SNIP 2.471

Scopus rating (2001): SJR 7.192 SNIP 2.463

Scopus rating (2000): SJR 7.731 SNIP 2.475

Scopus rating (1999): SJR 8.271 SNIP 2.446

Original language: English

ASJC Scopus subject areas: General

Keywords: EGFR, Lipid-protein interaction, Lipids, MD simulation, Proteoliposomes

DOIs:

10.1073/pnas.1503262112

Links:

<http://www.scopus.com/inward/record.url?scp=84929500864&partnerID=8YFLogxK> (Link to publication in Scopus)

Bibliographical note

AUX=fys,"Orłowski, Adam"

Source: Scopus

Source-ID: 84929500864

Research output: Scientific - peer-review › Article

A Bayesian approach for suppression of limited angular sampling artifacts in single particle 3D reconstruction

In the single particle reconstruction, the initial 3D structure often suffers from the limited angular sampling artifact. Selecting 2D class averages of particle images generally improves the accuracy and efficiency of the reference-free 3D angle estimation, but causes an insufficient angular sampling to fill the information of the target object in the 3D frequency space. Similarly, the initial 3D structure by the random-conical tilt reconstruction has the well-known "missing cone" artifact. Here, we attempted to solve the limited angular sampling problem by sequentially applying maximum a posteriori estimate with expectation maximization algorithm (sMAP-EM). Using both simulated and experimental cryo-electron microscope images, the sMAP-EM was compared to the direct Fourier method on the basis of reconstruction error and resolution. To establish selection criteria of the final regularization weight for the sMAP-EM, the effects of noise level and sampling sparseness on the reconstructions were examined with evenly distributed sampling simulations. The frequency information filled in the missing cone of the conical tilt sampling simulations was assessed by developing new quantitative measurements. All the results of visual and numerical evaluations showed the sMAP-EM performed better than the direct Fourier method, regardless of the sampling method, noise level, and sampling sparseness. Furthermore, the frequency domain analysis demonstrated that the sMAP-EM can fill the meaningful information in the unmeasured angular space without detailed a priori knowledge of the objects. The current research demonstrated that the sMAP-EM has a high potential to facilitate the determination of 3D protein structures at near atomic-resolution.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Research group: M2oBSI, BioMediTech, UC Davis, BioMediTech

Authors: Moriya, T., Acar, E., Cheng, R. H., Ruotsalainen, U.

Number of pages: 14

Pages: 318–331

Publication date: 3 Apr 2015

Peer-reviewed: Yes

Publication information

Journal: Journal of Structural Biology

Volume: 191

Issue number: 3

ISSN (Print): 1047-8477

Ratings:

Scopus rating (2016): SJR 2.664 SNIP 0.905 CiteScore 2.74

Scopus rating (2015): SJR 3.466 SNIP 1.124 CiteScore 3.12

Scopus rating (2014): SJR 2.496 SNIP 1.257 CiteScore 3.14

Scopus rating (2013): SJR 2.579 SNIP 1.259 CiteScore 3.47

Scopus rating (2012): SJR 2.254 SNIP 1.231 CiteScore 3.36

Scopus rating (2011): SJR 2.082 SNIP 1.222 CiteScore 3.47

Scopus rating (2010): SJR 2.586 SNIP 1.187

Scopus rating (2009): SJR 2.964 SNIP 1.249

Scopus rating (2008): SJR 3.39 SNIP 1.397

Scopus rating (2007): SJR 3.155 SNIP 1.173

Scopus rating (2006): SJR 2.616 SNIP 1.209

Scopus rating (2005): SJR 2.781 SNIP 1.226

Scopus rating (2004): SJR 2.334 SNIP 1.293

Scopus rating (2003): SJR 2.826 SNIP 1.345

Scopus rating (2002): SJR 3.064 SNIP 1.321

Scopus rating (2001): SJR 2.95 SNIP 1.158

Scopus rating (2000): SJR 2.567 SNIP 1.007

Scopus rating (1999): SJR 3.277 SNIP 0.989

Original language: English

ASJC Scopus subject areas: Structural Biology

Keywords: Cryo-electron microscopy, Maximum a posteriori probability estimation, Median root prior reconstruction, Missing cone, Poisson image formation model, Sparse angular sampling

DOIs:

10.1016/j.jsb.2015.07.007

Links:

<http://www.scopus.com/inward/record.url?scp=84937459131&partnerID=8YFLogxK> (Link to publication in Scopus)

Source: Scopus

Source-ID: 84937459131

Research output: Scientific - peer-review > Article

Oxidation of cholesterol does not alter significantly its uptake into high-density lipoprotein particles

Using replica exchange umbrella sampling we calculated free energy profiles for uptake of cholesterol and one of its oxysterols (7-ketocholesterol) from an aqueous solution into a high-density lipoprotein particle. These atomistic molecular dynamics simulations show that both sterols are readily taken up from the aqueous solution with comparable free energy minima at the surface of the particle of -17 kcal/mol for cholesterol and -14 kcal/mol for 7-ketocholesterol. Moreover, given its preferred position at the particle surface, 7-ketocholesterol is expected to be able to participate directly in biological signaling processes.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Physics, Research group: Biological Physics and Soft Matter, Computational Science X (CompX), University of Southern Denmark, Institute of Organic Chemistry and Biochemistry, Academy of Sciences of the Czech Republic

Authors: Karilainen, T., Timr, Š., Vattulainen, I., Jungwirth, P.

Number of pages: 7

Pages: 4594-4600

Publication date: 2 Apr 2015

Peer-reviewed: Yes

Publication information

Journal: Journal of Physical Chemistry Part B

Volume: 119

Issue number: 13

ISSN (Print): 1520-6106

Ratings:

Scopus rating (2016): SJR 1.348 SNIP 1.02 CiteScore 3.03

Scopus rating (2015): SJR 1.367 SNIP 1.096 CiteScore 3.25

Scopus rating (2014): SJR 1.44 SNIP 1.14 CiteScore 3.28

Scopus rating (2013): SJR 1.494 SNIP 1.2 CiteScore 3.53

Scopus rating (2012): SJR 1.92 SNIP 1.251 CiteScore 3.66

Scopus rating (2011): SJR 1.78 SNIP 1.226 CiteScore 3.62

Scopus rating (2010): SJR 1.849 SNIP 1.214

Scopus rating (2009): SJR 2.232 SNIP 1.349

Scopus rating (2008): SJR 2.543 SNIP 1.381

Scopus rating (2007): SJR 2.346 SNIP 1.282

Scopus rating (2006): SJR 2.369 SNIP 1.415

Scopus rating (2005): SJR 2.275 SNIP 1.474

Scopus rating (2004): SJR 2.148 SNIP 1.511

Scopus rating (2003): SJR 2.034 SNIP 1.47

Scopus rating (2002): SJR 2.118 SNIP 1.496

Scopus rating (2001): SJR 2.053 SNIP 1.508

Scopus rating (2000): SJR 2.145 SNIP 1.527

Scopus rating (1999): SJR 1.713 SNIP 1.8

Original language: English

ASJC Scopus subject areas: Physical and Theoretical Chemistry, Materials Chemistry, Surfaces, Coatings and Films

DOIs:

10.1021/acs.jpcc.5b00240

Links:

<http://www.scopus.com/inward/record.url?scp=84926433475&partnerID=8YFLogxK> (Link to publication in Scopus)

Source: Scopus

Source-ID: 84926433475

Research output: Scientific - peer-review › Article

Genomically amplified Akt3 activates DNA repair pathway and promotes glioma progression

Akt is a robust oncogene that plays key roles in the development and progression of many cancers, including glioma. We evaluated the differential propensities of the Akt isoforms toward progression in the well-characterized RCAS/Ntv-a mouse model of PDGFB-driven low grade glioma. A constitutively active myristoylated form of Akt1 did not induce high-grade glioma (HGG). In stark contrast, Akt2 and Akt3 showed strong progression potential with 78% and 97% of tumors diagnosed as HGG, respectively. We further revealed that significant variations in polarity and hydrophathy values among the Akt isoforms in both the pleckstrin homology domain (P domain) and regulatory domain (R domain) were critical in mediating glioma progression. Gene expression profiles from representative Akt-derived tumors indicated dominant and distinct roles for Akt3, consisting primarily of DNA repair pathways. TCGA data from human GBM closely reflected the DNA repair function, as Akt3 was significantly correlated with a 76-gene signature DNA repair panel. Consistently, compared with Akt1 and Akt2 overexpression models, Akt3-expressing human GBM cells had enhanced activation of DNA repair proteins, leading to increased DNA repair and subsequent resistance to radiation and temozolomide. Given the wide range of Akt3-amplified cancers, Akt3 may represent a key resistance factor.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Research group: Computational Systems Biology, BioMediTech, Multi-scaled biodata analysis and modelling (MultiBAM), Prostate cancer research center (PCRC), University of Texas, M. D. Anderson Cancer Center, Cancer Genomics Laboratory, Houston, TX, USA, Department of Pathology and Neuro-Oncology, Department of Neuro-Oncology

Authors: Turner, K. M., Sun, Y., Ji, P., Granberg, K. J., Bernard, B., Hu, L., Cogdell, D. E., Zhou, X., Yli-Harja, O., Nykter, M., Shmulevich, I., Yung, W. K. A., Fuller, G. N., Zhang, W.

Number of pages: 6

Pages: 3421-3426

Publication date: 17 Mar 2015

Peer-reviewed: Yes

Publication information

Journal: Proceedings of the National Academy of Sciences of the United States of America

Volume: 112

Issue number: 11

ISSN (Print): 0027-8424

Ratings:

Scopus rating (2016): SJR 6.321 SNIP 2.629 CiteScore 8.56

Scopus rating (2015): SJR 6.767 SNIP 2.682 CiteScore 8.84

Scopus rating (2014): SJR 6.853 SNIP 2.725 CiteScore 8.86

Scopus rating (2013): SJR 6.989 SNIP 2.73 CiteScore 9.5

Scopus rating (2012): SJR 6.792 SNIP 2.682 CiteScore 9.49

Scopus rating (2011): SJR 6.771 SNIP 2.636 CiteScore 9.31

Scopus rating (2010): SJR 6.769 SNIP 2.529

Scopus rating (2009): SJR 6.913 SNIP 2.544

Scopus rating (2008): SJR 6.899 SNIP 2.445

Scopus rating (2007): SJR 6.766 SNIP 2.441

Scopus rating (2006): SJR 6.734 SNIP 2.434

Scopus rating (2005): SJR 6.784 SNIP 2.551

Scopus rating (2004): SJR 7.026 SNIP 2.622

Scopus rating (2003): SJR 7.018 SNIP 2.501

Scopus rating (2002): SJR 7.183 SNIP 2.471

Scopus rating (2001): SJR 7.192 SNIP 2.463

Scopus rating (2000): SJR 7.731 SNIP 2.475

Scopus rating (1999): SJR 8.271 SNIP 2.446

Original language: English

ASJC Scopus subject areas: General

Keywords: Akt, DNA repair, Glioma, RCAS/tv-a mouse model

DOIs:

10.1073/pnas.1414573112

Source: Scopus

Source-ID: 84925242229

Research output: Scientific - peer-review › Article

Bioabsorbable fabrics for musculoskeletal scaffolds

This chapter discusses how woven, braided, and knitted scaffolds have been used in bone, cartilage, tendon, and ligament tissue engineering (TE). First, we describe the different steps for manufacturing filaments, yarns, and bioabsorbable textiles. Then we discuss issues related to the characterization and modelling of fabrics and scaffolds. In separate sections, we also consider four different applications of experimental TE using textile scaffolds, and we list currently available commercial products.

General information

State: Published

Ministry of Education publication type: A3 Part of a book or another research book

Organisations: Department of Electronics and Communications Engineering, Research group: Biomaterials and Tissue Engineering Group, BioMediTech, Integrated Technologies for Tissue Engineering Research (ITTE), BioMediTech, Scaffdex oy

Authors: Kellomäki, M., Laine, K., Ellä, V., Annala, T.

Number of pages: 24

Pages: 67-90

Publication date: 11 Mar 2015

Host publication information

Title of host publication: Biomedical Textiles for Orthopaedic and Surgical Applications: Fundamentals, Applications and Tissue Engineering

Publisher: Woodhead Publishing

ISBN (Print): 9781782420262

ISBN (Electronic): 9781782420170

ASJC Scopus subject areas: Engineering(all), Materials Science(all)

Keywords: Bioabsorbable fabric, Bone, Cartilage, Ligament, Tendon, Textile scaffold

DOIs:

10.1016/B978-1-78242-017-0.00004-0

Source: Scopus

Source-ID: 84940051015

Research output: Scientific - peer-review › Chapter

New perspectives on proton pumping in cellular respiration

Complexes I, III (cytochrome bc_1), and IV (cytochrome c oxidase) of the respiratory chain employ fundamentally different mechanisms for redox-coupled proton pumping. In the Q-cycle of cytochrome bc_1 , charge separation is the result of electron transfer through the membrane, whereas the protons are shuttled across the membrane by a neutral quinol carrier, QH_2 . In this Q cycle, the mobile quinols get protonated on the N-side of the membrane and deprotonated on the P-side. Cytochrome bc_1 thus transduces chemical energy into an electrochemical gradient through a redox loop, but is not a true proton pump in the sense of moving protonic charge through the protein directly against a pmf. By contrast, cytochrome c oxidase, the terminal enzyme of the respiratory chain, operates as a true proton pump. In cytochrome c oxidase (CcO), the pathways of chemical electron and proton fluxes intersect in the binuclear center, and the pathway of pumped protons passes close to the BNC as well. This spatial proximity of proton and electron pathways establishes the tight electrostatic interactions one might expect for a redox-coupled proton pump.

General information

State: Published

Ministry of Education publication type: A2 Review article in a scientific journal

Organisations: Department of Physics, Computational Science X (CompX), University of Mississippi. Department of Electrical Engineering, Institute of Molecular Biotechnology, Jena, Germany, Technische Universität München, Institut für Informatik, Department of Biochemistry and Biophysics, Erasmus University Medical Center, University of Helsinki Institute of Biotechnology, Department Chemie, University of Mississippi, Department of Theoretical Biophysics, Max Planck Institute of Biophysics

Authors: Wikström, M., Sharma, V., Kaila, V. R. I., Hosler, J. P., Hummer, G.

Number of pages: 26

Pages: 2196-2221

Publication date: 11 Mar 2015

Peer-reviewed: Yes

Publication information

Journal: Chemical Reviews

Volume: 115

Issue number: 5

ISSN (Print): 0009-2665

Ratings:

Scopus rating (2016): SJR 19.282 SNIP 10.369 CiteScore 42.79

Scopus rating (2015): SJR 18.373 SNIP 11.51 CiteScore 45.92

Scopus rating (2014): SJR 18.369 SNIP 11.47 CiteScore 44.56

Scopus rating (2013): SJR 22.176 SNIP 12.915 CiteScore 49.12

Scopus rating (2012): SJR 20.511 SNIP 11.43 CiteScore 39.08

Scopus rating (2011): SJR 19.538 SNIP 11.534 CiteScore 39.19

Scopus rating (2010): SJR 18.393 SNIP 11.114

Scopus rating (2009): SJR 15.841 SNIP 9.436

Scopus rating (2008): SJR 16.038 SNIP 8.682

Scopus rating (2007): SJR 15.002 SNIP 9.373

Scopus rating (2006): SJR 13.119 SNIP 9.829

Scopus rating (2005): SJR 12.157 SNIP 9.264

Scopus rating (2004): SJR 11.196 SNIP 8.924

Scopus rating (2003): SJR 11.184 SNIP 9.903

Scopus rating (2002): SJR 11.825 SNIP 10.102

Scopus rating (2001): SJR 11.072 SNIP 10.832

Scopus rating (2000): SJR 11.55 SNIP 10.154

Scopus rating (1999): SJR 13.665 SNIP 11.821

Original language: English

ASJC Scopus subject areas: Chemistry(all)

DOIs:

10.1021/cr500448t

Links:

<http://www.scopus.com/inward/record.url?scp=84924561761&partnerID=8YFLogxK> (Link to publication in Scopus)

Source: Scopus

Source-ID: 84924561761

Research output: Scientific - peer-review › Review Article

Resveratrol interferes with the aggregation of membrane-bound human-IAPP: A molecular dynamics study

Amyloid aggregation of islet amyloid polypeptide (IAPP) in pancreatic tissues is a typical feature of type 2 diabetes mellitus. Resveratrol, a natural product extensively studied for its wide range of biological effects, has been shown to inhibit IAPP aggregation. However, the mechanism by which resveratrol inhibits IAPP aggregation is still far from complete elucidation. Now, an increasing knowledge of the mechanism of amyloid toxicity shifts the target of research towards the development of compounds which can prevent amyloid-mediated membrane damage rather than merely inhibit fiber formation. In this study we used all atom molecular dynamics to investigate the interaction of resveratrol with full-length human IAPP in a negatively charged membrane environment. Our results show that the presence of resveratrol induces the formation of secondary structures (sheets and helices) by inserting in a hydrophobic pocket between the interaction surface of two IAPP molecules in aqueous solution. On the other hand, resveratrol significantly perturbs the interaction of IAPP with negatively charged membranes by anchoring specific hydrophobic regions (23FGA25 and 32VGS34) of the peptide and forming a stable 1:2 IAPP:resveratrol complex at the water/membrane interphase.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Physics, NEST Istituto Nanoscienze-CNR, Department of Chemical Sciences, University of Catania, Unità Organizzativa e di Supporto di Catania, Istituto di Biostrutture e Bioimmagini

Authors: Lolicato, F., Raudino, A., Milardi, D., La Rosa, C.

Number of pages: 6

Pages: 876-881

Publication date: 6 Mar 2015

Peer-reviewed: Yes

Publication information

Journal: European Journal of Medicinal Chemistry

Volume: 92

ISSN (Print): 0223-5234

Ratings:

Scopus rating (2016): SJR 1.272 SNIP 1.562

Scopus rating (2015): SJR 1.152 SNIP 1.471

Scopus rating (2014): SJR 1.074 SNIP 1.668

Scopus rating (2013): SJR 1.209 SNIP 1.876

Scopus rating (2012): SJR 1.201 SNIP 1.922

Scopus rating (2011): SJR 1.065 SNIP 1.804

Scopus rating (2010): SJR 0.877 SNIP 1.692

Scopus rating (2009): SJR 0.955 SNIP 1.843

Scopus rating (2008): SJR 0.9 SNIP 1.603

Scopus rating (2007): SJR 0.833 SNIP 1.501

Scopus rating (2006): SJR 0.723 SNIP 1.405

Scopus rating (2005): SJR 0.673 SNIP 1.243

Scopus rating (2004): SJR 0.714 SNIP 1.294

Scopus rating (2003): SJR 0.677 SNIP 1.349

Scopus rating (2002): SJR 0.579 SNIP 1.006

Scopus rating (2001): SJR 0.471 SNIP 0.851

Scopus rating (2000): SJR 0.496 SNIP 0.811

Scopus rating (1999): SJR 0.506 SNIP 0.752

Original language: English

ASJC Scopus subject areas: Drug Discovery, Organic Chemistry, Pharmacology

Keywords: Atomistic simulation, Membrane, Molecular dynamics, Resveratrol, Type II diabetes

DOIs:

10.1016/j.ejmech.2015.01.047

Links:

<http://www.scopus.com/inward/record.url?scp=84922216978&partnerID=8YFLogxK> (Link to publication in Scopus)

Source: Scopus

Source-ID: 84922216978

Research output: Scientific - peer-review > Article

Longitudinal assessment of clinically isolated syndrome with diffusion tensor imaging and volumetric MRI

The potential of diffusion tensor imaging (DTI) indices and volumes of focal lesions on conventional magnetic resonance imaging to predict conversion to multiple sclerosis (MS) was analyzed in subjects with clinically isolated syndrome (CIS) over 4 years. Twenty patients with CIS and 10 healthy controls were included in the study. The data showed an association between the volumes of T1 and fluid-attenuated inversion recovery (FLAIR) lesions and conversion to MS (T1: $P = .02$; FLAIR: $P = .02$). The worsening of DTI indices (mean diffusivity and fractional anisotropy) was primarily seen in patients progressing to MS, but clear-cut association with conversion could not be detected.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Integrated Technologies for Tissue Engineering Research (ITTE), University of Tampere, Medical School, Tampere University Hospital, Neuroimmunology Unit, Pirkanmaa Hospital District and School of Health Sciences, Department of Neurology, Seinäjoki Central Hospital, Department of Radiology, Medical Imaging Centre

Authors: Kolasa, M., Hakulinen, U., Helminen, M., Hagman, S., Raunio, M., Rossi, M., Brander, A., Dastidar, P., Elovaara, I.

Number of pages: 6

Pages: 207-212

Publication date: 1 Mar 2015

Peer-reviewed: Yes

Publication information

Journal: Clinical Imaging

Volume: 39

Issue number: 2

ISSN (Print): 0899-7071

Ratings:

Scopus rating (2016): SJR 0.426 SNIP 0.669 CiteScore 1.12

Scopus rating (2015): SJR 0.428 SNIP 0.746 CiteScore 1.07

Scopus rating (2014): SJR 0.407 SNIP 0.7 CiteScore 1.01

Scopus rating (2013): SJR 0.387 SNIP 0.515 CiteScore 0.86

Scopus rating (2012): SJR 0.407 SNIP 0.701 CiteScore 0.93

Scopus rating (2011): SJR 0.361 SNIP 0.79 CiteScore 0.93

Scopus rating (2010): SJR 0.387 SNIP 0.649

Scopus rating (2009): SJR 0.43 SNIP 0.856

Scopus rating (2008): SJR 0.491 SNIP 0.726

Scopus rating (2007): SJR 0.485 SNIP 0.963

Scopus rating (2006): SJR 0.41 SNIP 0.802

Scopus rating (2005): SJR 0.477 SNIP 0.949

Scopus rating (2004): SJR 0.459 SNIP 0.965

Scopus rating (2003): SJR 0.379 SNIP 0.689

Scopus rating (2002): SJR 0.284 SNIP 0.343

Scopus rating (2001): SJR 0.316 SNIP 0.409

Scopus rating (2000): SJR 0.317 SNIP 0.504

Scopus rating (1999): SJR 0.268 SNIP 0.472

Original language: English

ASJC Scopus subject areas: Radiology Nuclear Medicine and imaging

Keywords: Clinically isolated syndrome, Diffusion tensor, Normal-appearing gray matter, Normal-appearing white matter, Volume measurements

DOIs:

10.1016/j.clinimag.2014.10.014

Source: Scopus

Source-ID: 84925943658

Research output: Scientific - peer-review › Article

Dynamics of intracranial electroencephalographic recordings from epilepsy patients using univariate and bivariate recurrence networks

Recently Andrezejak et al. combined the randomness and nonlinear independence test with iterative amplitude adjusted Fourier transform (iAAFT) surrogates to distinguish between the dynamics of seizure-free intracranial electroencephalographic (EEG) signals recorded from epileptogenic (focal) and nonepileptogenic (nonfocal) brain areas of epileptic patients. However, stationarity is a part of the null hypothesis for iAAFT surrogates and thus nonstationarity can violate the null hypothesis. In this work we first propose the application of the randomness and nonlinear independence test based on recurrence network measures to distinguish between the dynamics of focal and nonfocal EEG signals. Furthermore, we combine these tests with both iAAFT and truncated Fourier transform (TFT) surrogate methods, which also preserves the nonstationarity of the original data in the surrogates along with its linear structure. Our results indicate that focal EEG signals exhibit an increased degree of structural complexity and interdependency compared to nonfocal EEG signals. In general, we find higher rejections for randomness and nonlinear independence tests for focal EEG signals compared to nonfocal EEG signals. In particular, the univariate recurrence network measures, the average clustering coefficient C and assortativity R , and the bivariate recurrence network measure, the average cross-clustering coefficient C_{cross} , can successfully distinguish between the focal and nonfocal EEG signals, even when the analysis is restricted to nonstationary signals, irrespective of the type of surrogates used. On the other hand, we find that the univariate recurrence network measures, the average path length L , and the average betweenness centrality BC fail to distinguish between the focal and nonfocal EEG signals when iAAFT surrogates are used. However, these two measures can distinguish between focal and nonfocal EEG signals when TFT surrogates are used for nonstationary signals. We also report an improvement in the performance of nonlinear prediction error N and nonlinear interdependence measure L used by Andrezejak et al., when TFT surrogates are used for nonstationary EEG signals. We also find that the outcome of the nonlinear independence test based on the average cross-clustering coefficient C_{cross} is independent of the outcome of the randomness test based on the average clustering coefficient C . Thus, the univariate and bivariate recurrence network measures provide independent information regarding the dynamics of the focal and nonfocal EEG signals. In conclusion, recurrence network analysis combined with nonstationary surrogates can be applied to derive reliable biomarkers to distinguish between epileptogenic and nonepileptogenic brain areas using EEG signals.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Computational Biophysics and Imaging Group, BioMediTech, Integrated Technologies for Tissue Engineering Research (ITTE), BioMediTech

Authors: Subramaniam, N. P., Hyttinen, J.

Publication date: 27 Feb 2015

Peer-reviewed: Yes

Publication information

Journal: Physical Review E

Volume: 91

Issue number: 2

Article number: 022927

ISSN (Print): 1539-3755

Ratings:

Scopus rating (2016): SJR 0.993 SNIP 0.896 CiteScore 1.95

Scopus rating (2015): SJR 1.047 SNIP 0.978 CiteScore 1.89

Scopus rating (2014): SJR 1.22 SNIP 1.123 CiteScore 2.05

Scopus rating (2013): SJR 1.311 SNIP 1.239 CiteScore 2.28

Scopus rating (2012): SJR 1.42 SNIP 1.226 CiteScore 2.28

Scopus rating (2011): SJR 1.485 SNIP 1.225 CiteScore 2.28

Scopus rating (2010): SJR 1.69 SNIP 1.215

Scopus rating (2009): SJR 1.694 SNIP 1.259

Scopus rating (2008): SJR 1.96 SNIP 1.314

Scopus rating (2007): SJR 1.926 SNIP 1.332

Scopus rating (2006): SJR 1.787 SNIP 1.324

Scopus rating (2005): SJR 1.71 SNIP 1.302

Scopus rating (2004): SJR 1.672 SNIP 1.214

Scopus rating (2003): SJR 1.303 SNIP 1.166

Scopus rating (2002): SJR 0.936 SNIP 1.241

Scopus rating (2001): SJR 0.709 SNIP 1.429

Scopus rating (2000): SJR 0.299 SNIP 1.252

Scopus rating (1999): SJR 0.381 SNIP 1.232

Original language: English

ASJC Scopus subject areas: Condensed Matter Physics, Statistical and Nonlinear Physics, Statistics and Probability

DOIs:

10.1103/PhysRevE.91.022927

Source: Scopus

Source-ID: 84924359654

Research output: Scientific - peer-review › Article

Unobtrusive Monitoring of Heart Rate and Respiration Rate during Sleep

Sleep deprivation has various adverse psychological and physiological effects. The effects range from decreased vigilance causing an increased risk of e.g. traffic accidents to a decreased immune response causing an increased risk of falling ill. Prevalence of the most common sleep disorder, insomnia can be, depending on the study, as high as 30 % in adult population. Physiological information measured unobtrusively during sleep can be used to assess the quantity and the quality of sleep by detecting sleeping patterns and possible sleep disorders. The parameters derived from the signals measured with unobtrusive sensors may include all or some of the following: heartbeat intervals, respiration cycle lengths, and movements. The information can be used in wellness applications that include self-monitoring of the sleep quality or it can also be used for the screening of sleep disorders and in following-up of the effect of a medical treatment. Unobtrusive sensors do not cause excessive discomfort or inconvenience to the user and are thus suitable for long-term monitoring. Even though the monitoring itself does not solve the sleeping problems, it can encourage the users to pay more attention on their sleep. While unobtrusive sensors are convenient to use, their common drawback is that the quality of the signals they produce is not as good as with conventional measurement methods. Movement artifacts, for example, can make the detection of the heartbeat intervals and respiration impossible. The accuracy and the availability of the physiological information extracted from the signals however depend on the measurement principle and the signal analysis methods used. Three different measurement systems were constructed in the studies included in the thesis and signal processing methods were developed for detecting heartbeat intervals and respiration cycle lengths from the measured signals. The performance of the measurement systems and the signal analysis methods were evaluated separately for each system with healthy young adult subjects. The detection of physiological information with the three systems was based on the measurement of ballistocardiographic and respiration movement signals with force sensors placed under the bedposts, the measurement of electrocardiographic (ECG) signal with textile electrodes attached to the bed sheet, and the measurement of the ECG signal with non-contact capacitive electrodes. Combining the information produced by different measurement methods for improving the detection performance was also tested. From the evaluated methods, the most accurate heartbeat interval information was obtained with contact electrodes attached to the bed sheet. The same method also provided the highest heart rate detection coverage. This monitoring method, however, has a limitation that it requires a naked upper body, which is not necessarily acceptable for everyone. For respiration cycle length detection, better results were achieved by using signals recorded with force sensors placed under a bedpost than when extracting the respiration

information from the ECG signal recorded with textile bed sheet electrodes. From the data quality point of view, an ideal night-time physiological monitoring system would include a contact ECG measurement for the heart rate monitoring and force sensors for the respiration monitoring. The force sensor signals could also be used for movement detection.

General information

State: Published

Ministry of Education publication type: G5 Doctoral dissertation (article)

Organisations: Department of Automation Science and Engineering, Research area: Microsystems, Research area: Measurement Technology and Process Control

Authors: Vehkaoja, A.

Number of pages: 70

Publication date: 27 Feb 2015

Publication information

Publisher: Tampere University of Technology

ISBN (Print): 978-952-15-3470-6

ISBN (Electronic): 978-952-15-3475-1

Original language: English

Publication series

Name: Tampere University of Technology. Publication

Publisher: Tampere University of Technology

Volume: 1285

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Electronic versions:

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Links:

<http://urn.fi/URN:ISBN:978-952-15-3475-1>

Bibliographical note

Awarding institution: Tampereen teknillinen yliopisto - Tampere University of Technology
Submitter: Submitted by Kaisa Kulkki (kaisa.kulkki@tut.fi) on 2015-02-24T10:31:44Z

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Submitter: Approved for entry into archive by Kaisa Kulkki (kaisa.kulkki@tut.fi) on 2015-02-24T10:32:37Z (GMT) No. of bitstreams: 1

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Submitter: Made available in DSpace on 2015-02-24T10:32:37Z (GMT). No. of bitstreams: 1

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Source: researchoutputwizard

Source-ID: 123456789/22823

Research output: Collection of articles > Doctoral Thesis

Rigid-Body Registration

General information

State: Published

Ministry of Education publication type: A3 Part of a book or another research book

Organisations: Department of Signal Processing

Authors: Tohka, J.

Number of pages: 5

Pages: 301-305

Publication date: 14 Feb 2015

Host publication information

Title of host publication: Brain Mapping: An Encyclopedic Reference

Volume: 1

Publisher: Elsevier

ISBN (Print): 9780123970251

ISBN (Electronic): 9780123973160

ASJC Scopus subject areas: Medicine(all)

DOIs:

10.1016/B978-0-12-397025-1.00299-2

Source: Scopus

Source-ID: 84943258897

Research output: Scientific - peer-review > Chapter

Thermal transport characteristics of human skin measured in vivo using ultrathin conformal arrays of thermal sensors and actuators

Measurements of the thermal transport properties of the skin can reveal changes in physical and chemical states of relevance to dermatological health, skin structure and activity, thermoregulation and other aspects of human physiology. Existing methods for in vivo evaluations demand complex systems for laser heating and infrared thermography, or they require rigid, invasive probes; neither can apply to arbitrary regions of the body, offers modes for rapid spatial mapping, or enables continuous monitoring outside of laboratory settings. Here we describe human clinical studies using mechanically soft arrays of thermal actuators and sensors that laminate onto the skin to provide rapid, quantitative in vivo determination of both the thermal conductivity and thermal diffusivity, in a completely non-invasive manner. Comprehensive analysis of measurements on six different body locations of each of twenty-five human subjects reveal systematic variations and directional anisotropies in the characteristics, with correlations to the thicknesses of the epidermis (EP) and stratum corneum (SC) determined by optical coherence tomography, and to the water content assessed by electrical impedance based measurements. Multivariate statistical analysis establishes four distinct locations across the body that exhibit different physical properties: heel, cheek, palm, and wrist/volar forearm/dorsal forearm. The data also demonstrate that thermal transport correlates negatively with SC and EP thickness and positively with water content, with a strength of correlation that varies from region to region, e.g., stronger in the palmar than in the follicular regions.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Laboratory for Future Electronics, Frederick Seitz Materials Research Laboratory, Department of Materials Science and Engineering, University of Illinois at Urbana-Champaign, L'Oréal California Research Center, L'Oréal Research and Innovation, Aulnay Sous Bois, Department of Electronics and Communication Engineering, L'Oréal Early Clinical, L'Oréal Digital Incubator

Authors: Webb, R. C., Pielak, R. M., Bastien, P., Ayers, J., Niittynen, J., Kurniawan, J., Manco, M., Lin, A., Cho, N. H., Malyrchuk, V., Balooch, G., Rogers, J. A.

Publication date: 6 Feb 2015

Peer-reviewed: Yes

Publication information

Journal: PLoS One

Volume: 10

Issue number: 2

Article number: e0118131

ISSN (Print): 1932-6203

Ratings:

Scopus rating (2016): CiteScore 3.11 SJR 1.201 SNIP 1.092

Scopus rating (2015): SJR 1.414 SNIP 1.131 CiteScore 3.32

Scopus rating (2014): SJR 1.545 SNIP 1.141 CiteScore 3.54

Scopus rating (2013): SJR 1.74 SNIP 1.147 CiteScore 3.94

Scopus rating (2012): SJR 1.945 SNIP 1.142 CiteScore 4.15

Scopus rating (2011): SJR 2.369 SNIP 1.23 CiteScore 4.58

Scopus rating (2010): SJR 2.631 SNIP 1.161

Scopus rating (2009): SJR 2.473 SNIP 0.985

Scopus rating (2008): SJR 2.323 SNIP 0.96

Scopus rating (2007): SJR 1.289 SNIP 0.525

Original language: English

ASJC Scopus subject areas: Agricultural and Biological Sciences(all), Biochemistry, Genetics and Molecular Biology(all), Medicine(all)

DOIs:

[10.1371/journal.pone.0118131](https://doi.org/10.1371/journal.pone.0118131)

Source: Scopus

Source-ID: 84922621748

Research output: Scientific - peer-review > Article

Real-space Wigner-Seitz Cells Imaging of Potassium on Graphite via Elastic Atomic Manipulation

Atomic manipulation in the scanning tunnelling microscopy, conventionally a tool to build nanostructures one atom at a time, is here employed to enable the atomic-scale imaging of a model low-dimensional system. Specifically, we use low-temperature STM to investigate an ultra thin film (4 atomic layers) of potassium created by epitaxial growth on a graphite substrate. The STM images display an unexpected honeycomb feature, which corresponds to a real-space visualization of the Wigner-Seitz cells of the close-packed surface K atoms. Density functional simulations indicate that this behaviour arises from the elastic, tip-induced vertical manipulation of potassium atoms during imaging, i.e. elastic atomic

manipulation, and reflects the ultrasoft properties of the surface under strain. The method may be generally applicable to other soft e.g. molecular or biomolecular systems.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Physics, Research group: Materials and Molecular Modeling, Computational Science X (CompX), Univ Birmingham, University of Birmingham, Sch Phys & Astron, Nanoscale Phys Res Lab, Shaanxi Normal Univ, Shaanxi Normal University, Sch Phys & Informat Technol, Univ Jyvaskyla, University of Jyvaskyla, Dept Phys, Nanosci Ctr, Aalto Univ, Aalto University, Sch Sci, COMP Ctr Excellence, Dept Appl Phys

Authors: Yin, F., Koskinen, P., Kulju, S., Akola, J., Palmer, R. E.

Number of pages: 5

Publication date: 5 Feb 2015

Peer-reviewed: Yes

Publication information

Journal: Scientific Reports

Volume: 5

Article number: 8276

ISSN (Print): 2045-2322

Ratings:

Scopus rating (2016): CiteScore 4.63 SJR 1.625 SNIP 1.401

Scopus rating (2015): SJR 2.057 SNIP 1.684 CiteScore 5.3

Scopus rating (2014): SJR 2.103 SNIP 1.544 CiteScore 4.75

Scopus rating (2013): SJR 1.886 SNIP 1.51 CiteScore 4.06

Scopus rating (2012): SJR 1.458 SNIP 0.896 CiteScore 2.44

Original language: English

Keywords: SCANNING-TUNNELING-MICROSCOPY, ALKALI-METAL ADSORPTION, SUBMONOLAYER POTASSIUM, LATERAL MANIPULATION, ELECTRONIC-STRUCTURE, GIANT CORRUGATIONS, PHASE-TRANSITIONS, ROOM-TEMPERATURE, SINGLE ATOMS, SURFACE

DOIs:

10.1038/srep08276

Bibliographical note

EXT="Koskinen, Pekka"

Source: WOS

Source-ID: 000348833600005

Research output: Scientific - peer-review › Article

Epileptic seizure classification of EEG time-series using rational discrete short-time fourier transform

A system for epileptic seizure detection in electroencephalography (EEG) is described in this paper. One of the challenges is to distinguish rhythmic discharges from nonstationary patterns occurring during seizures. The proposed approach is based on an adaptive and localized time-frequency representation of EEG signals by means of rational functions. The corresponding rational discrete short-time Fourier transform (DSTFT) is a novel feature extraction technique for epileptic EEG data. A multilayer perceptron classifier is fed by the coefficients of the rational DSTFT in order to separate seizure epochs from seizure-free epochs. The effectiveness of the proposed method is compared with several state-of-art feature extraction algorithms used in offline epileptic seizure detection. The results of the comparative evaluations show that the proposed method outperforms competing techniques in terms of classification accuracy. In addition, it provides a compact representation of EEG time-series.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Research group: Video, Research Community on Data-to-Decision (D2D)

Authors: Samiee, K., Kovacs, P., Gabbouj, M.

Number of pages: 12

Pages: 541-552

Publication date: 1 Feb 2015

Peer-reviewed: Yes

Publication information

Journal: IEEE Transactions on Biomedical Engineering

Volume: 62

Issue number: 2
Article number: 6909003
ISSN (Print): 0018-9294

Ratings:

Scopus rating (2016): SJR 1.214 SNIP 1.995 CiteScore 4.2
Scopus rating (2015): SJR 1.132 SNIP 2.083 CiteScore 3.74
Scopus rating (2014): SJR 0.84 SNIP 1.973 CiteScore 3.34
Scopus rating (2013): SJR 1.081 SNIP 2.073 CiteScore 3.53
Scopus rating (2012): SJR 0.816 SNIP 1.706 CiteScore 3
Scopus rating (2011): SJR 0.7 SNIP 1.715 CiteScore 3.04
Scopus rating (2010): SJR 0.686 SNIP 1.637
Scopus rating (2009): SJR 0.81 SNIP 1.94
Scopus rating (2008): SJR 0.826 SNIP 1.719
Scopus rating (2007): SJR 1.144 SNIP 2.187
Scopus rating (2006): SJR 1.317 SNIP 2.426
Scopus rating (2005): SJR 1.023 SNIP 2.252
Scopus rating (2004): SJR 0.73 SNIP 1.689
Scopus rating (2003): SJR 0.849 SNIP 1.367
Scopus rating (2002): SJR 0.888 SNIP 1.428
Scopus rating (2001): SJR 0.767 SNIP 1.578
Scopus rating (2000): SJR 0.942 SNIP 1.505
Scopus rating (1999): SJR 0.613 SNIP 2.187

Original language: English

Keywords: EEG, Malinquist-Takenaka system, Rational functions, Seizure classification, Time-frequency analysis
ASJC Scopus subject areas: Biomedical Engineering

DOIs:

10.1109/TBME.2014.2360101

Bibliographical note

Contribution: organisation=sgn,FACT1=1
Portfolio EDEND: 2015-01-15
Publisher name: Institute of Electrical and Electronics Engineers

Source: researchoutputwizard

Source-ID: 31

Research output: Scientific - peer-review > Article

Modeling and Experimental Characterization of Pressure Drop in Gravity-Driven Microfluidic Systems

Passive pumping using gravity-driven flow is a fascinating approach for microfluidic systems. When designing a passive pumping system, generated flow rates should be known precisely. While reported models used to estimate the flow rates do not usually consider capillary forces, this paper shows that their exclusion is unrealistic in typical gravity-driven systems. Therefore, we propose a new analytical model to estimate the generated flow rates. An extensive set of measurements is used to verify that the proposed model provides a remarkably more precise approximation of the real flow rates compared to the previous models. It is suggested that the developed model should be used when designing a gravity-driven pumping system.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Department of Automation Science and Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Mäki, A., Hemmilä, S., Hirvonen, J., Narra Girish, N., Kreutzer, J., Hyttinen, J., Kallio, P.

Number of pages: 8

Pages: 1-8

Publication date: 1 Feb 2015

Peer-reviewed: Yes

Early online date: 8 Oct 2014

Publication information

Journal: Journal of Fluids Engineering: Transactions of the ASME

Volume: 137

Issue number: 2

Article number: 021105

ISSN (Print): 0098-2202

Ratings:

Scopus rating (2016): SJR 0.646 SNIP 1.242

Scopus rating (2015): SJR 0.728 SNIP 1.335

Scopus rating (2014): SJR 0.629 SNIP 1.355

Scopus rating (2013): SJR 0.678 SNIP 1.295

Scopus rating (2012): SJR 0.586 SNIP 1.271

Scopus rating (2011): SJR 0.553 SNIP 1.088

Scopus rating (2010): SJR 0.538 SNIP 1.127

Scopus rating (2009): SJR 0.543 SNIP 1.048

Scopus rating (2008): SJR 0.656 SNIP 1.386

Scopus rating (2007): SJR 0.656 SNIP 1.054

Scopus rating (2006): SJR 0.893 SNIP 1.304

Scopus rating (2005): SJR 1.105 SNIP 1.421

Scopus rating (2004): SJR 1.086 SNIP 1.543

Scopus rating (2003): SJR 1.183 SNIP 1.427

Scopus rating (2002): SJR 0.983 SNIP 1.569

Scopus rating (2001): SJR 1.204 SNIP 1.523

Scopus rating (2000): SJR 1.436 SNIP 1.586

Scopus rating (1999): SJR 1.069 SNIP 1.22

Original language: English

ASJC Scopus subject areas: Control and Systems Engineering, Biomedical Engineering

Keywords: analytical, gravity-driven, microfluidic, modeling, passive pump

DOIs:

10.1115/1.4028501

Links:

<http://fluidsengineering.asmedigitalcollection.asme.org/article.aspx?articleid=1903278>

Bibliographical note

Contribution: organisation=elt,FACT1=0.3
Contribution: organisation=ase,FACT2=0.7
Portfolio EDEND: 2014-12-29
Publisher name: American Society of Mechanical Engineers

Source: researchoutputwizard

Source-ID: 23

Research output: Scientific - peer-review > Article

Micro CT visualization of silver nanoparticles in the middle and inner ear of rat and transportation pathway after transtympanic injection

Background: Silver nanoparticles (Ag NPs) displayed strong activities in anti-bacterial, anti-viral, and anti-fungal studies and were reportedly efficient in treating otitis media. Information on distribution of AgNPs in different compartments of the ear is lacking.

Objective: To detect distribution of Ag NPs in the middle and inner ear and transportation pathways after transtympanic injection.

Methods: Contrast effect of Ag NPs in the micro CT imaging was assessed in a phantom. AgNPs at various concentrations (1.85 mM, 37.1 mM, and 370.7 mM) were administered to rat middle ear using transtympanic injection and cadaver heads were imaged using micro CT at several time points.

Results: The lowest concentration of Ag NPs that could be visualized using micro CT was 37.1 mM. No difference was observed between the solvents, deionized H₂O and saline. Ag NPs at 37.1 mM were visible in the middle ear on 7 d post-administration. Ag NPs at 370.7 mM generated signals in the middle ear, ossicular chain, round window membrane, oval window, scala tympani, and Eustachian tube for both 4 h and 24 h time points. A gradient distribution of Ag NPs from the middle ear to the inner ear was detected. The pathways for Ag NPs to be transported from the middle ear into the inner ear are round and oval windows.

Conclusion: This study provided the imaging evidence that Ag NPs are able to access the inner ear in a dose-dependent manner after intratympanic administration, which is relevant to design the delivery concentration in the future clinic application in order to avoid adverse inner ear effect.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Research group: Computational Biophysics and Imaging Group, Department of Electronics and Communications Engineering, Research group: Biomaterials and Tissue Engineering Group, BioMediTech, Integrated Technologies for Tissue Engineering Research (ITTE), Univ Tampere, University of Tampere, Sch Med, Hearing & Balance Res Unit, Field Otolaryngol, Second Mil Med Univ, Second Military Medical University, Changhai Hosp, Chinese

PLA, Ctr Otolaryngol ,Dept Otolaryngol Had & Neck Surg, Univ Birmingham, University of Birmingham, Sch Geog Earth & Environm Sci, Indian Inst Technol Gandhinagar, Indian Institute of Technology (IIT), Indian Institute of Technology (IIT) - Gandhinagar, Mat Sci & Engrn, Nanol AB

Authors: Zou, J., Hannula, M., Misra, S., Feng, H., Labrador, R. H., Aula, A. S., Hyttinen, J., Pyykko, I.

Number of pages: 9

Publication date: 27 Jan 2015

Peer-reviewed: Yes

Publication information

Journal: Journal of Nanobiotechnology

Volume: 13

Article number: 5

ISSN (Print): 1477-3155

Ratings:

Scopus rating (2016): SJR 1.187 SNIP 1.218

Scopus rating (2015): SJR 1.162 SNIP 1.384

Scopus rating (2014): SJR 1.012 SNIP 1.327

Scopus rating (2013): SJR 1.007 SNIP 1.166

Scopus rating (2012): SJR 1.112 SNIP 1.102

Scopus rating (2011): SJR 1.129 SNIP 1.134

Scopus rating (2010): SJR 1.728 SNIP 1.834

Scopus rating (2009): SJR 1.478 SNIP 1.289

Scopus rating (2008): SJR 1.364 SNIP 1.181

Scopus rating (2007): SJR 1.455 SNIP 1.868

Scopus rating (2006): SJR 1.065 SNIP 1.509

Scopus rating (2005): SJR 0.696 SNIP 0.816

Scopus rating (2004): SJR 0.446 SNIP 0.555

Original language: English

Keywords: Silver nanoparticles, Micro CT, Ear, Animal, Pathway, CHRONIC OTITIS-MEDIA, SENSORINEURAL HEARING-LOSS, BACTERIAL BIOFILMS, TOMOGRAPHY, GADOLINIUM, CHILDREN

DOIs:

10.1186/s12951-015-0065-9

Source: WOS

Source-ID: 000351128900001

Research output: Scientific - peer-review > Article

Antimicrobial activity and molecular analysis of azoderivatives of β -diketones

The emergence and increase in the number of multidrug resistant microorganisms have highly increased the need of therapeutic trials, necessitating a deep exploration on novel antimicrobial response tactics. This study is intended to screen and analyze the activity of a novel set of azoderivatives of β -diketones and their known analogs for antimicrobial properties. The compounds were analyzed to determine their minimum inhibitory concentration. Hit compounds 5-(2-(2-hydroxyphenyl)hydrazono)pyrimidine-2,4,6(1H,3H,5H)-trione (C5), 5-chloro-3-(2-(4,4-dimethyl-2,6-dioxocyclohexylidene)hydrazinyl)-2-hydroxybenzenesulfonic acid (C8), 2-(2-carboxyphenylhydrazo)malononitrile (C11) were then considered in evaluating their effect on transcription, translation and cellular oxidation impact. All three compounds were found to have in vitro inhibitory action on E. coli cell growth. The study also revealed that those compounds have a notable impact on cellular activities. It is determined that the newly synthesized azoderivative of barbituric acid (C8) have maximum growth inhibitory activity among the three compounds considered, characterized by a MIC₅₀ of 0.42 mg/ml. The MS2 reporter system was used to detect the transcriptional response of the bacteria to the treatment with the selected drugs. All three compounds are found to down regulate the transcriptional pathway. The novel compound, C8, showed maximum inhibition of transcription mechanism, followed by C5 and C11. The effect of the compounds on translation was analyzed using a Yellow Fluorescent protein reporter system. All the compounds displayed reductive impact on translation of which C8 was found to be the best, exhibiting 8.5-fold repression followed by C5 and C11, respectively. Fluctuations of the Reactive Oxygen Species (ROS) concentrations were investigated upon incubation in hit compounds using ROS sensor protein. All the three compounds were found to contribute to oxidative pathway. C8 is found to have the best oxidative effect than C5 and C11. All experiments were repeated at least twice, the results being verified to be significant using statistical analysis.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Research group: Computational Systems Biology, Research group: Molecular Signaling Lab, Prostate cancer research center (PCRC), Institute for Systems Biology, Seattle, Washington, USA

Authors: Viswanathan, A., Sala, A., Yli-Harja, O., Kandhavelu, M.
Number of pages: 7
Pages: 83-89
Publication date: 23 Jan 2015
Peer-reviewed: Yes

Publication information

Journal: European Journal of Pharmaceutical Sciences

Volume: 66

ISSN (Print): 0928-0987

Ratings:

Scopus rating (2016): CiteScore 4.2 SJR 1.223 SNIP 1.499

Scopus rating (2015): SJR 1.156 SNIP 1.415 CiteScore 4.04

Scopus rating (2014): SJR 0.994 SNIP 1.247 CiteScore 3.48

Scopus rating (2013): SJR 1.038 SNIP 1.287 CiteScore 3.47

Scopus rating (2012): SJR 1.254 SNIP 1.425 CiteScore 3.6

Scopus rating (2011): SJR 1.236 SNIP 1.428 CiteScore 3.57

Scopus rating (2010): SJR 1.289 SNIP 1.283

Scopus rating (2009): SJR 1.169 SNIP 1.465

Scopus rating (2008): SJR 1.015 SNIP 1.265

Scopus rating (2007): SJR 0.927 SNIP 1.137

Scopus rating (2006): SJR 0.775 SNIP 1.039

Scopus rating (2005): SJR 0.93 SNIP 1.409

Scopus rating (2004): SJR 0.873 SNIP 1.367

Scopus rating (2003): SJR 0.964 SNIP 1.4

Scopus rating (2002): SJR 0.791 SNIP 1.167

Scopus rating (2001): SJR 0.694 SNIP 0.969

Scopus rating (2000): SJR 0.445 SNIP 0.901

Scopus rating (1999): SJR 0.388 SNIP 0.79

Original language: English

Keywords: Antimicrobial activity, Azoderivatives of β -diketones, Oxidation, Single cell, Transcription, Translation

ASJC Scopus subject areas: Pharmaceutical Science

DOIs:

10.1016/j.ejps.2014.09.020

Source: Scopus

Source-ID: 84908389333

Research output: Scientific - peer-review > Article

Characterization and Design Methodologies for Wearable Passive UHF RFID Tag Antennas for Wireless Body-Centric Systems

Radio Frequency Identification (RFID) is a wireless automatic identification technology that utilizes electrically active tags – low-cost and low-power wireless communication devices that let themselves transparently and unobstructively be embedded into everyday objects to remotely track information of the object's physical location, origin, and ownership. At ultra-high frequencies (UHF), this technology uses propagating electromagnetic waves for communication, which enables the fast identification of tags at large distances. A passive RFID tag includes two main components; a tag antenna and an RFID integrate circuit (tag IC). A passive tag relies solely on the external power harvested from an incident electromagnetic wave to run its circuitry and for data transmission. The passiveness makes the tag maintenance-free, simple, and low-cost, allowing large-scale commercial applications in the supply chain, ticketing, and asset tracking. The future of RFID, however, lies in the transition from traditional embedded applications to wearable intelligent systems, in which the tags are seamlessly integrated with everyday clothing. Augmented with various ambient and biochemical sensors, the tag is capable of detecting physical parameters of its environment and providing continuous monitoring of human vital signs. Tremendous amount of tagged entities establish an intelligent infrastructure that is personalized and tailored to the needs of each individual and ultimately, it recedes into the background of our daily life. Although wearable tags in intelligent systems have the enormous potential to revolutionize the quality of human life, the emerging wearable RFID applications introduce new challenges for designers developing efficient and sophisticated RFID systems. Traditional tag design parameters and solutions will no longer respond to the new requirements. Instead, the whole RF community must adopt new methods and unconventional approaches to achieve advanced wearable tags that are highly transparently integrated into our daily life. In this research work, an empirical as well as a theoretical approach is taken to address the above-mentioned wearable RFID tag challenges. Exploiting new analysis tools in combination with computational electromagnetics, a novel technique to model the human body in UHF applications for initiating the design of optimized wearable tags is developed. Further, fundamental unprecedented UHF characteristics of advanced wearable electronics materials – electro-textiles, are established. As an extremely important outcome of this research work,

innovative optimization methodologies for the promotion of novel and advanced wearable UHF antennas are proposed. Particularly, it is evidenced that proper embroidery fabrication techniques have the great potential to realize wearable tag antennas exhibiting excellent RF performance and structural properties for the seamless integration with clothing. The kernel of this research work is the realization of a flexible and fully embroidered passive UHF RFID patch tag prototype achieving optimized performance in close vicinity of the high-permittivity and dissipative human body. Its performance may be considered as a benchmark for future wearable antenna designs. This shows that this research work outcome forms an important contribution to the state of the art and a milestone in the development towards wearable intelligence.

General information

State: Published

Ministry of Education publication type: G5 Doctoral dissertation (article)

Organisations: Department of Electronics and Communications Engineering

Authors: Koski, K.

Number of pages: 55

Publication date: 23 Jan 2015

Publication information

Publisher: Tampere University of Technology

ISBN (Print): 978-952-15-3434-8

ISBN (Electronic): 978-952-15-3441-6

Original language: English

Publication series

Name: Tampere University of Technology. Publication

Publisher: Tampere University of Technology

Volume: 1274

ISSN (Print): 1459-2045

Electronic versions:

koski_1274

Links:

<http://urn.fi/URN:ISBN:978-952-15-3441-6>

Bibliographical note

Awarding institution: Tampereen teknillinen yliopisto - Tampere University of Technology
Submitter: Submitted by Kaisa Kulkki (kaisa.kulkki@tut.fi) on 2014-12-10T08:02:40Z

No. of bitstreams: 1

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Submitter: Approved for entry into archive by Kaisa Kulkki (kaisa.kulkki@tut.fi) on 2014-12-10T08:03:08Z (GMT) No. of bitstreams: 1

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Submitter: Made available in DSpace on 2014-12-10T08:03:08Z (GMT). No. of bitstreams: 1

koski_1274.pdf: 4085917 bytes, checksum: 3d881f8566bd81c675ad87c2ff1cbfad (MD5)

Source: researchoutputwizard

Source-ID: 123456789/22668

Research output: [Collection of articles](#) › [Doctoral Thesis](#)

Lossless compression of regions-of-interest from retinal images

This paper presents a lossless compression method performing separately the compression of the vessels and of the remaining part of eye fundus in retinal images. Retinal images contain valuable information sources for several distinct medical diagnosis tasks, where the features of interest can be e.g. the cotton wool spots in the eye fundus, or the volume of the vessels over concentric circular regions. It is assumed that one of the existent segmentation methods provided the segmentation of the vessels. The proposed compression method transmits losslessly the segmentation image, and then transmits the eye fundus part, or the vessels image, or both, conditional on the vessels segmentation. The independent compression of the two color image segments is performed using a sparse predictive method. Experiments are provided over a database of retinal images containing manual and estimated segmentations. The codelength of encoding the overall image, including the segmentation and the image segments, proves to be better than the codelength for the entire image obtained by JPEG2000 and other publicly available compressors.

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Signal Processing, Research group: Signal Interpretation and Compression-SIC, Signal Processing Research Community (SPRC)

Authors: Hukkanen, J., Astola, P., Tabus, I.

Publication date: 22 Jan 2015

Host publication information

Title of host publication: EUVIP 2014 - 5th European Workshop on Visual Information Processing
Publisher: The Institute of Electrical and Electronics Engineers, Inc.
ISBN (Print): 9781479945726
Keywords: lossless compression, region of interest, retinal images, sparse prediction
ASJC Scopus subject areas: Computer Vision and Pattern Recognition, Information Systems, Signal Processing
DOIs:
10.1109/EUVIP.2014.7018394
Source: Scopus
Source-ID: 84923588553
Research output: Scientific - peer-review › Conference contribution

Classification of iPSC colony images using hierarchical strategies with support vector machines

In this preliminary research we examine the suitability of hierarchical strategies of multi-class support vector machines for classification of induced pluripotent stem cell (iPSC) colony images. The iPSC technology gives incredible possibilities for safe and patient specific drug therapy without any ethical problems. However, growing of iPSCs is a sensitive process and abnormalities may occur during the growing process. These abnormalities need to be recognized and the problem returns to image classification. We have a collection of 80 iPSC colony images where each one of the images is pre-labeled by an expert to class bad, good or semigood. We use intensity histograms as features for classification and we evaluate histograms from the whole image and the colony area only having two datasets. We perform two feature reduction procedures for both datasets. In classification we examine how different hierarchical constructions effect the classification. We perform thorough evaluation and the best accuracy was around 54% obtained with the linear kernel function. Between different hierarchical structures, in many cases there are no significant changes in results. As a result, intensity histograms are a good baseline for the classification of iPSC colony images but more sophisticated feature extraction and reduction methods together with other classification methods need to be researched in future.

General information

State: Published
Ministry of Education publication type: A4 Article in a conference publication
Organisations: Department of Electronics and Communications Engineering, Research group: Computational Biophysics and Imaging Group, BioMediTech, Augmented Human Activities (AHA), Integrated Technologies for Tissue Engineering Research (ITTE), University of Tampere
Authors: Joutsijoki, H., Rasku, J., Haponen, M., Baldin, I., Gizatdinova, Y., Paci, M., Saarikoski, J., Varpa, K., Siirtola, H., Ávalos-Salguero, J., Iltanen, K., Laurikkala, J., Penttinen, K., Hyttinen, J., Aalto-Setälä, K., Juhola, M.
Number of pages: 7
Pages: 86-92
Publication date: 13 Jan 2015

Host publication information

Title of host publication: IEEE SSCI 2014 - 2014 IEEE Symposium Series on Computational Intelligence - CIDM 2014: 2014 IEEE Symposium on Computational Intelligence and Data Mining, Proceedings
Publisher: The Institute of Electrical and Electronics Engineers, Inc.
Article number: 7008152
ISBN (Print): 9781479945191
ASJC Scopus subject areas: Artificial Intelligence, Information Systems, Signal Processing, Software
DOIs:
10.1109/CIDM.2014.7008152
Source: Scopus
Source-ID: 84925047729
Research output: Scientific - peer-review › Conference contribution

A motion artifact generation and assessment system for the rapid testing of surface biopotential electrodes

Dry electrodes can reduce cost while increasing the usability and comfort of wearable monitoring systems. They are, however, susceptible to motion artifacts. The present electrode testing methods lack reliability and do not separate the factors that affect the motion artifact. In this paper, we introduce a first generation motion artifact generation and assessment system that generates the speed, amplitude, and pattern-wise programmable movement of the electrode. The system simultaneously measures electrode-skin impedance, the motion artifact, and one channel of an electrocardiogram that contains the motion artifact and monitors the mounting force applied to the electrode. We demonstrate the system by comparing the applied movement and the measured signals for electrode movements up to 6 mm and movement frequencies from 0.4 Hz to 4 Hz. Results show that the impedance change and surface potential are visually clearly related to the applied motion, with average correlations of 0.89 and 0.64, respectively. The applied force, electrode location, and electrode structure all affect the motion artifact. The setup enables the motion of the electrode to be accurately controlled. The system can be used as a precursor to the testing of integrated systems because it enables thorough, repeatable, and robust motion artifact studies. The system allows a deeper insight into motion artifacts and the interplay of the various factors that affect them.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Computational Biophysics and Imaging Group, BioMediTech, Integrated Technologies for Tissue Engineering Research (ITTE), BioMediTech

Authors: Cömert, A., Hyttinen, J.

Number of pages: 25

Pages: 1-25

Publication date: 1 Jan 2015

Peer-reviewed: Yes

Publication information

Journal: Physiological Measurement

Volume: 36

Issue number: 1

Article number: 1

ISSN (Print): 0967-3334

Ratings:

Scopus rating (2016): CiteScore 2.16 SJR 0.696 SNIP 1.09

Scopus rating (2015): SJR 0.815 SNIP 1.371 CiteScore 2.24

Scopus rating (2014): SJR 0.59 SNIP 1.388 CiteScore 2.2

Scopus rating (2013): SJR 0.751 SNIP 1.678 CiteScore 2.25

Scopus rating (2012): SJR 0.576 SNIP 1.285 CiteScore 2

Scopus rating (2011): SJR 0.654 SNIP 1.252 CiteScore 2.19

Scopus rating (2010): SJR 0.619 SNIP 1.544

Scopus rating (2009): SJR 0.622 SNIP 1.445

Scopus rating (2008): SJR 0.675 SNIP 1.342

Scopus rating (2007): SJR 0.892 SNIP 1.402

Scopus rating (2006): SJR 0.797 SNIP 1.3

Scopus rating (2005): SJR 0.59 SNIP 1.13

Scopus rating (2004): SJR 0.501 SNIP 1.047

Scopus rating (2003): SJR 0.591 SNIP 0.958

Scopus rating (2002): SJR 0.592 SNIP 0.975

Scopus rating (2001): SJR 0.36 SNIP 1.016

Scopus rating (2000): SJR 0.355 SNIP 0.882

Scopus rating (1999): SJR 0.428 SNIP 0.901

Original language: English

Keywords: Dry electrodes, ECG, Electrode-skin impedance, EMG, Motion artifact, Prototyping, Surface electrodes, Testing

ASJC Scopus subject areas: Biophysics, Physiology, Physiology (medical)

DOIs:

10.1088/0967-3334/36/1/1

Source: Scopus

Source-ID: 84918511064

Research output: Scientific - peer-review > Article

Estimation of GFP-tagged RNA numbers from temporal fluorescence intensity data

Motivation: MS2-GFP-tagging of RNA is currently the only method to measure intervals between consecutive transcription events in live cells. For this, new transcripts must be accurately detected from intensity time traces. Results: We present a novel method for automatically estimating RNA numbers and production intervals from temporal data of cell fluorescence intensities that reduces uncertainty by exploiting temporal information. We also derive a robust variant, more resistant to outliers caused e.g. by RNAs moving out of focus. Using Monte Carlo simulations, we show that the quantification of RNA numbers and production intervals is generally improved compared with previous methods. Finally, we analyze data from live *Escherichia coli* and show statistically significant differences to previous methods. The new methods can be used to quantify numbers and production intervals of any fluorescent probes, which are present in low copy numbers, are brighter than the cell background and degrade slowly. Availability: Source code is available under Mozilla Public License at <http://www.cs.tut.fi/%7ehakkin22/jumpdet/>. Contact:

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Research group: Laboratory of Biosystem Dynamics-LBD, Multi-scaled biodata analysis and modelling (MultiBAM)
Authors: Häkkinen, A., Ribeiro, A. S.
Number of pages: 7
Pages: 69-75
Publication date: 1 Jan 2015
Peer-reviewed: Yes

Publication information

Journal: Bioinformatics
Volume: 31
Issue number: 1
ISSN (Print): 1367-4803
Ratings:

Scopus rating (2016): SJR 4.92 SNIP 2.099 CiteScore 6.42
Scopus rating (2015): SJR 4.674 SNIP 2.101 CiteScore 6.06
Scopus rating (2014): SJR 4.115 SNIP 1.865 CiteScore 5.5
Scopus rating (2013): SJR 4.285 SNIP 1.701 CiteScore 5.78
Scopus rating (2012): SJR 5.041 SNIP 2.053 CiteScore 6.73
Scopus rating (2011): SJR 3.949 SNIP 1.838 CiteScore 5.61
Scopus rating (2010): SJR 3.613 SNIP 1.919
Scopus rating (2009): SJR 3.121 SNIP 1.868
Scopus rating (2008): SJR 3.128 SNIP 1.846
Scopus rating (2007): SJR 3.054 SNIP 1.927
Scopus rating (2006): SJR 2.894 SNIP 2.07
Scopus rating (2005): SJR 3.119 SNIP 2.415
Scopus rating (2004): SJR 3.483 SNIP 2.598
Scopus rating (2003): SJR 3.224 SNIP 2.308
Scopus rating (2002): SJR 2.982 SNIP 1.748
Scopus rating (2001): SJR 2.333 SNIP 1.662
Scopus rating (2000): SJR 1.958 SNIP 1.267
Scopus rating (1999): SJR 2.019 SNIP 1.424

Original language: English

ASJC Scopus subject areas: Biochemistry, Molecular Biology, Computational Theory and Mathematics, Computer Science Applications, Computational Mathematics, Statistics and Probability, Medicine(all)

DOIs:

10.1093/bioinformatics/btu592

Links:

<http://www.scopus.com/inward/record.url?scp=84922352843&partnerID=8YFLogxK> (Link to publication in Scopus)

Bibliographical note

Contribution: organisation=sgn,FACT1=1
Portfolio EDEND: 2014-09-15
Publisher name: Oxford University Press

Source: researchoutputwizard

Source-ID: 396

Research output: Scientific - peer-review › Article

Machine learning framework for early MRI-based Alzheimer's conversion prediction in MCI subjects

Mild cognitive impairment (MCI) is a transitional stage between age-related cognitive decline and Alzheimer's disease (AD). For the effective treatment of AD, it would be important to identify MCI patients at high risk for conversion to AD. In this study, we present a novel magnetic resonance imaging (MRI)-based method for predicting the MCI-to-AD conversion from one to three years before the clinical diagnosis. First, we developed a novel MRI biomarker of MCI-to-AD conversion using semi-supervised learning and then integrated it with age and cognitive measures about the subjects using a supervised learning algorithm resulting in what we call the aggregate biomarker. The novel characteristics of the methods for learning the biomarkers are as follows: 1) We used a semi-supervised learning method (low density separation) for the construction of MRI biomarker as opposed to more typical supervised methods; 2) We performed a feature selection on MRI data from AD subjects and normal controls without using data from MCI subjects via regularized logistic regression; 3) We removed the aging effects from the MRI data before the classifier training to prevent possible confounding between AD and age related atrophies; and 4) We constructed the aggregate biomarker by first learning a separate MRI biomarker and then combining it with age and cognitive measures about the MCI subjects at the baseline by applying a random forest classifier. We experimentally demonstrated the added value of these novel characteristics in predicting the MCI-to-AD conversion on data obtained from the Alzheimer's Disease Neuroimaging Initiative (ADNI) database. With the ADNI data, the MRI biomarker achieved a 10-fold cross-validated area under the receiver operating characteristic curve (AUC)

of 0.7661 in discriminating progressive MCI patients (pMCI) from stable MCI patients (sMCI). Our aggregate biomarker based on MRI data together with baseline cognitive measurements and age achieved a 10-fold cross-validated AUC score of 0.9020 in discriminating pMCI from sMCI. The results presented in this study demonstrate the potential of the suggested approach for early AD diagnosis and an important role of MRI in the MCI-to-AD conversion prediction. However, it is evident based on our results that combining MRI data with cognitive test results improved the accuracy of the MCI-to-AD conversion prediction. (C) 2014 Elsevier Inc. All rights reserved.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Research group: Vision, Research Community on Data-to-Decision (D2D), Jena Univ Hosp, Friedrich Schiller University of Jena, Dept Psychiat, Struct Brain Mapping Grp

Authors: Moradi, E., Pepe, A., Gaser, C., Huttunen, H., Tohka, J., Alzheimer's Dis Neuroimaging Initi

Number of pages: 15

Pages: 398-412

Publication date: 1 Jan 2015

Peer-reviewed: Yes

Publication information

Journal: NeuroImage

Volume: 104

ISSN (Print): 1053-8119

Ratings:

Scopus rating (2016): SJR 3.823 SNIP 1.752 CiteScore 6.31

Scopus rating (2015): SJR 4.48 SNIP 1.84 CiteScore 6.71

Scopus rating (2014): SJR 4.201 SNIP 2.029 CiteScore 6.9

Scopus rating (2013): SJR 4.376 SNIP 2.026 CiteScore 7.06

Scopus rating (2012): SJR 3.922 SNIP 1.937 CiteScore 6.86

Scopus rating (2011): SJR 3.626 SNIP 1.81 CiteScore 6.31

Scopus rating (2010): SJR 3.573 SNIP 1.866

Scopus rating (2009): SJR 3.859 SNIP 1.897

Scopus rating (2008): SJR 4.094 SNIP 1.765

Scopus rating (2007): SJR 3.7 SNIP 1.981

Scopus rating (2006): SJR 3.41 SNIP 1.924

Scopus rating (2005): SJR 3.703 SNIP 1.918

Scopus rating (2004): SJR 3.401 SNIP 1.794

Scopus rating (2003): SJR 1.974 SNIP 1.003

Scopus rating (2002): SJR 0.885 SNIP 0.403

Scopus rating (2001): SJR 0.526 SNIP 0.253

Scopus rating (2000): SJR 0.534 SNIP 0.341

Scopus rating (1999): SJR 0.641 SNIP 0.494

Original language: English

Keywords: Low density separation, Mild cognitive impairment, Feature selection, Support vector machine, Magnetic resonance imaging, Classification, Semi-supervised learning, Alzheimer's disease, ADNI, Early diagnosis, MILD COGNITIVE IMPAIRMENT, MULTIMODAL CLASSIFICATION, LOGISTIC-REGRESSION, EARLY-DIAGNOSIS, DISEASE, SEGMENTATION, PATTERNS, BIOMARKERS, ATROPHY

DOIs:

10.1016/j.neuroimage.2014.10.002

Bibliographical note

Epub 2014 Oct 12 : vol 104(2015)1 p. 398-412
Contribution: organisation=sgn,FACT1=1
Portfolio EDEND: 2014-11-30
Publisher name: Elsevier BV

Source: researchoutputwizard

Source-ID: 1100

Research output: Scientific - peer-review > Article

MicroRNA expression profile of primary prostate cancer stem cells as a source of biomarkers and therapeutic targets

MicroRNA (miRNA) expression profiles were generated from prostate epithelial subpopulations enriched from patient-derived benign prostatic hyperplasia (n = 5), Gleason 7 treatment-naive prostate cancer (PCa) (n = 5), and castration-resistant PCa (CRPC) (n = 3). Microarray expression was validated in an independent patient cohort (n = 10). Principal component analysis showed that miRNA expression is clustered by epithelial cell phenotype, regardless of pathologic status. We also discovered concordance between the miRNA expression profiles of unfractionated epithelial cells from

CRPCs, human embryonic stem cells (SCs), and prostate epithelial SCs (both benign and malignant). miR-548c-3p was chosen as a candidate miRNA from this group to explore its usefulness as a CRPC biomarker and/or therapeutic target. Overexpression of miR-548c-3p was confirmed in SCs (fivefold, $p < 0.05$) and in unfractionated CRPCs (1.8-fold, $p < 0.05$). Enforced overexpression of miR-548c-3p in differentiated cells induced stemlike properties ($p < 0.01$) and radioresistance ($p < 0.01$). Reanalyses of published studies further revealed that miR-548c-3p is significantly overexpressed in CRPC ($p < 0.05$) and is associated with poor recurrence-free survival ($p < 0.05$), suggesting that miR-548c-3p is a functional biomarker for PCa aggressiveness. Our results validate the prognostic and therapeutic relevance of miRNAs for PCa management while demonstrating that resolving cell-type and differentiation-specific differences is essential to obtain clinically relevant miRNA expression profiles. Patient summary We report microRNA (miRNA) expression profiles of epithelial cell fractions from the human prostate, including stem cells. miR-548c-3p was revealed as a functional biomarker for prostate cancer progression. The evaluation of miR-548c-3p in a larger patient cohort should yield information on its clinical usefulness.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Research group: Computational Systems Biology, BioMediTech, Prostate cancer research center (PCRC), Tampere University Hospital, University of York, Molecular Biology of Prostate Cancer Group, Terry Fox Laboratory, Eaves Lab, BC Cancer Research Centre, Hull York Medical School, University of Hull, Department of Urology, Castle Hill Hospital

Authors: Rane, J. K., Scaravilli, M., Ylipää, A., Pellacani, D., Mann, V. M., Simms, M. S., Nykter, M., Collins, A. T., Visakorpi, T., Maitland, N. J.

Number of pages: 4

Pages: 7-10

Publication date: 1 Jan 2015

Peer-reviewed: Yes

Publication information

Journal: European Urology

Volume: 67

Issue number: 1

ISSN (Print): 0302-2838

Ratings:

Scopus rating (2016): SJR 7.455 SNIP 4.777 CiteScore 6.29

Scopus rating (2015): SJR 7.377 SNIP 4.735 CiteScore 5.92

Scopus rating (2014): SJR 6.894 SNIP 4.729 CiteScore 5.65

Scopus rating (2013): SJR 6.708 SNIP 4.148 CiteScore 5.53

Scopus rating (2012): SJR 4.788 SNIP 3.214 CiteScore 4.76

Scopus rating (2011): SJR 3.707 SNIP 2.599 CiteScore 3.83

Scopus rating (2010): SJR 3.103 SNIP 2.154

Scopus rating (2009): SJR 3.381 SNIP 2.345

Scopus rating (2008): SJR 2.918 SNIP 2.282

Scopus rating (2007): SJR 2.343 SNIP 2.268

Scopus rating (2006): SJR 2.149 SNIP 1.997

Scopus rating (2005): SJR 1.688 SNIP 1.705

Scopus rating (2004): SJR 1.267 SNIP 1.476

Scopus rating (2003): SJR 1.124 SNIP 1.443

Scopus rating (2002): SJR 0.965 SNIP 0.839

Scopus rating (2001): SJR 1.099 SNIP 0.476

Scopus rating (2000): SJR 1.091

Scopus rating (1999): SJR 0.533

Original language: English

ASJC Scopus subject areas: Urology, Medicine(all)

Keywords: Biomarker, Castration-resistant prostate cancer, MicroRNA, Stem cells

DOIs:

10.1016/j.eururo.2014.09.005

Source: Scopus

Source-ID: 84925812407

Research output: Scientific - peer-review > Article

Accidents and Close Call Situations Connected to the Use of Mobile Phones in Working-Age People \geq 50 Years Old

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Environmental Health, TMI Rauno Pääkkönen, University of Modena and Reggio Emilia

Authors: Korpinen, L., Pääkkönen, R., Gobba, F.

Number of pages: 3

Pages: 1353-1356

Publication date: 2015

Peer-reviewed: Yes

Publication information

Journal: International Journal of Social, Behavioral, Educational, Economic and Management Engineering

Volume: 9

Issue number: 5

ISSN (Print): 2010-376X

Ratings:

Scopus rating (2014): SJR 0.132 SNIP 0.323

Scopus rating (2013): SJR 0.125 SNIP 0.276

Scopus rating (2012): SJR 0.122 SNIP 0.234

Scopus rating (2011): SJR 0.117 SNIP 0.165

Scopus rating (2010): SJR 0.109 SNIP 0.111

Original language: English

ASJC Scopus subject areas: Electrical and Electronic Engineering

Links:

<http://waset.org/publication/Accidents-and-Close-Call-Situations-Connected-to-the-Use-of-Mobile-Phones-in-Working-Age-People-%C3%A2%C2%89%C2%A5-50-Years-Old/10001217>

Research output: Scientific - peer-review > Article

A fast stimulability screening protocol for neuronal cultures on microelectrode arrays

Microelectrode arrays (MEAs) are used to study the electrical activity in brain slices and neuronal cultures. MEA experiments for the analysis of electrical stimulation responses require the tissue or culture to be prone to stimulation. For brain slices, potential stimulation sites may be directly visible in microscope, in which case the determination of stimulability at those locations is sufficient. In unstructured neuronal cultures, potential stimulation sites may not be known a priori, and spatial stimulability screening should be performed. Considering, e.g., 59 microelectrode sites, each to be stimulated several times, may result in long screening times, unacceptable with a MEA system without an integrated CO₂ incubator, or in high stimulation effects on the networks. Here, we describe an implementation of a fast stimulation protocol employing pseudorandom stimulation site switching aiming at alleviating the network effects of the stimulability screening. In this paper, we show the usability of the proposed protocol by first detecting stimutable locations and subsequently apply repeated stimulation on the identified potentially stimutable locations to observe an exemplary neuronal pathway.

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Research group: Computational Biophysics and Imaging Group, BioMediTech, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Kapucu, F. E., Tanskanen, J. M., Yuan, Y., Hyttinen, J. A.

Number of pages: 4

Pages: 3440-3443

Publication date: 2015

Host publication information

Title of host publication: 2015 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)

ISBN (Print): 978-1-4244-9270-1

Keywords: Biological neural networks, Delays, Electric potential, Electrical stimulation, Microelectrodes, Protocols
DOIs:

10.1109/EMBC.2015.7319132

Source: RIS

Source-ID: urn:F3A848E2834562F4F791026DD02AB010

Research output: Scientific - peer-review > Conference contribution

Age dependence of arterial pulse wave parameters extracted from dynamic blood pressure and blood volume pulse waves

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Automation Science and Engineering, Research area: Microsystems, Research area: Measurement Technology and Process Control, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Peltokangas, M., Vehkaoja, A., Verho, J., Mattila, V. M., Romsa, P., Lekkala, J., Oksala, N.

Publication date: 2015

Peer-reviewed: Yes

Publication information

Journal: IEEE Journal of Biomedical and Health Informatics

ISSN (Print): 2168-2194

Ratings:

Scopus rating (2016): CiteScore 3.68 SJR 0.852 SNIP 1.971

Scopus rating (2015): SJR 0.823 SNIP 2.297 CiteScore 3.15

Scopus rating (2014): SJR 0.692 SNIP 2.37 CiteScore 1.93

Scopus rating (2013): SJR 1.049 SNIP 2.405

Scopus rating (2012): SJR 0.799 SNIP 2.261

Scopus rating (2011): SJR 0.681 SNIP 2.042

Scopus rating (2010): SJR 0.632 SNIP 1.862

Scopus rating (2009): SJR 0.588 SNIP 1.809

Scopus rating (2008): SJR 0.605 SNIP 2.01

Scopus rating (2007): SJR 0.716 SNIP 2.154

Scopus rating (2006): SJR 0.685 SNIP 2.199

Scopus rating (2005): SJR 0.596 SNIP 1.843

Scopus rating (2004): SJR 0.486 SNIP 1.355

Scopus rating (2003): SJR 0.616 SNIP 1.65

Scopus rating (2002): SJR 0.491 SNIP 1.309

Scopus rating (2001): SJR 0.821 SNIP 1.548

Scopus rating (2000): SJR 0.459 SNIP 1.515

Scopus rating (1999): SJR 0.367 SNIP 0.952

Original language: English

DOIs:

10.1109/JBHI.2015.2503889

Research output: Scientific - peer-review > Article

A new method for automatic marking epileptic spike-wave discharges in local field potential signals

This work proposes a new method for automatic marking epileptic spike-wave discharges in local field potential (LFP) signals. The method is based on empirical modelling using radial basis functions to approximate dependency of a further state on the current one. Number and type of radial basis functions used are adjusted to data based on statistical criteria. Due to this the method needs only a few manual efforts for its application to new data. The time resolution of the method is close to the sampling interval of the original data, and real time detection is possible. Detection accuracy of the proposed approach is validated analysing the LFP signals obtained using WAG/Rij rats.

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Signal Processing, Research group: Computational Systems Biology, Research group: MMDM, Research group: Laboratory of Biosystem Dynamics-LBD, Saratov NG Chernyshevskii State Univ, Saratov State University, Dept Nano & Biomed Technol, Radboud Univ Nijmegen, Radboud University Nijmegen, Donders Ctr Cognit, Univ Munster, University of Munster, Inst Physiol

Authors: Startceva, S., Lüttjohann, A., Sysoev, I. V., van Luijtelaaar, G.

Number of pages: 8

Publication date: 2015

Host publication information

Title of host publication: Saratov Fall Meeting 2014: Optical Technologies in Biophysics and Medicine XVI; Laser Physics and Photonics XVI; and Computational Biophysics
Place of publication: Bellingham
Publisher: SPIE
Editors: Genina, E., Derbov, V., Larin, K., Postnov, D., Tuchin, V.

Publication series

Name: Proceedings of SPIE
Publisher: SPIE-INT SOC OPTICAL ENGINEERING
Volume: 9448
ISSN (Print): 0277-786X
Keywords: local field potentials, epilepsy, signal processing, radial-basis functions, SEIZURES, MODELS, EEG
DOIs:
10.1117/12.2179017
Source: WOS
Source-ID: 000353791300062
Research output: Scientific - peer-review › Conference contribution

Antennas for Telemetric Wireless Body Area Networks: Analysis, Design and Performance Validation

General information

State: Published
Ministry of Education publication type: G5 Doctoral dissertation (article)
Organisations: Department of Electronics and Communications Engineering, Research group: Wireless Identification and Sensing Systems Research Group
Authors: Moradi, E.
Publication date: 2015

Publication information

Place of publication: Tampere
Publisher: Tampere University of Technology
ISBN (Print): 978-952-15-3583-3
Original language: English

Publication series

Name: Tampere University of Technology. Publication
Publisher: Tampere University of Technology
Volume: 1325
ISSN (Print): 1459-2045

Bibliographical note

Awarding institution: Tampere University of Technology
Research output: Collection of articles › Doctoral Thesis

Antennas in Body-Centric Sensor Network Devices

General information

State: Published
Ministry of Education publication type: A3 Part of a book or another research book
Organisations: Department of Electronics and Communications Engineering, Research group: Wireless Identification and Sensing Systems Research Group
Authors: Ukkonen, L., Rahmat-Samii, Y.
Number of pages: 20
Pages: 1-20
Publication date: 2015

Host publication information

Title of host publication: Handbook of Antenna Technologies
Publisher: Springer
ISBN (Electronic): 978-981-4560-75-7
DOIs:
10.1007/978-981-4560-75-7_108-1
Research output: Scientific - peer-review › Chapter

Automatic quantification of mitochondrial fragmentation from two-photon microscope images of mouse brain tissue

The morphology of mitochondria can inform about their functional state and, thus, about cell vitality. For example, fragmentation of the mitochondrial network is associated with many diseases. Recent advances in neuronal imaging have enabled the observation of mitochondria in live brains for long periods of time, enabling the study of their dynamics in animal models of diseases. To aid these studies, we developed an automatic method, based on supervised learning, for quantifying the degree of mitochondrial fragmentation in tissue images acquired via two-photon microscopy from transgenic mice, which exclusively express Enhanced cyan fluorescent protein (ECFP) under Thy1 promoter, targeted to the mitochondrial matrix in subpopulations of neurons. We tested the method on images prior to and after cardiac arrest, and found it to be sensitive to significant changes in mitochondrial morphology because of the arrest. We conclude that the method is useful in detecting morphological abnormalities in mitochondria and, likely, in other subcellular structures as well.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Research group: Laboratory of Biosystem Dynamics-LBD, Multi-scaled biodata analysis and modelling (MultiBAM), Neurotar LTD, University of Helsinki

Authors: Lihavainen, E., Kislin, M., Toptunov, D., Khiroug, L., S. Ribeiro, A.

Pages: 338–351

Publication date: 2015

Peer-reviewed: Yes

Publication information

Journal: Journal of Microscopy: Oxford

Volume: 206

Issue number: 3

ISSN (Print): 0022-2720

Ratings:

Scopus rating (2016): SJR 0.734 SNIP 0.852

Scopus rating (2015): SJR 0.964 SNIP 1.106

Scopus rating (2014): SJR 1.059 SNIP 1.357

Scopus rating (2013): SJR 0.736 SNIP 1.048

Scopus rating (2012): SJR 0.757 SNIP 1.286

Scopus rating (2011): SJR 0.865 SNIP 0.928

Scopus rating (2010): SJR 0.945 SNIP 0.971

Scopus rating (2009): SJR 0.775 SNIP 0.881

Scopus rating (2008): SJR 0.72 SNIP 1.024

Scopus rating (2007): SJR 0.952 SNIP 1.051

Scopus rating (2006): SJR 1.038 SNIP 1.121

Scopus rating (2005): SJR 1.16 SNIP 1.164

Scopus rating (2004): SJR 1.186 SNIP 1.241

Scopus rating (2003): SJR 1.115 SNIP 1.39

Scopus rating (2002): SJR 1.003 SNIP 1.097

Scopus rating (2001): SJR 1.009 SNIP 1.251

Scopus rating (2000): SJR 0.975 SNIP 1.13

Scopus rating (1999): SJR 0.852 SNIP 0.961

Original language: English

Keywords: Beta regression, Image analysis, Intravital imaging, Mitochondrial fragmentation, Mitochondrial morphology, Two-photon microscopy

ASJC Scopus subject areas: Histology, Pathology and Forensic Medicine

DOIs:

10.1111/jmi.12301

Source: Scopus

Source-ID: 84939492144

Research output: Scientific - peer-review › Article

Biological networks: the microscope of the twenty-first century?

General information

State: Published

Ministry of Education publication type: B1 Article in a scientific magazine

Organisations: Department of Signal Processing, BioMediTech

Authors: Emmert-Streib, F., Dehmer, M.

Publication date: 2015

Peer-reviewed: No

Publication information

Journal: *Frontiers in Genetics*

Volume: 6

ISSN (Print): 1664-8021

Ratings:

Scopus rating (2016): SJR 1.99 SNIP 0.888 CiteScore 3.44

Scopus rating (2015): SJR 2.001 SNIP 0.847 CiteScore 3.38

Scopus rating (2014): SJR 1.765 SNIP 0.752 CiteScore 3.1

Scopus rating (2013): SJR 1.327 SNIP 0.597 CiteScore 2.57

Scopus rating (2012): SJR 0.721 SNIP 0.353 CiteScore 1.55

Scopus rating (2011): SJR 0.147 SNIP 0.022

Original language: English

DOIs:

10.3389/fgene.2015.00307

Source: PubMed

Source-ID: 26528327

Research output: Scientific › Article

CIP2A is a candidate therapeutic target in clinically challenging prostate cancer cell populations

Residual androgen receptor (AR)-signaling and presence of cancer stem-like cells (SCs) are the two emerging paradigms for clinically challenging castration-resistant prostate cancer (CRPC). Therefore, identification of AR-target proteins that are also overexpressed in the cancer SC population would be an attractive therapeutic approach. Our analysis of over three hundred clinical samples and patient-derived prostate epithelial cultures (PPECs), revealed Cancerous inhibitor of protein phosphatase 2A (CIP2A) as one such target. CIP2A is significantly overexpressed in both hormonenaïve prostate cancer (HN-PC) and CRPC patients. CIP2A is also overexpressed, by 3- and 30-fold, in HN-PC and CRPC SCs respectively. In vivo binding of the AR to the intronic region of CIP2A and its functionality in the AR-moderate and AR-high expressing LNCaP cell-model systems is also demonstrated. Further, we show that AR positively regulates CIP2A expression, both at the mRNA and protein level. Finally, CIP2A depletion reduced cell viability and colony forming efficiency of AR-independent PPECs as well as AR-responsive LNCaP cells, in which anchorage-independent growth is also impaired. These findings identify CIP2A as a common denominator for AR-signaling and cancer SC functionality, highlighting its potential therapeutic significance in the most clinically challenging prostate pathology: castration-resistant prostate cancer.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, BioMediTech, Prostate cancer research center (PCRC), BioMediTech -

Institute of Biosciences and Medical Technology, Tampere University Hospital and Medical School, YCR Cancer Research Unit, Department of Biochemistry/Molecular Plant Biology, Columbia University in the City of New York, Department of Pathology and Neuro-Oncology, University of Turku, Prostate Cancer Research Center (PCRC), Adult Cancer Program, The Prince of Wales Clinical School, Lowy Cancer Research Centre, UNSW Medicine, University of New South Wales, Centre for Molecular Medicine Norway (NCMM), Nordic EMBL Partnership, University of Oslo and Oslo University Hospital, Department of Cancer Prevention, Institute for Cancer Research, Oslo University Hospital, Turku Centre for Biotechnology

Authors: Khanna, A., Rane, J. K., Kivinummi, K. K., Urbanucci, A., Helenius, M. A., Tolonen, T. T., Saramäki, O. R., Latonen, L., Manni, V., Pimanda, J. E., Maitland, N. J., Westermarck, J., Visakorpi, T.

Number of pages: 10

Pages: 19661-19670

Publication date: 2015

Peer-reviewed: Yes

Publication information

Journal: *Oncotarget*

Volume: 6

Issue number: 23

ISSN (Print): 1949-2553

Ratings:

Scopus rating (2016): SJR 1.927 SNIP 1.056 CiteScore 4.73
Scopus rating (2015): SJR 2.262 SNIP 1.113 CiteScore 4.91
Scopus rating (2014): SJR 2.521 SNIP 1.277 CiteScore 4.96
Scopus rating (2013): SJR 3.041 SNIP 1.268 CiteScore 5.26
Scopus rating (2012): SJR 2.474 SNIP 1.096 CiteScore 6.54
Scopus rating (2011): SJR 1.481 SNIP 0.494 CiteScore 3.38
Original language: English
ASJC Scopus subject areas: Oncology
Keywords: Androgen receptor, Cancer stem-like cells, Castration-resistant prostate cancer, CIP2A
DOIs:
10.18632/oncotarget.3875
Source: Scopus
Source-ID: 84939224156
Research output: Scientific - peer-review › Article

Collecting a citizen's digital footprint for health data mining

This paper describes a case study for collecting digital footprint data for the purpose of health data mining. The case study involved 20 subjects residing in Finland who were instructed to collect data from registries which they evaluated to be useful for understanding their health or health behaviour, current or past. 11 subjects were active, sending 100 data requests to 49 distinct organizations in total. Our results indicate that there are still practical challenges in collecting actionable digital footprint data. Our subjects received a total of 75 replies (reply rate of 75.0%) and 61 datasets (reception rate of 61%). Out of the received data, 44 datasets (72.1%) were delivered in paper format, 4 (6.6%) in portable document format and 13 (21.3%) in structured digital form. The time duration between the sending of the information requests and reception of a reply was 26.4 days on the average.

General information

State: Published
Ministry of Education publication type: A4 Article in a conference publication
Organisations: Department of Signal Processing, Research group: Personal Health Informatics-PHI, Research Community on Data-to-Decision (D2D)
Authors: Gencoglu, O., Similä, H., Honko, H., Isomursu, M.
Number of pages: 4
Pages: 7626-7629
Publication date: 2015

Host publication information

Title of host publication: 2015 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)
ISBN (Print): 978-1-4244-9270-1
Keywords: Banking, Data mining, Education, Insurance, Medical services, Organizations, Portable document format
DOIs:
10.1109/EMBC.2015.7320158
Source: RIS
Source-ID: urn:FA0B37F7B248AFC77D58A5E4F14665C0
Research output: Scientific - peer-review › Conference contribution

Comparison of HRV parameters derived from photoplethysmography and electrocardiography signals

Heart rate variability (HRV) has become a useful tool in analysis of cardiovascular system in both research and clinical fields. HRV has been also used in other applications such as stress level estimation in wearable devices. HRV is normally obtained from ECG as the time interval of two successive R waves. Recently PPG has been proposed as an alternative for ECG in HRV analysis to overcome some difficulties in measurement of ECG. In addition, PPG-HRV is also used in some commercial devices such as modern optical wrist-worn heart rate monitors. However, some researches have shown that PPG is not a surrogate for heart rate variability analysis. In this work, HRV analysis was applied on beat-to-beat intervals obtained from ECG and PPG in 19 healthy male subjects. Some important HRV parameters were calculated from PPG-HRV and ECG-HRV. Maximum of PPG and its second derivative were considered as two methods for obtaining the beat-to-beat signals from PPG and the results were compared with those achieved from ECG-HRV. Our results show that the smallest error happens in SDNN and SD2 with relative error of 2.46% and 2%, respectively. The most affected parameter is pNN50 with relative error of 29.89%. In addition, in our trial, using the maximum of PPG gave better results than its second derivative.

General information

State: Published
Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Automation Science and Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)
Authors: Jeyhani, V., Mahdiani, S., Peltokangas, M., Vehkaoja, A.
Number of pages: 4
Pages: 5952-5955
Publication date: 2015

Host publication information

Title of host publication: 2015 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)
ISBN (Print): 978-1-4244-9270-1
Keywords: Biomedical monitoring, Electrocardiography, Heart rate variability, Interpolation, Monitoring, Photoplethysmography
ASJC Scopus subject areas: Biomedical Engineering
Electronic versions:
HRV from ECG and PPG Comparison
DOIs:
10.1109/EMBC.2015.7319747
Links:
<http://urn.fi/URN:NBN:fi:tty-201603013614>

Bibliographical note

AUX=ase,"Jeyhani, Vala"
AUX=elt,"Mahdiani, Shadi"
Source: RIS
Source-ID: urn:D6615456D5B700B8921E2B97C8F28162
Research output: Scientific - peer-review › Conference contribution

Comparison of methods to define power line and substation's busbar wire capacitances in electric field calculation task

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Department of Electronics and Communications Engineering, Research group: Environmental Health, National Technical University
Authors: Okun, O., Korpinen, L.
Number of pages: 6
Pages: 55-61
Publication date: 2015
Peer-reviewed: Yes

Publication information

Journal: Bulgarian journal of public health
Volume: Supplement, VII
Issue number: 2(1)
ISSN (Print): 1313-860X
Original language: English
ASJC Scopus subject areas: Electrical and Electronic Engineering
Links:
<http://goo.gl/tZgar9>
Research output: Scientific - peer-review › Article

Computational Model of Ca²⁺ Wave Propagation in Human Retinal Pigment Epithelial ARPE-19 Cells

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Department of Electronics and Communications Engineering, Research group: Computational Biophysics and Imaging Group, BioMediTech, Integrated Technologies for Tissue Engineering Research (ITTE)
Authors: Vainio, I., Abu Khamidakh, A., Paci, M., Skottman, H., Juuti-Uusitalo, K., Hyttinen, J., Nymark, S.
Publication date: 2015
Peer-reviewed: Yes

Publication information

Journal: PLoS One
Article number: 0128434
ISSN (Print): 1932-6203

Ratings:

Scopus rating (2016): CiteScore 3.11 SJR 1.201 SNIP 1.092
Scopus rating (2015): SJR 1.414 SNIP 1.131 CiteScore 3.32
Scopus rating (2014): SJR 1.545 SNIP 1.141 CiteScore 3.54
Scopus rating (2013): SJR 1.74 SNIP 1.147 CiteScore 3.94
Scopus rating (2012): SJR 1.945 SNIP 1.142 CiteScore 4.15
Scopus rating (2011): SJR 2.369 SNIP 1.23 CiteScore 4.58
Scopus rating (2010): SJR 2.631 SNIP 1.161
Scopus rating (2009): SJR 2.473 SNIP 0.985
Scopus rating (2008): SJR 2.323 SNIP 0.96
Scopus rating (2007): SJR 1.289 SNIP 0.525

Original language: English

DOIs:

10.1371/journal.pone.0128434

Research output: Scientific - peer-review › Article

Computer vision for virus image classification

In this paper we present a new ensemble of descriptors for the classification of transmission electron microscopy images of viruses that is based on texture analysis. A set of six well-assessed texture descriptors, namely Local Binary Pattern (LBP), Local Ternary Pattern (LTP), Dense LBP (DLBP), Rotation Invariant co-occurrence among LBP (RI), Local Phase Quantization (LPQ), and LBP Histogram Fourier (LHF), are combined with innovative approaches to improve their performances in virus classification. To generate new variants of the aforementioned descriptors, different approaches are applied: (i) the Edge approach (ED), which extracts the textural information from specific regions of the image instead of from the original image; (ii) the Bag of Features (BOF) scheme, which is used to build vocabularies of the most representative patterns; and (iii) Multi-Quinary coding (MQ). Moreover, to demonstrate the generalizability and applicability of ED and BOF, they are tested on additional datasets containing subcellular parts and tissues. We observe that ED improves the performance of the single standard descriptors, while BOF is particularly effective in fusion by sum rule with the standard application of texture descriptors (i.e., when they are extracted from the entire image). In contrast, the combination of MQ with LHF, DLBP, and RI does not improve virus classification. Using these results, we suggest a new ensemble of descriptors called NewF, which is based on the best methods investigated in this paper, as well as on some other state-of-the-art descriptors. NewF accuracy in virus classification is 85.7%, outperforming previous methods proposed in the literature for the same task (i.e., virus classification using the object scale dataset). The MATLAB code for our methods and NewF descriptor are available at <https://www.dei.unipd.it/node/2357>.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Computational Biophysics and Imaging Group, BioMediTech, Integrated Technologies for Tissue Engineering Research (ITTE), Universita degli Studi di Padova, Italy, Missouri State University

Authors: Caetano dos Santos, F. L., Paci, M., Nanni, L., Brahnam, S., Hyttinen, J.

Number of pages: 12

Pages: 11-22

Publication date: 2015

Peer-reviewed: Yes

Early online date: 11 Feb 2015

Publication information

Journal: Biosystems Engineering

Volume: 138

ISSN (Print): 1537-5110

Ratings:

Scopus rating (2016): SJR 0.738 SNIP 1.573 CiteScore 2.64
Scopus rating (2015): SJR 0.856 SNIP 1.64 CiteScore 2.41
Scopus rating (2014): SJR 0.894 SNIP 1.753 CiteScore 2.17
Scopus rating (2013): SJR 0.785 SNIP 1.739 CiteScore 2.1
Scopus rating (2012): SJR 0.887 SNIP 1.655 CiteScore 1.95
Scopus rating (2011): SJR 0.752 SNIP 1.393 CiteScore 1.71

Scopus rating (2010): SJR 0.719 SNIP 1.124

Scopus rating (2009): SJR 0.718 SNIP 0.955

Scopus rating (2008): SJR 0.799 SNIP 1.501

Scopus rating (2007): SJR 0.67 SNIP 1.309

Scopus rating (2006): SJR 0.767 SNIP 1.649

Scopus rating (2005): SJR 0.641 SNIP 1.4

Scopus rating (2004): SJR 0.581 SNIP 1.092

Scopus rating (2003): SJR 0.487 SNIP 1.01

Scopus rating (2002): SJR 0.709 SNIP 1.062

Scopus rating (2001): SJR 0.652 SNIP 1.182

Scopus rating (2000): SJR 0.593 SNIP 1.377

Scopus rating (1999): SJR 0.55 SNIP 1.182

Original language: English

Keywords: Texture descriptors, feature selection, Local binary patterns, Ensemble of descriptors

DOIs:

[10.1016/j.biosystemseng.2015.01.005](https://doi.org/10.1016/j.biosystemseng.2015.01.005)

Links:

<http://www.sciencedirect.com/science/article/pii/S153751101500015X>

Research output: Scientific - peer-review › Article

Controlling cell migration and adhesion into a scaffold by external electric currents

Fabrication of more complex tissue-engineered structures, resembling the tissues and organs in vivo requires combining more than one cell type within the same construct. This can be achieved by designing and fabricating complex scaffolds with asymmetric properties but controlled arrangement of cells within the scaffold could also be realized by using electric current. External electric currents are able to modify cell adhesion, orientation and migration and this can be used for influencing cell location within a scaffold. In this paper we studied the effect of an electric current on cell migration and adhesion into a three-dimensional scaffold through a conductive mesh.

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Research group: Computational Biophysics and Imaging Group, BioMediTech, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Jaatinen, L., Voros, J., Hyttinen, J.

Number of pages: 4

Pages: 3549-3552

Publication date: 2015

Host publication information

Title of host publication: 2015 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)

ISBN (Print): 978-1-4244-9270-1

DOIs:

[10.1109/EMBC.2015.7319159](https://doi.org/10.1109/EMBC.2015.7319159)

Source: RIS

Source-ID: urn:D0D70068CB64ADD8CD860CE5CE72A911

Research output: Scientific - peer-review › Conference contribution

Corrosion propagation phase studies on Finnish reinforced concrete facades

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Civil Engineering, Research group: Service Life Engineering of Structures, Department of Materials Science, Research group: Materials Characterization

Authors: Köliö, A., Honkanen, M., Lahdensivu, J.

Publication date: 2015

Host publication information

Title of host publication: 1st International Symposium on Building Pathology : ISBP 2015

Place of publication: Porto

Publisher: FEUP Edicoes (Faculdade de Engenharia da Universidade do Porto Edicoes)
ISBN (Print): 978-972-752-174-6

Bibliographical note

ORG=rak,0.5

ORG=mol,0.5

Research output: Scientific - peer-review › Conference contribution

Data Correction for Seven Activity Trackers based on Regression Models

Using an activity tracker for measuring activity-related parameters, e.g. steps and energy expenditure (EE), can be very helpful in assisting a person's fitness improvement. Unlike the measuring of number of steps, an accurate EE estimation requires additional personal information as well as accurate velocity of movement which is hard to achieve due to inaccuracy of sensors. In this paper, we have evaluated regression-based models to improve the precision for both steps and EE estimation. For this purpose, data of seven activity trackers and two reference devices was collected from 20 young adult volunteers wearing all devices at once in three different tests, namely 60-minute office work, 6-hour overall activity and 60-minute walking. Reference data is used to create regression models for each device and relative percentage errors of adjusted values are then statistically compared to that of original values. The effectiveness of regression models are determined based on the result of a statistical test. During a walking period, EE measurement was improved in all devices. The step measurement was also improved in five of them. The results show that improvement of EE estimation is possible only with low-cost implementation of fitting model over the collected data e.g. in the app or in corresponding service back-end.

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Pervasive Computing, Department of Signal Processing, Research group: Personal Health Informatics-PHI, Research area: Software engineering, Department of Electronics and Communications Engineering, Research group: Physiological Measurement Systems and Methods Group, Intelligent dexterity for secure networked infrastructure and applications (IDSNIA), Augmented Human Activities (AHA), Research Community on Data-to-Decision (D2D)

Authors: Andalibi, V., Honko, H., Christophe, F., Viik, J.

Number of pages: 4

Pages: 1592 - 1595

Publication date: 2015

Host publication information

Title of host publication: Proceedings of the 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society

ISBN (Print): 978-1-4244-9270-1

ASJC Scopus subject areas: Biomedical Engineering

Links:

<http://emb.citengine.com/event/embc-2015/author?authorID=15047>

Bibliographical note

ORG=tie,0.3

ORG=sgn,0.35

ORG=elt,0.35

Research output: Scientific - peer-review › Conference contribution

Detection and Segmentation of Nucleoids Based on Gradient Path Labelling

Cellular aging is one of the topics that live cell imaging can assist. With age, there is an increase of aggregates of misfolded proteins, to which age-related diseases have been linked to. In *Escherichia coli*, protein aggregates linked to its aging process exhibit a spatial distribution that appears to be caused by the nucleoid at midcell. To correlate the locations of protein aggregates and the nucleoid, it is necessary to detect and segment the nucleoid from microscopy images. We present an adaptation of methods for Drusens' detection and segmentation to nucleoids in *E. coli*. The size of the nucleoid, extracted using the method here proposed, was compared with an alternative measure (FWHM-based measure) and with the regions of anisotropies in aggregates motions. These comparisons suggest that our new method is of use, providing more accurate minor axis lengths. Also, it provides additional measures, such as the nucleoid's center orientation angle, area, and pixel list.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Research group: Laboratory of Biosystem Dynamics-LBD

Authors: Santinha, J., Mora, A. D., Fonseca, J., Goncalves, N., Ribeiro, A. S.

Number of pages: 5
Pages: 51-55
Publication date: 2015
Peer-reviewed: Yes

Publication information

Journal: International Journal of Pharma Medicine and Biological Sciences
Volume: 4

Issue number: 1
ISSN (Print): 2278-5221

Ratings:

Scopus rating (2015): SJR 0.124 SNIP 0

Scopus rating (2014): SJR 0.123 SNIP 0

Scopus rating (2013): SJR 0.122 SNIP 0

Original language: English

Links:

<http://www.ijpmbms.com/uploadfile/2015/0427/20150427052800251.pdf>

Research output: Scientific - peer-review > Article

Detection of exercise load-associated differences in hip muscles by texture analysis

We examined whether specific physical exercise loading is associated with texture parameters from hip muscles scanned with magnetic resonance imaging (MRI). Ninety-one female athletes representing five distinct exercise-loading groups (high-impact, odd-impact, low-impact, nonimpact and high-magnitude) and 20 nonathletic female controls underwent MRI of the hip. Texture parameters were computed from the MRI images of four hip muscles (gluteus maximus, gluteus medius, iliopsoas and obturator internus). Differences in muscle texture between the athlete groups and the controls were evaluated using Mann-Whitney U-test. Significant ($P < 0.05$) textural differences were found between the high-impact (triple and high jumpers) and the control group in gluteus medius, iliopsoas and obturator internus muscles. Texture of the gluteus maximus, gluteus medius and obturator internus muscles differed significantly between the odd impact (soccer and squash players) and the control group. Textures of all studied muscles differed significantly between the low impact (endurance runners) and the controls. Only the gluteus medius muscle differed significantly between the nonimpact (swimmers) and the controls. No significant difference in muscle texture was found between the high-magnitude (powerlifters) and the control group. In conclusion, MRI texture analysis provides a quantitative method capable of detecting textural differences in hip muscles that are associated with specific types of long-term exercise loadings.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Nketiah, G., Savio, S., Dastidar, P., Nikander, R., Eskola, H., Sievänen, H.

Number of pages: 7

Pages: 428-434

Publication date: 2015

Peer-reviewed: Yes

Publication information

Journal: Scandinavian Journal of Medicine and Science in Sports

Volume: 25

Issue number: 3

ISSN (Print): 0905-7188

Ratings:

Scopus rating (2016): SJR 1.61 SNIP 1.414 CiteScore 3.16

Scopus rating (2015): SJR 1.283 SNIP 1.452 CiteScore 2.84

Scopus rating (2014): SJR 1.382 SNIP 1.777 CiteScore 3.02

Scopus rating (2013): SJR 1.757 SNIP 1.819 CiteScore 3.45

Scopus rating (2012): SJR 1.429 SNIP 1.484 CiteScore 2.91

Scopus rating (2011): SJR 1.14 SNIP 1.297 CiteScore 2.34

Scopus rating (2010): SJR 1.098 SNIP 1.291

Scopus rating (2009): SJR 1.099 SNIP 1.385

Scopus rating (2008): SJR 1.078 SNIP 1.326

Scopus rating (2007): SJR 1.04 SNIP 1.519

Scopus rating (2006): SJR 1.04 SNIP 1.577

Scopus rating (2005): SJR 0.802 SNIP 1.265
Scopus rating (2004): SJR 0.719 SNIP 1.075
Scopus rating (2003): SJR 0.55 SNIP 0.837
Scopus rating (2002): SJR 0.612 SNIP 1
Scopus rating (2001): SJR 0.676 SNIP 0.755
Scopus rating (2000): SJR 0.552 SNIP 0.8
Scopus rating (1999): SJR 0.45 SNIP 0.634
Original language: English
DOIs:
10.1111/sms.12247

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-05-09
Publisher name: Wiley-Blackwell Publishing
Source: researchoutputwizard
Source-ID: 1152
Research output: Scientific - peer-review > Article

Effects of fungal species, cultivation time, growth substrate, and air exposure velocity on the fluorescence properties of airborne fungal spores

Real-time bioaerosol monitoring is possible with fluorescence based instruments. This study provides information on major factors that can affect the fluorescence properties of airborne fungal spores. Two fluorescence-based bioaerosol detectors, BioScout, and ultraviolet aerodynamic particle sizer (UVAPS), were used to study fluorescent particle fractions (FPFs) of released spores of three fungal species (*Aspergillus versicolor*, *Cladosporium cladosporioides*, and *Penicillium brevicompactum*). Two culture media (agar and gypsum board), three ages of the culture (one week, one month, and four months), and three aerosolization air velocities (5, 15, and 27 m/s) were tested. The results showed that the FPF values for spores released from gypsum were typically lower than for those released from agar indicating that poor nutrient substrate produces spores with lower amounts of fluorescent compounds. The results also showed higher FPF values with lower air velocities in aerosolization. This indicates that easily released fully developed spores have more fluorescent compounds compared to forcibly extracted non-matured spores. The FPFs typically were lower with older samples. The FPF results between the two instruments were similar, except with four-month-old samples. The results can be utilized in field measurements of fungal spores to estimate actual concentrations and compare different instruments with fluorescence-based devices as well as in instrument calibration and testing in laboratory conditions. © 2015 John Wiley

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Research area: Aerosol Physics, Department of Physics, Urban circular bioeconomy (UrCirBio)
Authors: Saari, S., Mensah-Attipoe, J., Reponen, T., Veijalainen, A., Salmela, A., Pasanen, P., Keskinen, J.
Number of pages: 9
Pages: 653-661
Publication date: 2015
Peer-reviewed: Yes

Publication information

Journal: Indoor Air
Volume: 25
Issue number: 6
ISSN (Print): 0905-6947
Ratings:

Scopus rating (2016): SJR 1.384 SNIP 1.693 CiteScore 3.55
Scopus rating (2015): SJR 1.713 SNIP 1.727 CiteScore 3.88
Scopus rating (2014): SJR 1.931 SNIP 2.071 CiteScore 4.57
Scopus rating (2013): SJR 1.564 SNIP 2.34 CiteScore 3.63
Scopus rating (2012): SJR 1.218 SNIP 1.76 CiteScore 2.72
Scopus rating (2011): SJR 1.197 SNIP 1.666 CiteScore 2.42
Scopus rating (2010): SJR 1.25 SNIP 1.701
Scopus rating (2009): SJR 1.864 SNIP 2.352
Scopus rating (2008): SJR 1.558 SNIP 2.405
Scopus rating (2007): SJR 1.166 SNIP 1.908
Scopus rating (2006): SJR 1.066 SNIP 1.65

Scopus rating (2005): SJR 0.784 SNIP 1.342
Scopus rating (2004): SJR 1.365 SNIP 2.384
Scopus rating (2003): SJR 1.048 SNIP 2.058
Scopus rating (2002): SJR 1.026 SNIP 1.944
Scopus rating (2001): SJR 0.592 SNIP 0.98
Scopus rating (2000): SJR 0.496 SNIP 1.19
Scopus rating (1999): SJR 1.046 SNIP 1.176

Original language: English

DOIs:

10.1111/ina.12166

Bibliographical note

Early View, Article first published online: 24 OCT 2014
Contribution: organisation=fys,FACT1=1
Portfolio EDEND: 2014-12-15
Publisher name: John Wiley & Sons Ltd.

Source: researchoutputwizard

Source-ID: 1419

Research output: Scientific - peer-review › Article

Effects of sensor type and sensor location on signal quality in bed mounted ballistocardiographic heart rate and respiration monitoring

Sleeping is a crucial part of our circadian rhythm and the quality of sleep has substantial impact on the quality of life in general and the overall well-being of a person. That is why sleep related physiological measurements have been in the focus of many scientific studies along the years, and why a large number of different measurement methods have been developed for this purpose. The ability to monitor heart rate respiration without any sensors or electrodes being directly attached to the body is extremely useful especially in long-term monitoring and it allows automated daily measurements without any medical staff present. This is the reason why ballistocardiographic force sensors and accelerometers have been introduced alongside electrocardiography (ECG) and thermistors or respiration belts as a means to monitor the heart rate and respiration during sleep. While ECG remains as the most reliable and accurate method for heart rate monitoring, the development of unobtrusive monitoring methods has improved to the point where the commercialization of such sleep monitoring systems has been possible. In this paper, the signals of five sensors and sensor placement combinations for measuring physiological parameters from a sleeping person are evaluated and compared in terms of their measurement sensitivities and waveform quality. The sensors are accelerometer and film type force sensors made of PVDF and EMFi material placed under the mattress topper and PVDF and EMFi sensors placed under the bed posts.

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Automation Science and Engineering, Integrated Technologies for Tissue Engineering Research (ITTE), Tampere University of Technology

Authors: Vehkaoja, A., Kontunen, A., Lekkala, J.

Number of pages: 4

Pages: 4383-4386

Publication date: 2015

Host publication information

Title of host publication: 2015 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)

ISBN (Print): 978-1-4244-9270-1

ASJC Scopus subject areas: Biomedical Engineering

Keywords: Biomedical monitoring, Films, Force sensors, Heart beat, Monitoring, Sleep apnea

Electronic versions:

Effects of Sensor Type and Sensor Location on Signal Quality in Bed Mounted Ballistocardiographic Heart Rate and Respiration Monitoring

DOIs:

10.1109/EMBC.2015.7319366

Links:

<http://urn.fi/URN:NBN:fi:tty-201603013608>

Bibliographical note

AUX=ase,"Kontunen, Anton"

Source: RIS

Source-ID: urn:5069519A6A06DBB148A3C96BDA5D1FDB

Research output: Scientific - peer-review › Conference contribution

Ergonomics Aspects of Work with Computers

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Environmental Health, University of Modena and Reggio Emilia

Authors: Korpinen, L., Pääkkönen, R., Gobba, F.

Number of pages: 5

Pages: 2290-2294

Publication date: 2015

Peer-reviewed: Yes

Publication information

Journal: International Journal of Social, Behavioral, Educational, Economic and Management Engineering

Volume: 9

Issue number: 9

ISSN (Print): 2010-376X

Ratings:

Scopus rating (2014): SJR 0.132 SNIP 0.323

Scopus rating (2013): SJR 0.125 SNIP 0.276

Scopus rating (2012): SJR 0.122 SNIP 0.234

Scopus rating (2011): SJR 0.117 SNIP 0.165

Scopus rating (2010): SJR 0.109 SNIP 0.111

Original language: English

ASJC Scopus subject areas: Electrical and Electronic Engineering

Links:

<http://waset.org/publications/10002056/ergonomics-aspects-of-work-with-computers>

Research output: Scientific - peer-review > Article

Evaluation of the beat-to-beat detection accuracy of PulseOn wearable optical heart rate monitor

Heart rate variability (HRV) provides significant information about the health status of an individual. Optical heart rate monitoring is a comfortable alternative to ECG based heart rate monitoring. However, most available optical heart rate monitoring devices do not supply beat-to-beat detection accuracy required by proper HRV analysis. We evaluate the beat-to-beat detection accuracy of a recent wrist-worn optical heart rate monitoring device, PulseOn (PO). Ten subjects (8 male and 2 female; 35.9±10.3 years old) participated in the study. HRV was recorded with PO and Firstbeat Bodyguard 2 (BG2) device, which was used as an ECG based reference. HRV was recorded during sleep. As compared to BG2, PO detected on average 99.57% of the heartbeats (0.43% of beats missed) and had 0.72% extra beat detection rate, with 5.94 ms mean absolute error (MAE) in beat-to-beat intervals (RRI) as compared to the ECG based RRI BG2. Mean RMSSD difference between PO and BG2 derived HRV was 3.1 ms. Therefore, PO provides an accurate method for long term HRV monitoring during sleep.

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Research group: Personal Health Informatics-PHI, Department of Signal Processing

Authors: Parak, J., Tarniceriu, A., Renevey, P., Bertschi, M., Delgado-Gonzalo, R., Korhonen, I.

Number of pages: 4

Pages: 8099-8102

Publication date: 2015

Host publication information

Title of host publication: 2015 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)

ISBN (Print): 978-1-4244-9270-1

Keywords: Accuracy, Biomedical monitoring, Electrocardiography, Heart rate variability, Monitoring, Optical sensors

DOIs:

10.1109/EMBC.2015.7320273

Source: RIS

Source-ID: urn:55CB955EA5E26024C54AE9738A47CB72

Research output: Scientific - peer-review > Conference contribution

Example measurements of exposure to ELF magnetic fields on the metro station in Finland

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Environmental Health, Helsinki City Transport, Combinova, Rejlers Oy

Authors: Korpinen, L., Lähdetie, A., Amundin, Å., Piippo, H., Sydänheimo, L.

Number of pages: 4

Pages: 250-253

Publication date: 2015

Peer-reviewed: Yes

Publication information

Journal: Bulgarian journal of public health

Volume: Supplement, VII

Issue number: 2(1)

ISSN (Print): 1313-860X

Original language: English

ASJC Scopus subject areas: Electrical and Electronic Engineering

Links:

<http://goo.gl/tZgar9>

Research output: Scientific - peer-review > Article

Examples of occupational exposure to electric and magnetic fields at 110-kV gas-insulated substations (GISs)

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Environmental Health, TMI Rauno Pääkkönen

Authors: Korpinen, L., Pääkkönen, R.

Number of pages: 4

Pages: 394-397

Publication date: 2015

Peer-reviewed: Yes

Publication information

Journal: Radiation Protection Dosimetry

Volume: 163

Issue number: 3

ISSN (Print): 0144-8420

Ratings:

Scopus rating (2016): SJR 0.444 SNIP 0.727 CiteScore 0.86

Scopus rating (2015): SJR 0.466 SNIP 0.832 CiteScore 0.82

Scopus rating (2014): SJR 0.517 SNIP 0.913 CiteScore 0.89

Scopus rating (2013): SJR 0.538 SNIP 0.815 CiteScore 0.9

Scopus rating (2012): SJR 0.556 SNIP 0.801 CiteScore 0.82

Scopus rating (2011): SJR 0.541 SNIP 1.049 CiteScore 0.96

Scopus rating (2010): SJR 0.574 SNIP 0.802

Scopus rating (2009): SJR 0.475 SNIP 0.75

Scopus rating (2008): SJR 0.586 SNIP 1.022

Scopus rating (2007): SJR 0.483 SNIP 1.011

Scopus rating (2006): SJR 0.372 SNIP 0.705

Scopus rating (2005): SJR 0.401 SNIP 0.723

Scopus rating (2004): SJR 0.428 SNIP 0.842

Scopus rating (2003): SJR 0.341 SNIP 0.523

Scopus rating (2002): SJR 0.45 SNIP 0.834

Scopus rating (2001): SJR 0.476 SNIP 0.899

Scopus rating (2000): SJR 0.464 SNIP 0.748
Scopus rating (1999): SJR 0.465 SNIP 0.929
Original language: English
ASJC Scopus subject areas: Electrical and Electronic Engineering
DOIs:
10.1093/rpd/ncu200
Research output: Scientific - peer-review > Article

Examples of the Teaching of the Health Questions of Electric and Magnetic Fields at Tampere University of Technology in Finland

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Department of Electronics and Communications Engineering, Research group: Environmental Health
Authors: Korpinen, L., Pääkkönen, R.
Number of pages: 6
Pages: 277-282
Publication date: 2015
Peer-reviewed: Yes

Publication information

Journal: Journal of Physical Science and Application
Volume: 5
Issue number: 4
ISSN (Print): 2159-5348
Original language: English
ASJC Scopus subject areas: Electrical and Electronic Engineering
DOIs:
10.17265/2159-5348/2015.04.005
Research output: Scientific - peer-review > Article

Experimental determination and computational interpretation of biophysical properties of lipid bilayers enriched by cholesteryl hemisuccinate

Cholesteryl hemisuccinate (CHS) is one of the cholesterol-mimicking detergents not observed in nature. It is, however, widely used in protein crystallography, in biochemical studies of proteins, and in pharmacology. Here, we performed an extensive experimental and theoretical study on the behavior of CHS in lipid membranes rich in unsaturated phospholipids. We found that the deprotonated form of CHS (that is the predominant form under physiological conditions) does not mimic cholesterol very well. The protonated form of CHS does better in this regard, but also its ability to mimic the physical effects of cholesterol on lipid membranes is limited. Overall, although ordering and condensing effects characteristic to cholesterol are present in systems containing any form of CHS, their strength is appreciably weaker compared to cholesterol. Based on the considerable amount of experimental and atomistic simulation data, we conclude that these differences originate from the fact that the ester group of CHS does not anchor it in an optimal position at the water-membrane interface. The implications of these findings for considerations of protein-cholesterol interactions are briefly discussed.

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Department of Physics, Research group: Biological Physics and Soft Matter, Computational Science X (CompX), Institute of Organic Chemistry and Biochemistry, Academy of Sciences of the Czech Republic, J. Heyrovský Institute of Physical Chemistry, Academy of Sciences of the Czech Republic, University of Southern Denmark
Authors: Kulig, W., Jurkiewicz, P., Olżyńska, A., Tynkkynen, J., Javanainen, M., Manna, M., Rog, T., Hof, M., Vattulainen, I., Jungwirth, P.
Number of pages: 11
Pages: 422-432
Publication date: 2015
Peer-reviewed: Yes
Early online date: 25 Oct 2014

Publication information

Journal: Biochimica et Biophysica Acta: Biomembranes
Volume: 1848
Issue number: 2

ISSN (Print): 0005-2736

Ratings:

Scopus rating (2016): SJR 1.511 SNIP 1.101 CiteScore 3.55

Scopus rating (2015): SJR 1.782 SNIP 1.142 CiteScore 3.8

Scopus rating (2014): SJR 1.869 SNIP 1.09 CiteScore 3.64

Scopus rating (2013): SJR 1.592 SNIP 0.975 CiteScore 3.45

Scopus rating (2012): SJR 1.833 SNIP 1.156 CiteScore 3.99

Scopus rating (2011): SJR 1.644 SNIP 1.227 CiteScore 4.17

Scopus rating (2010): SJR 2.179 SNIP 1.291

Scopus rating (2009): SJR 2.152 SNIP 1.298

Scopus rating (2008): SJR 2.035 SNIP 1.123

Scopus rating (2007): SJR 2.021 SNIP 1.158

Scopus rating (2006): SJR 1.922 SNIP 1.212

Scopus rating (2005): SJR 2.037 SNIP 1.231

Scopus rating (2004): SJR 1.5 SNIP 1.147

Scopus rating (2003): SJR 1.401 SNIP 1.115

Scopus rating (2002): SJR 1.594 SNIP 1.228

Scopus rating (2001): SJR 1.509 SNIP 1.053

Scopus rating (2000): SJR 1.089 SNIP 0.907

Scopus rating (1999): SJR 0.95 SNIP 0.841

Original language: English

ASJC Scopus subject areas: Biochemistry, Cell Biology, Biophysics, Medicine(all)

Keywords: Cholesterol-mimicking detergents, DPH, Dynamic light scattering, Laurdan, Molecular dynamics simulations, Time-dependent fluorescence shift

DOIs:

10.1016/j.bbamem.2014.10.032

Links:

<http://www.scopus.com/inward/record.url?scp=84912099904&partnerID=8YFLogxK> (Link to publication in Scopus)

Bibliographical note

AUX=fys,"Tynkkynen, Joonas"

Source: Scopus

Source-ID: 84912099904

Research output: Scientific - peer-review > Article

Exploration of different boundary conditions in the sideways falling situation in hip fracture finite element modelling

General information

State: Published

Ministry of Education publication type: B3 Non-refereed article in conference proceedings

Organisations: Department of Mechanical Engineering and Industrial Systems, Research area: Applied Mechanics, Department of Electronics and Communications Engineering, Research group: Computational Biophysics and Imaging Group, BioMediTech, UKK Institute for Health Promotion Research

Authors: Abe, S., Ylinen, A., Narra Girish, N., Nikander, R., Hyttinen, J., Kouhia, R., Sievänen, H.

Number of pages: 6

Pages: 130-135

Publication date: 2015

Host publication information

Title of host publication: Proceeding of the XII Finnish Mechanics Days

Publisher: Rakenteiden Mekaniikan Seura ry

ISBN (Print): 978-952-93-5608-9

ISBN (Electronic): 978-952-93-5609-6

Links:

http://rmseura.tkk.fi/smp_proceedings/SMP12_Proceedings.pdf

Bibliographical note

ORG=mei,0.5

ORG=elt,0.5

Research output: Scientific > Conference contribution

Exploratory analysis of associations between individual lifestyles and heart rate variability -based recovery during sleep

Sleep is the most important period for recovering from daily stress and load. Assessment of the stress recovery during sleep is therefore, an important metric for care and quality of life. Heart rate variability (HRV) is a non-invasive marker of autonomic nervous system (ANS) activity, and HRV-based methods can be used to assess physiological recovery, characterized by parasympathetic domination of the ANS. HRV is affected by multiple factors of which some are unmodifiable (such as age and gender) but many are related to daily lifestyle choices (e.g. alcohol consumption, physical activity, sleeping times). The purpose of this study was to investigate the association of these aforementioned factors on HRV-based recovery during sleep on a large sample. Variable importance measures yielded by random forest were used for identifying the most relevant predictors of sleep-time recovery. The results emphasize the disturbing effects of alcohol consumption on sleep-time recovery. Good physical fitness is associated to good recovery, but acute physical activity seems to challenge or delay the recovery process for the next night. Longer sleeping time enables more recovery minutes, but the proportion of recovery (i.e. recovery efficiency) seems to peak around 7.0–7.25 hours of sleep.

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Signal Processing, Research group: Personal Health Informatics-PHI, Research Community on Data-to-Decision (D2D), Northeastern University

Authors: Pietilä, J., Helander, E., Myllymaki, T., Korhonen, I., Jimison, H., Pavel, M.

Pages: 2339-2342

Publication date: 2015

Host publication information

Title of host publication: 2015 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)

ISBN (Print): 978-1-4244-9270-1

Keywords: Atmospheric measurements, Heart rate variability, Particle measurements, Physiology, Radio frequency, Stress

DOIs:

10.1109/EMBC.2015.7318862

Bibliographical note

EXT="Jimison, Holly"

Source: RIS

Source-ID: urn:FD3E2171E145AFAE9241038AA0724993

Research output: Scientific - peer-review > Conference contribution

Exposure to RFfields during the remote readings of the smart meter in Finland

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Environmental Health, TMI Rauno Pääkkönen

Authors: Pääkkönen, R., Lundström, M., Mustaparta, J., Korpinen, L.

Number of pages: 3

Pages: 69-71

Publication date: 2015

Peer-reviewed: Yes

Publication information

Journal: Bulgarian journal of public health

Volume: Supplement, VII

Issue number: 2(1)

ISSN (Print): 1313-860X

Original language: English

ASJC Scopus subject areas: Electrical and Electronic Engineering

Links:

<http://goo.gl/tZgar9>

Research output: Scientific - peer-review > Article

Fabrication and characterization of superluminescent diodes for 2–3 μm wavelength

General information

State: Published

Ministry of Education publication type: B3 Non-refereed article in conference proceedings

Organisations: Optoelectronics Research Centre, Research group: Nanophotonics, Research group: Semiconductor Technology and Applications, Optoelectronics Research Centre, Tampere University of Technology

Authors: Zia, N., Viheriälä, J., Koskinen, R., Koskinen, M., Suomalainen, S., Guina, M.

Publication date: 2015

Host publication information

Title of host publication: Northern Optics and Photonics 2015 : June 2-4, 2015, Lappeenranta

ISBN (Print): 978-952-61-1751-5

Research output: Scientific > Conference contribution

Health Issues in the Bioenergy Supply Chain - Aims at Best Practices

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Research group: Environmental Health, Finnish Institute of Occupational Health, University of Eastern Finland

Authors: Korpijärvi, K., Fagernäs, L., Ojanen, K., Laitinen, S., Aatamila, M., Laitinen, J., Jumpponen, M., Koponen, H., Jokiniemi, J., Korpinen, L.

Number of pages: 7

Pages: 63-69

Publication date: 2015

Host publication information

Title of host publication: Bionergy 2015 Conference 2.-3.9.2015

ISBN (Print): 978-952-67890-3-3

Research output: Scientific - peer-review > Conference contribution

Health surveillance according to the new EU directive 2013/35/EU:possible criteria

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Environmental Health, University of Modena and Reggio Emilia

Authors: Korpinen, L., Gobba, F.

Number of pages: 3

Pages: 127-129

Publication date: 2015

Peer-reviewed: Yes

Publication information

Journal: Bulgarian journal of public health

Volume: Supplement, VII

Issue number: 2(1)

ISSN (Print): 1313-860X

Original language: English

ASJC Scopus subject areas: Electrical and Electronic Engineering

Links:

<http://goo.gl/tZgar9>

Research output: Scientific - peer-review > Article

Human induced pluripotent stem cell-derived versus adult cardiomyocytes: an in silico electrophysiological study on ionic current block effects

Background and purpose.

Two new technologies hold the promise to revolutionize cardiac safety and drug development: in vitro experiments on human induced pluripotent stem cell-derived cardiomyocytes (hiPSC-CMs) and in silico human adult ventricular cardiomyocyte (hAdultV-CM) models. Their combination was recently proposed as a potential replacement for the present hERG-based QT study in safety pharmacology assessment. Here, we systematically compare in silico the effects of selective ionic current block on hiPSC-CM and hAdultV-CM action potentials (APs), to identify similarities/differences and to illustrate the potential of computational models as supportive tools for evaluating new in vitro technologies.

Experimental approach.

In silico AP models of ventricular-like and atrial-like hiPSC-CMs and hAdultV-CM are used to simulate the main effects of four degrees of block of the main cardiac transmembrane currents.

Key results.

Qualitatively, hiPSC-CM and hAdultV-CM APs show similar responses to current block, consistent with experiments. However, quantitatively, hiPSC-CMs display stronger sensitivities to block of (i) L-type Ca²⁺ current due to the overexpression of the Na⁺-Ca²⁺ exchanger (leading to shorter APs) and (ii) inward rectifier K⁺ current due to reduced repolarization reserve (inducing diastolic potential depolarization and repolarization failure).

Conclusions and Implications.

In silico hiPSC-CMs and hAdultV-CMs exhibit similar response to selective current blocks. However, overall hiPSC-CMs show greater sensitivity to block, which may facilitate in vitro identification of drug-induced effects. Extrapolation of drug effects from hiPSC-CM to hAdultV-CM and pro-arrhythmic risk assessment can be facilitated by in silico predictions using biophysically-based computational models.

Keywords

hiPSC-derived cardiomyocytes, in silico models, action potential, cardiotoxicity assessment.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Research group: Computational Biophysics and Imaging Group, Department of Electronics and Communications Engineering, BioMediTech, Integrated Technologies for Tissue Engineering Research (ITTE), University of Oxford, University of Bologna, Italy

Authors: Paci, M., Hyttinen, J., Rodriguez, B., Severi, S.

Pages: 5147 - 5160

Publication date: 2015

Peer-reviewed: Yes

Publication information

Journal: British Journal of Pharmacology

ISSN (Print): 0007-1188

Ratings:

Scopus rating (2016): SJR 2.604 SNIP 1.408 CiteScore 5.11

Scopus rating (2015): SJR 2.371 SNIP 1.378 CiteScore 4.93

Scopus rating (2014): SJR 2.189 SNIP 1.39 CiteScore 4.68

Scopus rating (2013): SJR 2.255 SNIP 1.418 CiteScore 4.95

Scopus rating (2012): SJR 1.792 SNIP 1.378 CiteScore 4.38

Scopus rating (2011): SJR 1.849 SNIP 1.314 CiteScore 4.33

Scopus rating (2010): SJR 1.933 SNIP 1.346

Scopus rating (2009): SJR 2.087 SNIP 1.306

Scopus rating (2008): SJR 1.818 SNIP 1.198

Scopus rating (2007): SJR 1.705 SNIP 1.182

Scopus rating (2006): SJR 1.569 SNIP 1.111

Scopus rating (2005): SJR 1.525 SNIP 1.014

Scopus rating (2004): SJR 1.437 SNIP 1.021

Scopus rating (2003): SJR 1.46 SNIP 1.104

Scopus rating (2002): SJR 1.486 SNIP 1.072

Scopus rating (2001): SJR 1.547 SNIP 1.12

Scopus rating (2000): SJR 1.457 SNIP 1.108

Scopus rating (1999): SJR 1.543 SNIP 1.181

Original language: English

Keywords: hiPSC-derived cardiomyocytes, in silico models, action potential, cardiotoxicity assessment

Electronic versions:

Paci_et_al-2015-British_Journal_of_Pharmacology

DOIs:

10.1111/bph.13282

Links:

<http://urn.fi/URN:NBN:fi:tty-201606214292>

Research output: Scientific - peer-review › Article

iCellFusion – a Tool for Fusion of Time-lapsed Multimodal Microscopy images

General information

State: Published

Ministry of Education publication type: A3 Part of a book or another research book

Organisations: Department of Signal Processing, Research group: Computational Systems Biology, Research group: Laboratory of Biosystem Dynamics-LBD

Authors: Santinha, J., Martins, L., Häkkinen, A., Lloyd-Price, J., Oliveira, S. M., Gupta, A., Annala, T., Mora, A., Ribeiro, A., Fonseca, J. M.

Number of pages: 29

Pages: 71-99

Publication date: 2015

Host publication information

Title of host publication: Biomedical Image Analysis and Mining Techniques for Improved Health Outcomes

Publisher: IGI Global

ISBN (Electronic): 9781466688117

Research output: Scientific - peer-review › Chapter

Impedanssipneumografia pienten lasten alahengitytiesoireiden selvittelyssä

General information

State: Published

Ministry of Education publication type: D2 Article in professional manuals or guides or professional information systems or text book material

Organisations: Department of Electronics and Communications Engineering, Research group: Physiological Measurement Systems and Methods Group

Authors: Seppä, V., Pelkonen, A. S., Kotaniemi-Syrjänen, A., Viik, J., Mäkelä, M. J., Malmberg, P.

Publication date: 2015

Host publication information

Title of host publication: Allergiatutkimussäätiön vuosikirja 2015

Publication series

Name: Allergiakoulu

Publisher: Allergiatutkimussäätiö

ISSN (Print): 1457-2508

Research output: Professional › Chapter

Infant respiration and heart rate monitoring with EMFi sensor

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Automation Science and Engineering, Research area: Microsystems, Research area: Measurement Technology and Process Control, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Rajala, S., Lekkala, J.

Number of pages: 5

Publication date: 2015

Host publication information

Title of host publication: IMEKO XXI World Congress, Proceedings, August 30 - September 4, 2015, Prague, Czech Republic

Editor: Holub, J.

ISBN (Electronic): 978-80-01-05793-3

Research output: Scientific - peer-review › Conference contribution

Inkjet-printed push-buttons for epidermal electronics

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Electronics and Communications Engineering, Research group: Laboratory for Future Electronics

Authors: Vuorinen, T., Niittyinen, J., Kankkunen, T., Lammi, T., Mäntysalo, M.

Number of pages: 5

Pages: 67-71

Publication date: 2015

Host publication information

Title of host publication: Printing Future Days 2015 : 6th International Scientific Conference on Print and Media Technology

Publisher: Verlag für Wissenschaft und Bildung VWB

ISBN (Print): 978-3-86135-626-4

Bibliographical note

AUX=elt,"Kankkunen, Timo"

AUX=elt,"Lammi, Toni"

Research output: Scientific - peer-review › Conference contribution

In silico analysis of division times of Escherichia coli populations as a function of the partitioning scheme of non-functional proteins

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Research group: Laboratory of Biosystem Dynamics-LBD, Multi-scaled biodata analysis and modelling (MultiBAM)

Authors: Gupta, A., Lloyd-Price, J., Ribeiro, A. S.

Pages: 9-21

Publication date: 2015

Peer-reviewed: Yes

Publication information

Journal: In Silico Biology

Volume: 1

Issue number: 2

ISSN (Print): 1386-6338

Ratings:

Scopus rating (2016): SJR 0.285 SNIP 0.195 CiteScore 0.8

Scopus rating (2015): SJR 0.654 SNIP 0.2 CiteScore 0.67

Scopus rating (2014): SJR 0.311 SNIP 0.187 CiteScore 0.68

Scopus rating (2013): SJR 0.241 SNIP 0.156 CiteScore 0.53

Scopus rating (2012): SJR 0.207 SNIP 0.352 CiteScore 0.6

Scopus rating (2011): SJR 0.465 SNIP 0.398 CiteScore 1.15

Scopus rating (2010): SJR 0.364 SNIP 0.268

Scopus rating (2009): SJR 0.529 SNIP 0.37

Scopus rating (2008): SJR 0.6 SNIP 0.339

Scopus rating (2007): SJR 0.679 SNIP 0.57

Scopus rating (2006): SJR 0.882 SNIP 0.653

Scopus rating (2005): SJR 0.942 SNIP 0.66

Scopus rating (2004): SJR 0.679 SNIP 0.811

Scopus rating (2003): SJR 0.587 SNIP 0.555

Scopus rating (2002): SJR 1.258

Scopus rating (2001): SJR 0.985

Scopus rating (2000): SJR 0.47

Scopus rating (1999): SJR 1.372

Original language: English

DOIs:

10.3233/ISB-140462

Research output: Scientific - peer-review › Article

Integration of microfluidic sample delivery system on silicon nanowire-based biosensor

Silicon nanowire-based (SiNW) biosensors have gained a lot of attention during recent years. However, studies often totally neglect, or only briefly describe, the incorporation of microfluidic channel into the sensor architecture, although it is a crucial step towards a real lab-on-chip device. This paper proposes a process that can be applied to integration of microfluidic sample delivery system onto different SiNW biosensors. The sample delivery system includes a hydrophilic channel that enables the use of capillary action in delivering sample directly onto the sensor array, which leads to reduced

sample loss, faster detection process, and frees from the use of external pumps. In addition, the microfluidic channel system protects the fragile SiNWs from mechanical shocks, chemical spatters, and dust. The sample delivery system was fabricated of surface treated polydimethylsiloxane (PDMS), using a four-step approach, as follows: (1) master molds for soft lithography were etched onto Si. (2) PDMS replicas of the molds were fabricated and (3) bonded onto example sensor chips using oxygen plasma. (4) Oxygen plasma treatment also enabled the attachment of polyvinylpyrrolidone (PVP) to the sample channel surfaces to synthesize hydrophilic polymer coating. A contact angle for the PVP treated PDMS was 21 after 17 days, indicating the formation of a long-term hydrophilic PDMS surface. Finally, the example SiNW sensor is modified to allow direct real-time detection of thyroid-stimulating hormone (TSH). The sensor was able to detect as low TSH concentration values as 0.5 mIU/l, which indicates a successfully integrated sample delivery system.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Automation Science and Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Hemmilä, S., Gao, A., Lu, N., Li, T., Wang, Y., Kallio, P.

Number of pages: 10

Pages: 571-580

Publication date: 2015

Peer-reviewed: Yes

Publication information

Journal: *Microsystem Technologies: Micro-and Nanosystems-Information Storage and Processing Systems*

Volume: 21

Issue number: 3

ISSN (Print): 0946-7076

Ratings:

Scopus rating (2016): SJR 0.357 SNIP 0.756

Scopus rating (2015): SJR 0.406 SNIP 0.742

Scopus rating (2014): SJR 0.343 SNIP 0.828

Scopus rating (2013): SJR 0.442 SNIP 1.092

Scopus rating (2012): SJR 0.427 SNIP 0.955

Scopus rating (2011): SJR 0.514 SNIP 1.068

Scopus rating (2010): SJR 0.519 SNIP 1.045

Scopus rating (2009): SJR 0.535 SNIP 0.988

Scopus rating (2008): SJR 0.557 SNIP 1.085

Scopus rating (2007): SJR 0.59 SNIP 0.905

Scopus rating (2006): SJR 0.443 SNIP 0.733

Scopus rating (2005): SJR 0.465 SNIP 1.009

Scopus rating (2004): SJR 0.39 SNIP 0.812

Scopus rating (2003): SJR 0.362 SNIP 1.022

Scopus rating (2002): SJR 0.255 SNIP 0.762

Scopus rating (2001): SJR 0.576 SNIP 1.114

Scopus rating (2000): SJR 0.573 SNIP 0.525

Scopus rating (1999): SJR 0.539 SNIP 0.401

Original language: English

DOIs:

10.1007/s00542-014-2076-0

Bibliographical note

Contribution: organisation=ase,FACT1=1
Portfolio EDEND: 2014-12-02
Publisher name: Springer

Source: researchoutputwizard

Source-ID: 465

Research output: Scientific - peer-review > Article

Is 50 Hz high enough ECG sampling frequency for accurate HRV analysis?

With the worldwide growth of mobile wireless technologies, healthcare services can be provided at anytime and anywhere. Usage of wearable wireless physiological monitoring system has been extensively increasing during the last decade. These mobile devices can continuously measure e.g. the heart activity and wirelessly transfer the data to the mobile phone of the patient. One of the significant restrictions for these devices is usage of energy, which leads to requiring low sampling rate. This article is presented in order to investigate the lowest adequate sampling frequency of ECG signal, for achieving accurate enough time domain heart rate variability (HRV) parameters. For this purpose the ECG signals

originally measured with high 5 kHz sampling rate were down-sampled to simulate the measurement with lower sampling rate. Down-sampling loses information, decreases temporal accuracy, which was then restored by interpolating the signals to their original sampling rates. The HRV parameters obtained from the ECG signals with lower sampling rates were compared. The results represent that even when the sampling rate of ECG signal is equal to 50 Hz, the HRV parameters are almost accurate with a reasonable error.

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Automation Science and Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Mahdiani, S., Jeyhani, V., Peltokangas, M., Vehkaoja, A.

Number of pages: 4

Pages: 5948-5951

Publication date: 2015

Host publication information

Title of host publication: 2015 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)

ISBN (Print): 978-1-4244-9270-1

Keywords: Accuracy, Databases, Electrocardiography, Heart rate variability, Interpolation, Rail to rail inputs, Time-domain analysis

ASJC Scopus subject areas: Biomedical Engineering

Electronic versions:

Is 50 Hz enough sampling frequency

DOIs:

10.1109/EMBC.2015.7319746

Links:

<http://urn.fi/URN:NBN:fi:tty-201603183705>

Bibliographical note

AUX=orc,"Jeyhani, Vala"

AUX=orc,"Mahdiani, Shadi"

Source: RIS

Source-ID: urn:AE3F93F9C20623036AB8EBBC01FEB932

Research output: Scientific - peer-review › Conference contribution

Joint analysis of extracellular spike waveforms and neuronal network bursts

Background: Neuronal networks are routinely assessed based on extracellular electrophysiological micro electrode array (MEA) measurements by spike sorting, and spike and burst statistics. We propose to jointly analyze sorted spikes and detected bursts, and hypothesize that the obtained spike type compositions of the bursts can provide new information on the functional networks.

New method: Spikes are detected and sorted to obtain spike types and bursts are detected. In the proposed joint analysis, each burst spike is associated with a spike type, and the spike type compositions of the bursts are assessed.

Results: The proposed method was tested with simulations and MEA measurements of in vitro human stem cell derived neuronal networks under different pharmacological treatments. The results show that the treatments altered the spike type compositions of the bursts. For example, 6-cyano-7-nitroquinoxaline-2,3-dione almost completely abolished two types of spikes which had composed the bursts in the baseline, while bursts of spikes of two other types appeared more frequently. This phenomenon was not observable by spike sorting or burst analysis alone, but was revealed by the proposed joint analysis.

Comparison with existing methods: The existing methods do not provide the information obtainable with the proposed method: for the first time, the spike type compositions of bursts are analyzed.

Conclusions: We showed that the proposed method provides useful and novel information, including the possible changes in the spike type compositions of the bursts due to external factors. Our method can be employed on any data exhibiting sortable action potential waveforms and detectable bursts. (C) 2015 Elsevier B.V. All rights reserved.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Computational Biophysics and Imaging Group, BioMediTech

Authors: Kapucu, F. E., Mäkinen, M. E., Tanskanen, J. M., Ylä-Outinen, L., Narkilahti, S., Hyttinen, J. A.
Pages: 143-155
Publication date: 2015
Peer-reviewed: Yes

Publication information

Journal: Journal of Neuroscience Methods

Volume: 259

ISSN (Print): 0165-0270

Ratings:

Scopus rating (2016): CiteScore 2.52 SJR 1.105 SNIP 1.004

Scopus rating (2015): SJR 1.215 SNIP 0.981 CiteScore 2.44

Scopus rating (2014): SJR 1.033 SNIP 0.857 CiteScore 2.25

Scopus rating (2013): SJR 1.195 SNIP 1.03 CiteScore 2.52

Scopus rating (2012): SJR 1.123 SNIP 0.981 CiteScore 2.38

Scopus rating (2011): SJR 1.204 SNIP 1.057 CiteScore 2.57

Scopus rating (2010): SJR 1.245 SNIP 0.939

Scopus rating (2009): SJR 1.233 SNIP 0.966

Scopus rating (2008): SJR 1.106 SNIP 0.89

Scopus rating (2007): SJR 1.092 SNIP 1.054

Scopus rating (2006): SJR 1.04 SNIP 1.058

Scopus rating (2005): SJR 1.019 SNIP 0.927

Scopus rating (2004): SJR 1.092 SNIP 0.86

Scopus rating (2003): SJR 0.954 SNIP 0.848

Scopus rating (2002): SJR 1.147 SNIP 0.879

Scopus rating (2001): SJR 0.979 SNIP 0.771

Scopus rating (2000): SJR 0.89 SNIP 0.746

Scopus rating (1999): SJR 0.872 SNIP 0.766

Original language: English

DOIs:

10.1016/j.jneumeth.2015.11.022

Research output: Scientific - peer-review > Article

LED Lighting Interviews and Assessment in Forest Machines

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Environmental Health, University of Modena and Reggio Emilia

Authors: Pääkkönen, R., Gobba, F., Korpinen, L.

Number of pages: 4

Pages: 596-599

Publication date: 2015

Peer-reviewed: Yes

Publication information

Journal: International Journal of Medical, Health, Biomedical, Bioengineering and Pharmaceutical Engineering

Volume: 9

Issue number: 9

ISSN (Print): 2010-376X

Ratings:

Scopus rating (2014): SJR 0.132 SNIP 0.323

Scopus rating (2013): SJR 0.125 SNIP 0.276

Scopus rating (2012): SJR 0.122 SNIP 0.234

Scopus rating (2011): SJR 0.117 SNIP 0.165

Scopus rating (2010): SJR 0.109 SNIP 0.111

Original language: English

ASJC Scopus subject areas: Electrical and Electronic Engineering

Links:

Length of prostate biopsies is not necessarily compromised by pooling multiple cores in one paraffin block: An observational study

Background: Individually submitted prostatic needle biopsies are recommended by most guidelines because of their potential advantage in terms of core quality. However, unspecified bilateral biopsies are commonly submitted in many centers. The length of the core is the key quality indicator of prostate biopsies. Because there are few recent publications comparing the quality of 12 site-designated biopsies versus pooled biopsies, we compared the lengths of the biopsies obtained by both methods. **Methods:** The material was obtained from 471 consecutive subjects who underwent prostatic needle biopsy in the Tampere University Hospital district between January and June 2013. Biopsies from 344 subjects fulfilled the inclusion criteria. The total number of cores obtained was 4047. The core lengths were measured on microscope slides. Extraprostatic tissue was subtracted from the core length. **Results:** The aggregate lengths observed were 129.5 ± 21.8 mm (mean \pm SD) for site-designated cores and 136.9 ± 26.4 mm for pooled cores ($p = 0.09$). The length of the core was 10.8 ± 1.8 mm for site-designated cores and 11.4 ± 2.2 mm for pooled cores ($p = 0.87$). The median length for pooled cores was 11 mm (range 5 mm - 18 mm). For individual site-designated cores, the median length was 11 mm (range 7 mm - 15 mm). The core length was not correlated with the number of cores embedded into one paraffin block ($r = 0.015$). There was no significant difference in cancer detection rate ($p = 0.62$). **Conclusions:** Our results suggest that unspecified bilateral biopsies do not automatically lead to reduced core length. We conclude that carefully embedded multiple (three to nine) cores per block may yield cores of equal quality in a more cost-efficient way and that current guidelines favoring individually submitted cores may be too strict.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Materials Science, University of Tampere, Tampere University Hospital, Tampere University of Technology

Authors: Tolonen, T. T., Isola, J., Kaipia, A., Riikonen, J., Koivusalo, L., Huovinen, S., Laurila, M., Porre, S., Tirkkonen, M., Kujala, P.

Publication date: 2015

Peer-reviewed: Yes

Publication information

Journal: BMC Clinical Pathology

Volume: 15

Issue number: 4

ISSN (Print): 1472-6890

Ratings:

Scopus rating (2016): SJR 1.006 SNIP 0.977 CiteScore 2.39

Scopus rating (2015): SJR 0.963 SNIP 0.764 CiteScore 1.88

Scopus rating (2014): SJR 0.783 SNIP 0.79 CiteScore 1.94

Scopus rating (2013): SJR 0.577 SNIP 0.673 CiteScore 1.89

Scopus rating (2012): SJR 0.586 SNIP 0.91 CiteScore 2.45

Scopus rating (2011): SJR 0.741 SNIP 1.44 CiteScore 2.47

Scopus rating (2010): SJR 0.787 SNIP 0.868

Scopus rating (2009): SJR 0.676 SNIP 1.068

Scopus rating (2008): SJR 0.552 SNIP 1.107

Scopus rating (2007): SJR 0.319 SNIP 0.5

Scopus rating (2006): SJR 0.425 SNIP 0.611

Scopus rating (2005): SJR 0.609 SNIP 1.19

Scopus rating (2004): SJR 0.371 SNIP 0.636

Scopus rating (2003): SJR 0.123 SNIP 0.664

Scopus rating (2002): SJR 0.103 SNIP 0

Original language: English

Keywords: Biopsy quality, Guidelines, Prostate cancer, Prostatic needle biopsies

ASJC Scopus subject areas: Pathology and Forensic Medicine, Histology

DOIs:

10.1186/s12907-015-0001-9

Bibliographical note

INT=mol,"Koivusalo, Laura"

Source: Scopus

Source-ID: 84925387933

Research output: Scientific - peer-review › Article

Low-profile head-worn antenna with a monopole-like radiation pattern

We present a low-profile antenna derived from a center-fed circular patch to provide uniform spatial coverage around a human head in 5.8 GHz ISM band. With the thickness of only 7 mm, it provides a compelling solution for a beacon-like radiator or harvester embedded in a smart headgear or in an in/off body communication relay-station. Below, we will first outline the development of an ellipsoid head model for numerically efficient optimization of the antenna and then detail the antenna development based on full-wave simulations. The results are validated using an anatomical head model and measurements both in air and in head-worn configuration. The measured results show that the antenna achieves a 0-dBi gain in the spatial angles around the head. The simulated radiation efficiency is 76% and SAR is well below ICNIRP and FCC limits even with 100 mW antenna power.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Research group: Wireless Identification and Sensing Systems Research Group, Department of Electronics and Communications Engineering

Authors: Björninen, T., Yang, F.

Number of pages: 4

Pages: 794-797

Publication date: 2015

Peer-reviewed: Yes

Early online date: 31 Aug 2015

Publication information

Journal: IEEE Antennas and Wireless Propagation Letters

Volume: 15

ISSN (Print): 1536-1225

Ratings:

Scopus rating (2016): SJR 1.257 SNIP 1.803 CiteScore 3.57

Scopus rating (2015): SJR 1.572 SNIP 1.925 CiteScore 2.9

Scopus rating (2014): SJR 1.517 SNIP 1.927 CiteScore 2.79

Scopus rating (2013): SJR 1.202 SNIP 1.703 CiteScore 2.82

Scopus rating (2012): SJR 1.005 SNIP 1.517 CiteScore 2.71

Scopus rating (2011): SJR 0.926 SNIP 1.54 CiteScore 2.32

Scopus rating (2010): SJR 0.736 SNIP 1.25

Scopus rating (2009): SJR 1.083 SNIP 1.582

Scopus rating (2008): SJR 0.794 SNIP 1.256

Scopus rating (2007): SJR 1.421 SNIP 2.221

Scopus rating (2006): SJR 1.599 SNIP 1.911

Scopus rating (2005): SJR 1.943 SNIP 1.839

Scopus rating (2004): SJR 1.411 SNIP 1.972

Scopus rating (2003): SJR 0.918 SNIP 1.391

Original language: English

Electronic versions:

AWPL_head-worn_ant

DOIs:

10.1109/LAWP.2015.2475158

Links:

<http://urn.fi/URN:NBN:fi:ty-201603013590>

Research output: Scientific - peer-review › Article

Lung deposited surface area size distributions in different urban areas

General information

State: Published

Ministry of Education publication type: D3 Professional conference proceedings

Organisations: Department of Physics, Research area: Aerosol Physics, Research group: The Instrumentation, Emissions, and Atmospheric Aerosols Group

Authors: Kuuluvainen, H., Järvinen, A., Pirjola, L., Niemi, J. V., Hillamo, R., Keskinen, J., Rönkkö, T.

Publication date: 2015

Host publication information

Title of host publication: AT 2015, Aerosol Technology, June 15-17, 2015, Tampere, Finland

Bibliographical note

ISBN kysytty, HO.

Ei ole, HO.

Research output: Professional › Conference contribution

Measurements of magnetic fields and contact currents produced by domestic induction hobs

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Environmental Health, University of Miyazaki, University of Tokushima

Authors: Tarao, H., Korpinen, L., Hayashi, N., Isaka, K.

Number of pages: 3

Pages: 112-114

Publication date: 2015

Peer-reviewed: Yes

Publication information

Journal: Bulgarian journal of public health

Volume: Supplement, VII

Issue number: 2(1)

ISSN (Print): 1313-860X

Original language: English

ASJC Scopus subject areas: Electrical and Electronic Engineering

Links:

<http://goo.gl/tZgar9>

Research output: Scientific - peer-review › Article

Methods for in vitro functional analysis of iPSC derived cardiomyocytes — Special focus on analyzing the mechanical beating behavior

Abstract A rapidly increasing number of papers describing novel iPSC models for cardiac diseases are being published. To be able to understand the disease mechanisms in more detail, we should also take the full advantage of the various methods for analyzing these cell models. The traditionally and commonly used electrophysiological analysis methods have been recently accompanied by novel approaches for analyzing the mechanical beating behavior of the cardiomyocytes. In this review, we provide first a concise overview on the methodology for cardiomyocyte functional analysis and then concentrate on the video microscopy, which provides a promise for a new faster yet reliable method for cardiomyocyte functional analysis. We also show how analysis conditions may affect the results. Development of the methodology not only serves the basic research on the disease models, but could also provide the much needed efficient early phase screening method for cardiac safety toxicology. This article is part of a Special Issue entitled: Cardiomyocyte Biology: Integration of Developmental and Environmental Cues in the Heart edited by Marcus Schaub and Hughes Abriel.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Computational Biophysics and Imaging Group, BioMediTech

Authors: Laurila, E., Ahola, A., Hyttinen, J., Aalto-Setälä, K.

Publication date: 2015

Peer-reviewed: Yes

Publication information

Journal: Biochimica et Biophysica Acta: Molecular Cell Research

ISSN (Print): 0167-4889

Ratings:

Scopus rating (2016): SJR 2.727 SNIP 1.248 CiteScore 4.9

Scopus rating (2015): SJR 3.053 SNIP 1.385 CiteScore 5

Scopus rating (2014): SJR 3.016 SNIP 1.315 CiteScore 4.97

Scopus rating (2013): SJR 2.975 SNIP 1.368 CiteScore 5.18

Scopus rating (2012): SJR 3.143 SNIP 1.455 CiteScore 5.55

Scopus rating (2011): SJR 2.964 SNIP 1.303 CiteScore 5.03

Scopus rating (2010): SJR 3.15 SNIP 1.268

Scopus rating (2009): SJR 3.275 SNIP 1.287

Scopus rating (2008): SJR 3.187 SNIP 1.24

Scopus rating (2007): SJR 3.951 SNIP 1.309

Scopus rating (2006): SJR 4.492 SNIP 1.551

Scopus rating (2005): SJR 3.221 SNIP 1.121

Scopus rating (2004): SJR 2.283 SNIP 0.946

Scopus rating (2003): SJR 2.439 SNIP 0.937

Scopus rating (2002): SJR 1.965 SNIP 0.925

Scopus rating (2001): SJR 1.913 SNIP 0.846

Scopus rating (2000): SJR 1.74 SNIP 0.83

Scopus rating (1999): SJR 1.549 SNIP 0.673

Original language: English

Keywords: Disease modeling, Induced pluripotent stem cells, Safety toxicology, Stem cell derived cardiomyocytes, Video microscopy

Electronic versions:

Methods for in vitro functional analysis of iPSC derived cardiomyocytes

DOIs:

10.1016/j.bbamcr.2015.12.013

Links:

<http://urn.fi/URN:NBN:fi:tyy-201606214293>

Source: RIS

Source-ID: urn:4DF14E57C52E6B1C5D01B0E962572F8F

Research output: Scientific - peer-review > Article

Methods to use Big Wearable Heart Rate Data for Estimation of Physical Activity in Population Level

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Signal Processing, Research group: Personal Health Informatics-PHI, Research Community on Data-to-Decision (D2D)

Authors: Pietilä, J., Mutikainen, S., Helander, E., Myllymäki, T., Kujala, U. M., Korhonen, I.

Number of pages: 4

Pages: 66-69

Publication date: 2015

Host publication information

Title of host publication: The 6th European Conference of the International Federation for Medical and Biological Engineering (MBEC 2014), 7-11 September, Dubrovnik, Croatia

Place of publication: Dubrovnik

Publisher: Springer

Editors: Lackovic, I., Vasic, D.

ISBN (Print): 978-3-319-11127-8

ISBN (Electronic): 978-3-319-11128-5

Publication series

Name: IFMBE Proceedings

Publisher: Springer

Volume: 45

ISSN (Print): 1680-0737

ISSN (Electronic): 1433-9277

DOIs:

10.1007/978-3-319-11128-5_17

Bibliographical note

Julkaisu vuosi 2015, Siirretään 2015
Contribution: organisation=sgn,FACT1=1
Portfolio EDEND: 2015-01-10
publication_forum:58152

Source: researchoutputwizard

Source-ID: 28

Research output: Scientific - peer-review › Conference contribution

Microcomputed Tomography–Based Assessment of Retrieved Dental Implants

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Computational Biophysics and Imaging Group

Authors: Narra, N., Antalainen, A., Zipprich, H., Sándor, G. K., Wolff, J.

Number of pages: 7

Pages: 308-314

Publication date: 2015

Peer-reviewed: Yes

Publication information

Journal: International Journal of Oral and Maxillofacial Implants

Volume: 30

Issue number: 2

ISSN (Print): 0882-2786

Ratings:

Scopus rating (2016): SJR 1.424 SNIP 1.029 CiteScore 2.3

Scopus rating (2015): SJR 1.264 SNIP 1.174 CiteScore 1.77

Scopus rating (2014): SJR 1.405 SNIP 0.91 CiteScore 1.57

Scopus rating (2013): SJR 1.157 SNIP 1.218 CiteScore 1.6

Scopus rating (2012): SJR 2.163 SNIP 1.629 CiteScore 2.49

Scopus rating (2011): SJR 1.389 SNIP 1.278 CiteScore 1.76

Scopus rating (2010): SJR 1.586 SNIP 1.322

Scopus rating (2009): SJR 1.534 SNIP 1.485

Scopus rating (2008): SJR 1.949 SNIP 1.639

Scopus rating (2007): SJR 1.601 SNIP 1.424

Scopus rating (2006): SJR 1.533 SNIP 1.391

Scopus rating (2005): SJR 1.536 SNIP 1.258

Scopus rating (2004): SJR 1.449 SNIP 1.478

Scopus rating (2003): SJR 1.332 SNIP 1.555

Scopus rating (2002): SJR 1.156 SNIP 1.784

Scopus rating (2001): SJR 1.04 SNIP 1.6

Scopus rating (2000): SJR 1.061 SNIP 1.143

Scopus rating (1999): SJR 1.353 SNIP 1.411

Original language: English

DOIs:

10.11607/jomi.3756

Research output: Scientific - peer-review › Article

Monitoring urban air quality with a diffusion charger based electrical particle sensor

Abstract Urban air contains considerable amounts of harmful gaseous substances and aerosol particles. In this study, a recently introduced diffusion charger based PPS-M particle sensor (Pegasor Oy, Tampere, Finland) was evaluated for outdoor air quality measurements in urban environment. The PPS-M particle sensor was used in two stationary air quality measurement stations, one located in the roadside environment and the other in residential area, and in a mobile laboratory. The sampling of urban aerosol to the PPS-M sensor was performed without any pre-conditioning of aerosol. The sensor response to PM_{2.5} varied between the measurements, being between 7 and 30 fA/($\mu\text{g}/\text{m}^3$) depending on the aerosol source. The highest PM_{2.5} response was observed in the roadside study for exhaust particles while the lowest PM_{2.5} response was observed for large long range transported aerosol particles having relatively large mean particle size. The sensor signal was found to produce very linear response, with only minimal deviation, to the lung deposited particle surface area concentration (from 4.5 to 6 fA/($\mu\text{m}^2/\text{cm}^3$)) and to the condensation sink of urban air particles (from 1.0×10^4 to 1.2×10^4 fA cm³). The sensor response to particle number concentration was defined to be 0.0044 fA/(1/cm³) in roadside environment. In this environment, the signal was found to correlate also with NO and NO₂ concentrations of roadside air due to the same origin of particulate and gaseous pollutants. Similar correlation between NO_x and the PPS-M signal was not observed in residential area.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Physics, Department of Signal Processing, Research area: Aerosol Physics, Urban circular bioeconomy (UrCirBio)

Authors: Järvinen, A., Kuuluvainen, H., Niemi, J., Saari, S., Dal Maso, M., Pirjola, L., Hillamo, R., Janka, K., Keskinen, J., Rönkkö, T.

Publication date: 2015

Peer-reviewed: Yes

Early online date: 1 Jan 2014

Publication information

Journal: Urban Climate

Volume: 14

Issue number: 3

ISSN (Print): 2212-0955

Ratings:

Scopus rating (2016): SJR 1.09 SNIP 1.313 CiteScore 2.92

Scopus rating (2015): SJR 0.846 SNIP 1.043 CiteScore 2.23

Scopus rating (2014): SJR 0.494 SNIP 1.095 CiteScore 1.69

Scopus rating (2013): SJR 0.324 SNIP 0.341 CiteScore 1.36

Original language: English

Keywords: Particle sensor, Urban air quality, Traffic emissions, Instrument comparison

DOIs:

10.1016/j.uclim.2014.10.002

Bibliographical note

ORG=fys,0.5

ORG=sgn,0.5

Source: RIS

Source-ID: urn:C09F5E550C75A3945CB60BFFC830456C

Research output: Scientific - peer-review › Article

MR image texture in Parkinson's disease: A longitudinal study

Background: Few of the structural changes caused by Parkinson's disease (PD) are visible in magnetic resonance imaging (MRI) with visual inspection but there is a need for a method capable of observing the changes beyond the human eye. Texture analysis offers a technique that enables the quantification of the image gray-level patterns. Purpose: To investigate the value of quantitative image texture analysis method in diagnosis and follow-up of PD patients. Material and Methods: Twenty-six PD patients underwent MRI at baseline and after 2 years of follow-up. Four co-occurrence matrix-based texture parameters, describing the image homogeneity and complexity, were calculated within clinically interesting areas of the brain. In addition, correlations with clinical characteristics (Unified Parkinson's Disease Rating Scales I-III and Mini-Mental State Examination score) along with a comparison to healthy controls were evaluated. Results: Patients at baseline and healthy volunteers differed in their brain MR image textures mostly in the areas of substantia nigra pars compacta, dentate nucleus, and basilar pons. During the 2-year follow-up of the patients, textural differences appeared mainly in thalamus and corona radiata. Texture parameters in all the above mentioned areas were also found to be significantly related to clinical scores describing the severity of PD. Conclusion: Texture analysis offers a quantitative method for detecting structural changes in brain MR images. However, the protocol and repeatability of the method must be enhanced before possible clinical use.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Integrated Technologies for Tissue Engineering Research (ITTE), University of Tampere, Medical School, Tampere University Hospital, Medical Imaging Center and Hospital Pharmacy, Department of Neurology and Rehabilitation

Authors: Sikiö, M., Holli-Helenius, K. K., Harrison, L. C. V., Ryymin, P., Ruottinen, H., Saunamäki, T., Eskola, H. J., Elovaara, I., Dastidar, P.

Number of pages: 8

Pages: 97-104

Publication date: 2015

Peer-reviewed: Yes

Publication information

Journal: Acta Radiologica

Volume: 56

Issue number: 1
ISSN (Print): 0284-1851
Ratings:

Scopus rating (2016): SJR 0.693 SNIP 0.909 CiteScore 1.54
Scopus rating (2015): SJR 0.741 SNIP 0.953 CiteScore 1.64
Scopus rating (2014): SJR 0.761 SNIP 0.993 CiteScore 1.54
Scopus rating (2013): SJR 0.694 SNIP 0.91 CiteScore 1.58
Scopus rating (2012): SJR 0.659 SNIP 0.879 CiteScore 1.55
Scopus rating (2011): SJR 0.703 SNIP 0.795 CiteScore 1.47
Scopus rating (2010): SJR 0.76 SNIP 0.887
Scopus rating (2009): SJR 0.642 SNIP 0.839
Scopus rating (2008): SJR 0.585 SNIP 0.771
Scopus rating (2007): SJR 0.584 SNIP 0.814
Scopus rating (2006): SJR 0.531 SNIP 0.747
Scopus rating (2005): SJR 0.523 SNIP 0.826
Scopus rating (2004): SJR 0.65 SNIP 0.984
Scopus rating (2003): SJR 0.578 SNIP 0.883
Scopus rating (2002): SJR 0.552 SNIP 0.745
Scopus rating (2001): SJR 0.565 SNIP 0.775
Scopus rating (2000): SJR 0.677 SNIP 0.764
Scopus rating (1999): SJR 0.571 SNIP 0.847

Original language: English

Keywords: Follow-up, Image analysis, Magnetic resonance imaging (MRI), Parkinson's disease, Texture analysis
ASJC Scopus subject areas: Radiology Nuclear Medicine and imaging, Radiological and Ultrasound Technology, Medicine(all)

DOIs:

10.1177/0284185113519775

Links:

<http://www.scopus.com/inward/record.url?scp=84925355295&partnerID=8YFLogxK> (Link to publication in Scopus)

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-08-20
Publisher name: Sage Publications

Source: researchoutputwizard

Source-ID: 1506

Research output: Scientific - peer-review > Article

Muraglitazar-Eluting Bioabsorbable Vascular Stent Inhibits Neointimal Hyperplasia in Porcine Iliac Arteries

Purpose To evaluate the biocompatibility of a new muraglitazar-eluting polylactide copolymer stent and investigate its ability to prevent the formation of intimal hyperplasia.

Materials and Methods Ten self-expandable muraglitazar-eluting poly-96l/4d-lactic acid (PLA96) stents and 10 self-expandable control PLA96 stents were implanted into porcine common iliac arteries. After 28 days follow-up, all stent-implanted iliac arteries were harvested and prepared for quantitative histomorphometric analysis.

Results Angiographic analysis revealed that one control PLA96 stent had occluded and one had migrated. Histomorphometric analysis demonstrated that, with the control PLA96 stent, the luminal diameter and area were decreased versus the muraglitazar-eluting PLA96 stents (means \pm standard error of the mean, 3.58 mm \pm 0.34 vs 4.16 mm \pm 0.14 and 9.83 mm² \pm 2.41 vs 13.75 mm² \pm 0.93, respectively). The control PLA96 stent induced more intimal hyperplasia than the bioactive muraglitazar-eluting PLA96 stent (557 μ m \pm 122 vs 361 μ m \pm 32). Vascular injury scores demonstrated only mild vascular trauma for both stents (muraglitazar-eluting, 0.68 \pm 0.07; control, 0.75 \pm 0.08). Inflammation scores also showed mild inflammation for both stents (muraglitazar-eluting, 1.05 \pm 0.17; control, 1.23 \pm 0.19).

Conclusions This new muraglitazar-eluting PLA96 stent was shown to be biocompatible with a tendency for better patency and less intimal hyperplasia compared with the control PLA96 stents.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, BioMediTech, Integrated Technologies for Tissue Engineering Research (ITTE), Prostate cancer research center (PCRC)

Authors: Uurto, I., Hämäläinen, M., Suominen, V., Laurila, M., Kotsar, A., Isotalo, T., Tammela, T. L., Kellomäki, M., Salenius, J.
Number of pages: 7
Pages: 124-130
Publication date: 2015
Peer-reviewed: Yes

Publication information

Journal: Journal of Vascular and Interventional Radiology
Volume: 26
Issue number: 1
ISSN (Print): 1051-0443
Ratings:

Scopus rating (2016): SJR 1.121 SNIP 1.246 CiteScore 1.93
Scopus rating (2015): SJR 1.25 SNIP 1.442 CiteScore 1.99
Scopus rating (2014): SJR 1.089 SNIP 1.299 CiteScore 1.94
Scopus rating (2013): SJR 1.092 SNIP 1.27 CiteScore 1.93
Scopus rating (2012): SJR 1.182 SNIP 1.272 CiteScore 1.92
Scopus rating (2011): SJR 1.159 SNIP 1.318 CiteScore 1.97
Scopus rating (2010): SJR 1.105 SNIP 1.245
Scopus rating (2009): SJR 1.206 SNIP 1.397
Scopus rating (2008): SJR 1.434 SNIP 1.45
Scopus rating (2007): SJR 1.269 SNIP 1.406
Scopus rating (2006): SJR 1.297 SNIP 1.553
Scopus rating (2005): SJR 1.226 SNIP 1.471
Scopus rating (2004): SJR 1.147 SNIP 1.182
Scopus rating (2003): SJR 1.097 SNIP 1.263
Scopus rating (2002): SJR 1.039 SNIP 1.049
Scopus rating (2001): SJR 1.146 SNIP 1.15
Scopus rating (2000): SJR 1.092 SNIP 1.052
Scopus rating (1999): SJR 0.993 SNIP 1.222
Original language: English

DOIs:

10.1016/j.jvir.2014.10.005

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-12-09
Publisher name: Elsevier
Source: researchoutputwizard
Source-ID: 1674
Research output: Scientific - peer-review > Article

Myostatin/ activin blocking combined with exercise reconditions skeletal muscle expression profile of mdx mice

Duchenne muscular dystrophy is characterized by muscle wasting and decreased aerobic metabolism. Exercise and blocking of myostatin/activin signaling may independently or combined counteract muscle wasting and dystrophies. The effects of myostatin/activin blocking using soluble activin receptor-Fc (sActRIIB-Fc) administration and wheel running were tested alone or in combination for 7 weeks in dystrophic mdx mice. Expression microarray analysis revealed decreased aerobic metabolism in the gastrocnemius muscle of mdx mice compared to healthy mice. This was not due to reduced home-cage physical activity, and was further downregulated upon sActRIIB-Fc treatment in enlarged muscles. However, exercise activated pathways of aerobic metabolism and counteracted the negative effects of sActRIIB-Fc. Exercise and sActRIIB-Fc synergistically increased expression of major urinary protein, but exercise blocked sActRIIB-Fc induced phosphorylation of STAT5 in gastrocnemius muscle. In conclusion, exercise alone or in combination with myostatin/activin blocking corrects aerobic gene expression profiles of dystrophic muscle toward healthy wild type mice profiles.

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Department of Signal Processing
Authors: Kainulainen, H., Papaioannou, K. G., Silvennoinen, M., Autio, R., Saarela, J., Oliveira, B. M., Nyqvist, M., Pasternack, A., Hoen, P. A. ´., Kujala, U. M., Ritvos, O., Hulmi, J. J.
Number of pages: 12
Pages: 131-142

Publication date: 2015

Peer-reviewed: Yes

Publication information

Journal: Molecular and Cellular Endocrinology

Volume: 399

ISSN (Print): 0303-7207

Ratings:

Scopus rating (2016): SJR 1.756 SNIP 1.071 CiteScore 3.82

Scopus rating (2015): SJR 2.119 SNIP 1.235 CiteScore 4.22

Scopus rating (2014): SJR 1.952 SNIP 1.28 CiteScore 4.02

Scopus rating (2013): SJR 2.073 SNIP 1.425 CiteScore 4.48

Scopus rating (2012): SJR 1.656 SNIP 1.256 CiteScore 4.13

Scopus rating (2011): SJR 1.777 SNIP 1.196 CiteScore 4.03

Scopus rating (2010): SJR 1.617 SNIP 1.071

Scopus rating (2009): SJR 1.587 SNIP 1.167

Scopus rating (2008): SJR 1.527 SNIP 1.025

Scopus rating (2007): SJR 1.41 SNIP 0.946

Scopus rating (2006): SJR 1.401 SNIP 0.886

Scopus rating (2005): SJR 1.405 SNIP 0.949

Scopus rating (2004): SJR 1.277 SNIP 0.906

Scopus rating (2003): SJR 1.106 SNIP 0.817

Scopus rating (2002): SJR 1.135 SNIP 0.739

Scopus rating (2001): SJR 1.042 SNIP 0.711

Scopus rating (2000): SJR 1.169 SNIP 0.692

Scopus rating (1999): SJR 1.135 SNIP 0.684

Original language: English

DOIs:

10.1016/j.mce.2014.10.001

Bibliographical note

Contribution: organisation=sgn,FACT1=1
Portfolio EDEND: 2015-01-13
Publisher name: Elsevier

Source: researchoutputwizard

Source-ID: 12

Research output: Scientific - peer-review > Article

Occupational and environmental exposure to extremely low frequency magnetic fields in a large group of workers

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Environmental Health, University of Modena and Reggio Emilia, Italian Worker's Compensation Authority (INAIL), Italian Ministry of Health

Authors: Gobba, F., Rossi, P., Bravo, G., Contessa, G. M., Korpinen, L.

Number of pages: 3

Pages: 211-213

Publication date: 2015

Peer-reviewed: Yes

Publication information

Journal: Bulgarian journal of public health

Volume: Supplement, VII

Issue number: 2(1)

ISSN (Print): 1313-860X

Original language: English

ASJC Scopus subject areas: Electrical and Electronic Engineering

Links:

<http://goo.gl/tZgar9>

Research output: Scientific - peer-review > Article

On capacity of active relaying in magnetic induction based wireless underground sensor networks

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Wireless Communications and Positioning (WICO), Former organisation of the author

Authors: Kisseleff, S., Sackenreuter, B., Akyildiz, I., Gerstacker, W.

Pages: 6541-6546

Publication date: 2015

Host publication information

Title of host publication: Proceedings of IEEE ICC 2015

DOIs:

10.1109/ICC.2015.7249367

Bibliographical note

cited By 1

Source: Bibtex

Source-ID: urn:d60d0d5e915a86f0c868a160e5cb06f1

Research output: Scientific - peer-review > Conference contribution

Origins of Transcriptional Transition: Balance between Upstream and Downstream Regulatory Gene Sequences

By measuring individual mRNA production at the single-cell level, we investigated the lac promoter's transcriptional transition during cell growth phases. In exponential phase, variation in transition rates generates two mixed phenotypes, low and high numbers of mRNAs, by modulating their burst frequency and sizes. Independent activation of the regulatory-gene sequence does not produce bimodal populations at the mRNA level, but bimodal populations are produced when the regulatory gene is activated coordinately with the upstream and downstream region promoter sequence (URS and DRS, respectively). Time-lapse microscopy of mRNAs for lac and a variant lac promoter confirm this observation. Activation of the URS/DRS elements of the promoter reveals a counterplay behavior during cell phases. The promoter transition rate coupled with cell phases determines the mRNA and transcriptional noise. We further show that bias in partitioning of RNA does not lead to phenotypic switching. Our results demonstrate that the balance between the URS and the DRS in transcriptional regulation determines population diversity.

IMPORTANCE By measuring individual mRNA production at the single-cell level, we investigated the lac promoter transcriptional transition during cell growth phases. In exponential phase, variation in transition rate generates two mixed phenotypes producing low and high numbers of mRNAs by modulating the burst frequency and size. Independent activation of the regulatory gene sequence does not produce bimodal populations at the mRNA level, while it does when activated together through the coordination of upstream/downstream promoter sequences (URS/DRS). Time-lapse microscopy of mRNAs for lac and a lac variant promoter confirm this observation. Activation of the URS/DRS elements of the promoter reveals a counterplay behavior during cell phases. The promoter transition rate coupled with cell phases determines the mRNA and transcriptional noise. We further show that bias in partitioning of RNA does not lead to phenotypic switching. Our results demonstrate that the balance between URS and DRS in transcription regulation is determining the population diversity.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Research group: Computational Systems Biology, Research group:

Molecular Signaling Lab, Prostate cancer research center (PCRC), Tampere Univ Technol, Tampere University of Technology, Signal Proc Dept, Computat Syst Biol Res Grp, Mol Signaling Lab

Authors: Sala, A., Shoaib, M., Anufrieva, O., Mutharasu, G., Yli-Harja, O., Kandhavelu, M.

Number of pages: 9

Publication date: 2015

Peer-reviewed: Yes

Publication information

Journal: mBio

Volume: 6

Issue number: 1

Article number: e02182-14

ISSN (Print): 2150-7511

Ratings:

Scopus rating (2016): SJR 3.99 SNIP 1.587 CiteScore 5.79

Scopus rating (2015): SJR 3.667 SNIP 1.465 CiteScore 4.93

Scopus rating (2014): SJR 3.187 SNIP 1.351 CiteScore 4.23

Scopus rating (2013): SJR 3.149 SNIP 1.408 CiteScore 4.26

Scopus rating (2012): SJR 2.845 SNIP 1.517 CiteScore 4.08

Scopus rating (2011): SJR 2.725 SNIP 1.139 CiteScore 4.33

Original language: English

Keywords: SINGLE-MOLECULE EVENT, ESCHERICHIA-COLI, EXPRESSION, TIME, CELL, STOCHASTICITY, MECHANISMS, INITIATION, PROTEINS, DYNAMICS

DOIs:

10.1128/mBio.02182-14

Bibliographical note

AUX=sgn,"Shoab, Muhammad"

AUX=sgn,"Anufrieva, Olga"

Source: WOS

Source-ID: 000350631900057

Research output: Scientific - peer-review › Article

Piezoelectric sensitivity measurements of cellulose nanofibril sensors

Piezoelectric sensitivity of cellulose nanofibril (CNF) film sensors was measured using a mechanical shaker and charge amplifier setup. In-house fabricated CNF

film sensors showed 5-7 pC/N sensitivity in ambient conditions. The CNF film used here contained randomly oriented fibrils, and the piezoelectric response is expected to increase remarkably after film polarization and fibril alignment. The results obtained in this study suggest that nanocellulose film is a suitable sensor material for applications in various fields such as material sciences, electronics and biomedical diagnostics.

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Automation Science and Engineering, Research area: Microsystems, Research area:

Measurement Technology and Process Control, Integrated Technologies for Tissue Engineering Research (ITTE), Aalto Univ, Aalto University, Sch Chem Technol, Dept Forest Prod Technol, Aalto University

Authors: Rajala, S., Vuoriluoto, M., Rojas, O., Franssila, S., Tuukkanen, S.

Number of pages: 5

Publication date: 2015

Host publication information

Title of host publication: IMEKO XXI World Congress, Proceedings, August 30 - September 4, 2015, Prague, Czech Republic

Editor: Holub, J.

ISBN (Electronic): 978-80-01-05793-3

Bibliographical note

xoa ei tarkistettu

Research output: Scientific - peer-review › Conference contribution

Possibility to decreasing the 50Hz electric field exposure with different jackets

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Environmental Health, TMI Rauno Pääkkönen

Authors: Korpinen, L., Pääkkönen, R.

Number of pages: 4

Pages: 62-65

Publication date: 2015

Peer-reviewed: Yes

Publication information

Journal: Bulgarian journal of public health

Volume: Supplement, VII

Issue number: 2(1)

ISSN (Print): 1313-860X

Original language: English

ASJC Scopus subject areas: Electrical and Electronic Engineering

Links:

<http://goo.gl/tZgar9>

Research output: Scientific - peer-review › Article

Possible Exposure of Persons with Cardiac Pacemakers to Extremely Low Frequency (ELF) Electric and Magnetic Fields

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Environmental Health, University of Modena and Reggio Emilia, Tampere University Hospital

Authors: Korpinen, L., Pääkkönen, R., Gobba, F., Virtanen, V.

Number of pages: 7

Pages: 344-347

Publication date: 2015

Peer-reviewed: Yes

Publication information

Journal: International Journal of Medical, Health, Biomedical, Bioengineering and Pharmaceutical Engineering

Volume: 5

Issue number: 9

ISSN (Print): 2010-376X

Ratings:

Scopus rating (2014): SJR 0.132 SNIP 0.323

Scopus rating (2013): SJR 0.125 SNIP 0.276

Scopus rating (2012): SJR 0.122 SNIP 0.234

Scopus rating (2011): SJR 0.117 SNIP 0.165

Scopus rating (2010): SJR 0.109 SNIP 0.111

Original language: English

ASJC Scopus subject areas: Electrical and Electronic Engineering

Links:

<http://waset.org/publication/Possible-Exposure-of-Persons-with-Cardiac-Pacemakers-to-Extremely-Low-Frequency-%28ELF%29-Electric-and-Magnetic-Fields/10001219>

Research output: Scientific - peer-review › Article

Preliminary measurements of smart meter electromagnetic field (50-100kHz) emissions in Finland

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Environmental Health, TMI Rauno Pääkkönen

Authors: Pääkkönen, R., Lundström, M., Mustaparta, J., Korpinen, L.

Number of pages: 3

Pages: 66-68

Publication date: 2015

Peer-reviewed: Yes

Publication information

Journal: Bulgarian journal of public health

Volume: Supplement, VII

Issue number: 2(1)

ISSN (Print): 1313-860X

Original language: English

ASJC Scopus subject areas: Electrical and Electronic Engineering

Links:

<http://goo.gl/tZgar9>

Research output: Scientific - peer-review › Article

Printed hybrid systems for healthcare

General information

State: Published

Ministry of Education publication type: D1 Article in a trade journal

Organisations: Department of Electronics and Communications Engineering, Research group: Laboratory for Future Electronics

Authors: Mäntysalo, M., Vuorinen, T., Nurmentaus, S.

Number of pages: 2

Pages: 8-9

Publication date: 2015

Peer-reviewed: Unknown

Publication information

Journal: OPE Journal

Issue number: 11

Original language: English

Research output: Professional › Article

Processing and characterization of novel borophosphate glasses and fibers for medical applications

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Biomaterials and Tissue Engineering Group, BioMediTech, Frontier Photonics, Integrated Technologies for Tissue Engineering Research (ITTE), Equipe Verres et Céramiques, UMR-CNRS 6226, Inst. des Sciences chimiques de Rennes, Université de Rennes 1, 35042 Rennes CEDEX, France, Åbo Akademi University, Biskopsgatan 8, FI-20500 Turku, Finland, nLIGHT Corporation, Sorronrinne 9, FI-08500 Lohja, Finland, Politecnico di Torino, DISAT, Istituto di Ingegneria e Fisica dei Materiali, Corso Duca degli Abruzzi 24, I-10129 Torino, Italy

Authors: Massera, J., Shpotyuk, Y., Sabatier, F., Jouan, T., Boussard-Plédel, C., Roiland, C., Bureau, B., Petit, L., Boetti, N., Milanese, D., Hupa, L.

Pages: 52-60

Publication date: 2015

Peer-reviewed: Yes

Publication information

Journal: Journal of Non-Crystalline Solids

Volume: 425

ISSN (Print): 0022-3093

Ratings:

Scopus rating (2016): SJR 0.692 SNIP 1.163 CiteScore 2.02

Scopus rating (2015): SJR 0.684 SNIP 1.083 CiteScore 1.85

Scopus rating (2014): SJR 0.803 SNIP 1.194 CiteScore 1.87

Scopus rating (2013): SJR 0.822 SNIP 1.19 CiteScore 1.79

Scopus rating (2012): SJR 0.758 SNIP 1.124 CiteScore 1.64

Scopus rating (2011): SJR 0.836 SNIP 1.272 CiteScore 1.7

Scopus rating (2010): SJR 0.911 SNIP 1.128

Scopus rating (2009): SJR 0.924 SNIP 0.993

Scopus rating (2008): SJR 0.957 SNIP 1.2

Scopus rating (2007): SJR 0.95 SNIP 1.082

Scopus rating (2006): SJR 0.887 SNIP 1.158

Scopus rating (2005): SJR 0.986 SNIP 1.149

Scopus rating (2004): SJR 0.992 SNIP 1.216

Scopus rating (2003): SJR 1.362 SNIP 1.308

Scopus rating (2002): SJR 0.861 SNIP 1.051

Scopus rating (2001): SJR 1.099 SNIP 1.09

Scopus rating (2000): SJR 0.948 SNIP 1.074

Scopus rating (1999): SJR 1.068 SNIP 0.966

Original language: English

DOIs:

10.1016/j.jnoncrysol.2015.05.028

Research output: Scientific - peer-review › Article

Quantification of the ionic current contributions to alterations in the action potential repolarization by means of piecewise-linear approximation

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Research group: Computational Biophysics and Imaging Group, Department of Electronics and Communications Engineering, BioMediTech

Authors: Paci, M., Hyttinen, J., Severi, S.

Number of pages: 4

Pages: 145-148

Publication date: 2015

Host publication information

Title of host publication: Computing in cardiology 2015

Publication series

Name: Computing in Cardiology

Publisher: Long Beach, Calif : IEEEComputer Society

Volume: 42

ISSN (Print): 0276-6574

ISSN (Electronic): 0276-6574

Links:

<http://www.cinc.org/archives/2015/pdf/0145.pdf>

Research output: Scientific - peer-review › Conference contribution

Quantification and automatized adaptive detection of in vivo and in vitro neuronal bursts based on signal complexity

In this paper, we propose employing entropy values to quantify action potential bursts in electrophysiological measurements from the brain and neuronal cultures. Conventionally in the electrophysiological signal analysis, bursts are quantified by means of conventional measures such as their durations, and number of spikes in bursts. Here our main aim is to devise metrics for burst quantification to provide for enhanced burst characterization. Entropy is a widely employed measure to quantify regularity/complexity of time series. Specifically, we investigate the applicability and differences of spectral entropy and sample entropy in the quantification of bursts in in vivo rat hippocampal measurements and in in vitro dissociated rat cortical cell culture measurement done with microelectrode arrays. For the task, an automatized and adaptive burst detection method is also utilized. Whereas the employed metrics are known from other applications, they are rarely employed in the assessment of burst in electrophysiological field potential measurements. Our results show that the proposed metrics are potential for the task at hand.

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Research group: Computational Biophysics and Imaging Group, Department of Electronics and Communications Engineering, BioMediTech, Integrated Technologies for Tissue Engineering Research (ITTE), Univ Jyväskylä, University of Jyväskylä, Dept Psychol

Authors: Kapucu, F. E., Mikkonen, J. E., Tanskanen, J. M. A., Hyttinen, J. A. K.

Number of pages: 4

Pages: 4729-4732

Publication date: 2015

Host publication information

Title of host publication: 2015 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)

ISBN (Print): 978-1-4244-9270-1

Keywords: Biological neural networks, Detection algorithms, Electric potential, Electrodes, Entropy, In vitro, In vivo
DOIs:

10.1109/EMBC.2015.7319450

Source: RIS

Source-ID: urn:7F73D35386ED553E8FEC5AACCC8CC7DE

Research output: Scientific - peer-review › Conference contribution

Recurrence network analysis of multiple local field potential bands from the orofacial portion of primary motor cortex

Local field potentials (LFPs), which have been considered as aggregate signals that reflect activities of a large number of neurons in the cerebral cortex, have been observed to mediate gross functional activities of a relatively small volume of the brain tissues. Historically there have been several frequency bands observed and defined across various brain areas.

However, detailed analysis, either spectral analysis or any dynamical analysis of LFPs particularly in the orofacial part of the primary motor cortex (M1o) has not been done before. Here, we recorded LFPs from M1o using an electrode array from a non-human primate during feeding behavior. Then we performed spectral analysis during the whole feeding sequences and to characterize temporal evolution of spectrum around the time of swallow cycles. The spectrogram over the β range showed dynamical change in its power around the swallow cycle onsets. We then characterized dynamical behaviors of LFPs over multiple bands, α , β , low γ , and high γ using two measures from the recurrence network (RN) method, network transitivity, T and average path length L . Temporal profile of T in α and β indicated that there was a sudden change in the dynamical properties around the swallow cycle onsets, while temporal profile of L indicated that a range of -200 to -150 ms and 200 ms to the swallow cycle onsets exhibited large changes both in α and β ranges. Therefore, to further understand the involvement of cortical oscillation to behavior, particularly swallowing, the combination of traditional spectral methods and various dynamical methods such as RN method would be essential.

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Research group: Computational Biophysics and Imaging Group, BioMediTech, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Subramaniam, N. P., Hyttinen, J., Hatsopoulos, N. G., Ross, C. F., Takahashi, K.

Number of pages: 4

Pages: 5343-5346

Publication date: 2015

Host publication information

Title of host publication: 2015 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)

ISBN (Print): 978-1-4244-9270-1

Keywords: Arrays, Complex networks, Kinematics, Oscillators, Time series analysis, Yttrium, Local field potentials, event evoked potentials, motor cortex, recurrence network, temporal dynamics

DOIs:

10.1109/EMBC.2015.7319598

Source: RIS

Source-ID: urn:F7D2827B40D79243F0D448865482E3AA

Research output: Scientific - peer-review › Conference contribution

Recurrent SKIL-activating rearrangements in ETS-negative prostate cancer

Prostate cancer is the third most common cause of male cancer death in developed countries, and one of the most comprehensively characterized human cancers. Roughly 60% of prostate cancers harbor gene fusions that juxtapose ETSfamily transcription factors with androgen regulated promoters. A second subtype, characterized by SPINK1 overexpression, accounts for 15% of prostate cancers. Here we report the discovery of a new prostate cancer subtype characterized by rearrangements juxtaposing the SMAD inhibitor SKIL with androgen regulated promoters, leading to increased SKIL expression. SKIL fusions were found in 6 of 540 (1.1%) prostate cancers and 1 of 27 (3.7%) cell lines and xenografts. 6 of 7 SKIL-positive cancers were negative for ETS overexpression, suggesting mutual exclusivity with ETS fusions. SKIL knockdown led to growth arrest in PC-3 and LNCaP cell line models of prostate cancer, and its overexpression led to increased invasiveness in RWPE-1 cells. The role of SKIL as a prostate cancer oncogene lends support to recent studies on the role of TGF- β signaling as a rate-limiting step in prostate cancer progression. Our findings highlight SKIL as an oncogene and potential therapeutic target in 1-2% of prostate cancers, amounting to an estimated 10,000 cancer diagnoses per year worldwide.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Research group: Computational Systems Biology, BioMediTech, Multi-scaled biodata analysis and modelling (MultiBAM), Prostate cancer research center (PCRC), Tampere University Hospital, Department of Urology, Fimlab Laboratories Ltd, University of Washington Seattle, Tampere University Hospital and Medical School, University of Texas, M. D. Anderson Cancer Center, Cancer Genomics Laboratory, Houston, TX, USA

Authors: Annala, M., Kivinummi, K., Tuominen, J., Karakurt, S., Granberg, K., Latonen, L., Ylipää, A., Sjöblom, L., Ruusuvuori, P., Saramäki, O., Kaukoniemi, K. M., Yli-Harja, O., Vessella, R. L., Tammela, T. L. J., Zhang, W., Visakorpi, T., Nykter, M.

Number of pages: 16

Pages: 6235-6250

Publication date: 2015

Peer-reviewed: Yes

Publication information

Journal: Oncotarget

Volume: 6

Issue number: 8
ISSN (Print): 1949-2553
Ratings:

Scopus rating (2016): SJR 1.927 SNIP 1.056 CiteScore 4.73
Scopus rating (2015): SJR 2.262 SNIP 1.113 CiteScore 4.91
Scopus rating (2014): SJR 2.521 SNIP 1.277 CiteScore 4.96
Scopus rating (2013): SJR 3.041 SNIP 1.268 CiteScore 5.26
Scopus rating (2012): SJR 2.474 SNIP 1.096 CiteScore 6.54
Scopus rating (2011): SJR 1.481 SNIP 0.494 CiteScore 3.38
Original language: English
Keywords: Fusion gene, Prostate cancer, Sequencing, SKIL
ASJC Scopus subject areas: Oncology
Source: Scopus
Source-ID: 84925607557
Research output: Scientific - peer-review › Article

Regional impedance pneumography heterogeneity during airway opening pressure chirp oscillations

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Department of Electronics and Communications Engineering, Research group: Physiological Measurement Systems and Methods Group, Tampere University of Technology
Authors: Garcia, J., Seppä, V., Viik, J.
Pages: 42-51
Publication date: 2015
Peer-reviewed: Yes

Publication information

Journal: International Journal of Bioelectromagnetism
Volume: 17
Issue number: 1
ISSN (Print): 1456-7857
Original language: English
Keywords: Transfer impedance, lung mechanics, impedance pneumography, multilead impedance pneumography, forced oscillation technique
ASJC Scopus subject areas: Biomedical Engineering
Links:
http://www.ijbem.org/volume17/number1/ijbem_vol17_no1_pp42-51.pdf
Research output: Scientific - peer-review › Article

Some aspects of molecular physics in measuring tissue samples using enose for disease diagnostics

eNose technologies can be used for disease diagnostics. One technology is based on ionized molecules and their drifting speed in an electric field. Ionized molecules can be measured with ion mobility spectrometry and with electrical mobility measurements. Depending on the size scale of these molecules, different physical effects are relevant. We studied the relevance of size scale dependent physics for disease diagnostics.

General information

State: Published
Ministry of Education publication type: A4 Article in a conference publication
Organisations: Department of Automation Science and Engineering, Integrated Technologies for Tissue Engineering Research (ITTE), University of Tampere, Medical School, Tampere University Hospital
Authors: Karjalainen, M., Roine, A., Oksala, N., Lekkala, J.
Publication date: 2015

Host publication information

Title of host publication: XXI IMEKO World Congress "Measurement in Research and Industry"
Publisher: IMEKO-International Measurement Federation Secretariat
ISBN (Electronic): 978-80-01-05793-3
ASJC Scopus subject areas: Electrical and Electronic Engineering
Keywords: Aerosol physics, Disease diagnostics, Ion mobility spectrometry
Links:
<http://www.scopus.com/inward/record.url?scp=84951173545&partnerID=8YFLogxK> (Link to publication in Scopus)

Source: Scopus
Source-ID: 84951173545
Research output: Scientific - peer-review > Conference contribution

Structural and mechanical implications of PMMA implant shape and interface geometry in cranioplasty – a finite element study

This computational study investigates the effect of shape (defect contour curvature) and bone-implant interface (osteotomy angle) on the stress distribution within PMMA skull implants. Using finite element methodology, 15 configurations - combinations of simplified synthetic geometric shapes (circular, square, triangular, irregular) and interface angulations - were simulated under 50N static loads. Furthermore, the implant fixation devices were modelled and analysed in detail. Negative osteotomy configurations demonstrated the largest stresses in the implant (275 MPa), fixation devices (1258 MPa) and bone strains (0.04). The circular implant with zero and positive osteotomy performed well with maximum observed magnitudes of - implant stress (1.2 MPa and 1.2 MPa), fixation device stress (11.2 MPa and 2.2 MPa), bone strain (0.218×10^{-3} and 0.750×10^{-4}). The results suggest that the preparation of defect sites is a critical procedure. Of the greatest importance is the angle at which the edges of the defect are sawed. If under an external load, the implant has no support from the interface and the stresses are transferred to the fixation devices. This can endanger their material integrity and lead to unphysiological strains in the adjacent bone, potentially compromising the bone morphology required for anchoring. These factors can ultimately weaken the stability of the entire implant assembly. (C) 2015 European Association for Cranio-Maxillo-Facial Surgery. Published by Elsevier Ltd. All rights reserved.

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Department of Electronics and Communications Engineering, Research group: Computational Biophysics and Imaging Group, BioMediTech
Authors: Ridwan-Pramana, A., Marcian, P., Borak, L., Narra, N., Forouzanfar, T., Wolff, J.
Pages: 34-44
Publication date: 2015
Peer-reviewed: Yes

Publication information

Journal: Journal of Cranio-Maxillofacial Surgery
Volume: 44
Issue number: 1
ISSN (Print): 1010-5182
Ratings:

Scopus rating (2016): SJR 0.816 SNIP 1.129 CiteScore 1.7
Scopus rating (2015): SJR 1.049 SNIP 1.314 CiteScore 1.87
Scopus rating (2014): SJR 1.423 SNIP 1.972 CiteScore 2.59
Scopus rating (2013): SJR 1.315 SNIP 1.505 CiteScore 2.1
Scopus rating (2012): SJR 1.012 SNIP 1.84 CiteScore 2.01
Scopus rating (2011): SJR 1.139 SNIP 1.62 CiteScore 1.78
Scopus rating (2010): SJR 0.968 SNIP 1.5
Scopus rating (2009): SJR 0.991 SNIP 1.34
Scopus rating (2008): SJR 1.125 SNIP 1.476
Scopus rating (2007): SJR 0.934 SNIP 1.144
Scopus rating (2006): SJR 0.894 SNIP 1.349
Scopus rating (2005): SJR 0.845 SNIP 1.188
Scopus rating (2004): SJR 0.568 SNIP 1.001
Scopus rating (2003): SJR 0.477 SNIP 0.987
Scopus rating (2002): SJR 0.815 SNIP 0.936
Scopus rating (2001): SJR 0.674 SNIP 0.349
Scopus rating (2000): SJR 0.705 SNIP 0
Scopus rating (1999): SJR 0.524

Original language: English

DOIs:

10.1016/j.jcms.2015.10.014

Research output: Scientific - peer-review > Article

Synchrony between Genetic Repressilators in Sister Cells in Different Temperatures

We used live *E. coli* containing synthetic genetic oscillators to study how the degree of synchrony between the genetic circuits of sister cells changes with temperature. We found that both the mean and the variability of the degree of synchrony between the fluorescence signals from sister cells are affected by temperature. Also, while most pairs of sister cells were found to be highly synchronous in each condition, the number of asynchronous pairs increased with increasing temperature, which was found to be due to disruptions in the oscillations. Finally we provide evidence that these disruptions tend to affect multiple generations as opposed to individual cells. These findings provide insight in how to design more robust synthetic circuits and in how cell division can affect their dynamics.

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Signal Processing, Research group: Laboratory of Biosystem Dynamics-LBD

Authors: Chandraseelan, J. G., Oliveira, S. M., Häkkinen, A., Startceva, S., Ribeiro, A. S.

Number of pages: 4

Pages: 725-728

Publication date: 2015

Host publication information

Title of host publication: ICCMSB 2015: International Conference on Computational and Molecular Systems Biology

Publisher: World Academy of Science, Engineering and Technology

Publication series

Name: Proceedings of the World Academy of Science, Engineering and Technology

ISSN (Print): 2010-376X

ISSN (Electronic): 2010-3778

Keywords: repressilator, robustness, synchrony, synthetic biology

Links:

<http://waset.org/Publication/synchrony-between-genetic-repressilators-in-sister-cells-in-different-temperatures/10001919>

<http://waset.org/abstracts/Bioengineering-and-Life-Sciences>

Source: Bibtex

Source-ID: urn:ad9f9ddacfd5c4da9d8411b8da981dc4

Research output: Scientific - peer-review › Conference contribution

Sähkö- ja magneettikenttien mahdolliset vaikutukset rytmihäiriötahdistimien toimintaan 400 kV:n voimajohdon alla

General information

State: Published

Ministry of Education publication type: Not Eligible

Organisations: Department of Electronics and Communications Engineering, Research group: Environmental Health,

Fingrid Oyj, TAYS Sydänkeskus Oy

Authors: Korpinen, L., Penttilä, M., Pääkkönen, R., Virtanen, V.

Number of pages: 1

Pages: 240

Publication date: 2015

Host publication information

Title of host publication: XXXVI Tampereen lääkäripäivät 18-20.3.2015

Publisher: Tampereen lääkäripäivät 2015 järjestelytoimikunta

ISBN (Print): 0358-5433

ASJC Scopus subject areas: Electrical and Electronic Engineering

Bibliographical note

xposter

Research output: Scientific - peer-review › Conference contribution

The Combination of Electric Current and Copper Promotes Neuronal Differentiation of Adipose-Derived Stem Cells

Damage to the nervous system can be caused by several types of insults, and it always has a great effect on the life of an individual. Due to the limited availability of neural transplants, alternative approaches for neural regeneration must be developed. Stem cells have a great potential to support neuronal regeneration. Human adipose-derived stem cells (hADSCs) have gained increasing interest in the fields of regenerative medicine due to their multilineage potential and easy harvest compared to other stem cells. In this study, we present a growth factor-free method for the differentiation of hADSCs toward neuron-like cells. We investigated the effect of electric current and copper on neuronal differentiation. We analyzed the morphological changes, the mRNA and protein expression levels in the stimulated cells and showed that the combination of current and copper induces stem cell differentiation toward the neuronal lineage with elongation of the cells and the upregulation of neuron-specific genes and proteins. The induction of the neuronal differentiation of hADSCs by

electric field and copper may offer a novel approach for stem cell differentiation and may be a useful tool for safe stem cell-based therapeutic applications.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Jaatinen, L., Salemi, S., Miettinen, S., Hyttinen, J., Eberli, D.

Number of pages: 10

Pages: 1014-1023

Publication date: 2015

Peer-reviewed: Yes

Publication information

Journal: Annals of Biomedical Engineering

Volume: 43

Issue number: 4

ISSN (Print): 0090-6964

Ratings:

Scopus rating (2016): SJR 1.054 SNIP 1.221 CiteScore 3.13

Scopus rating (2015): SJR 1.179 SNIP 1.355 CiteScore 3.21

Scopus rating (2014): SJR 1.095 SNIP 1.521 CiteScore 3.29

Scopus rating (2013): SJR 1.257 SNIP 1.451 CiteScore 3.38

Scopus rating (2012): SJR 0.926 SNIP 1.242 CiteScore 2.77

Scopus rating (2011): SJR 0.863 SNIP 1.135 CiteScore 2.54

Scopus rating (2010): SJR 0.812 SNIP 1.266

Scopus rating (2009): SJR 0.892 SNIP 1.337

Scopus rating (2008): SJR 1.003 SNIP 1.268

Scopus rating (2007): SJR 1.073 SNIP 1.322

Scopus rating (2006): SJR 1.049 SNIP 1.283

Scopus rating (2005): SJR 0.802 SNIP 1.111

Scopus rating (2004): SJR 0.694 SNIP 1.214

Scopus rating (2003): SJR 0.355 SNIP 1.069

Scopus rating (2002): SJR 0.295 SNIP 0.911

Scopus rating (2001): SJR 0.282 SNIP 1.276

Scopus rating (2000): SJR 0.663 SNIP 0.956

Scopus rating (1999): SJR 0.524 SNIP 0.984

Original language: English

DOIs:

10.1007/s10439-014-1132-3

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-10-16
Publisher name: Springer US

Source: researchoutputwizard

Source-ID: 566

Research output: Scientific - peer-review › Article

The Shape of Health: A Comparison of Five Alternative Ways of Visualizing Personal Health and Wellbeing

The combination of clinical and personal health and wellbeing data can tell us much about our behaviors, risks and overall status. The way this data is visualized may affect our understanding of our own health. To study this effect, we conducted a small experiment with 30 participants in which we presented a holistic overview of the health and wellbeing of two modeled individuals, one of them with metabolic syndrome. We used an insight-based methodology to assess the effectiveness of the visualizations. The results show that adequate visualization of holistic health data helps users without medical background to better understand the overall health situation and possible health risks related to lifestyles. Furthermore, we found that the application of insight-based methodology in the health and wellbeing domain remains unexplored and additional research and methodology development are needed.

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Signal Processing, Research group: Personal Health Informatics-PHI, Research Community on Data-to-Decision (D2D), Northeastern University, VTT Tech Res Ctr Finland, VTT Technical Research Center Finland
Authors: Ledesma, A., Nieminen, H., Valve, P., Pavel, M., Jimison, H., Ermes, M.
Number of pages: 4
Pages: 7638-7641
Publication date: 2015

Host publication information

Title of host publication: 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society
Publisher: Institute of Electrical and Electronics Engineers IEEE
ISBN (Print): 978-1-4244-9270-1
DOIs:
10.1109/EMBC.2015.7320161
Research output: Scientific - peer-review › Conference contribution

Time-series modeling of long-term weight self-monitoring data

Long-term self-monitoring of weight is beneficial for weight maintenance, especially after weight loss. Connected weight scales accumulate time series information over long term and hence enable time series analysis of the data. The analysis can reveal individual patterns, provide more sensitive detection of significant weight trends, and enable more accurate and timely prediction of weight outcomes. However, long term self-weighing data has several challenges which complicate the analysis. Especially, irregular sampling, missing data, and existence of periodic (e.g. diurnal and weekly) patterns are common. In this study, we apply time series modeling approach on daily weight time series from two individuals and describe information that can be extracted from this kind of data. We study the properties of weight time series data, missing data and its link to individuals behavior, periodic patterns and weight series segmentation. Being able to understand behavior through weight data and give relevant feedback is desired to lead to positive intervention on health behaviors.

General information

State: Published
Ministry of Education publication type: A4 Article in a conference publication
Organisations: Department of Signal Processing, Research group: Personal Health Informatics-PHI, Research Community on Data-to-Decision (D2D), Northeastern University
Authors: Helander, E., Pavel, M., Jimison, H., Korhonen, I.
Number of pages: 5
Pages: 1616-1620
Publication date: 2015

Host publication information

Title of host publication: 2015 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)
ISBN (Print): 978-1-4244-9270-1
Keywords: Autoregressive processes, Correlation, Data models, Maintenance engineering, Mathematical model, Time series analysis, Weight measurement
DOIs:
10.1109/EMBC.2015.7318684

Bibliographical note

EXT="Jimison, Holly"
Source: RIS
Source-ID: urn:6BFD668AECBB42DE5B9584564F30515E
Research output: Scientific - peer-review › Conference contribution

Toll-like receptor 5 in obesity: The role of gut microbiota and adipose tissue inflammation

Objective This study aimed at establishing bacterial flagellin-recognizing toll-like receptor 5 (TLR5) as a novel link between gut microbiota composition, adipose tissue inflammation, and obesity. Methods An adipose tissue microarray database was used to compare women having the highest (n = 4, H-TLR) and lowest (n = 4, L-TLR) expression levels of TLR5-signaling pathway genes. Gut microbiota composition was profiled using flow cytometry and FISH. Standard laboratory techniques were used to determine anthropometric and clinical variables. In vivo results were verified using cultured human adipocytes. Results The H-TLR group had higher flagellated Clostridium cluster XIV abundance and Firmicutes-to-Bacteroides ratio. H-TLR subjects had obese phenotype characterized by greater waist circumference, fat %, and blood pressure (P < 0.05 for all). They also had higher leptin and lower adiponectin levels (P < 0.05 for both). Six hundred and sixty-eight metabolism-and inflammation-related adipose tissue genes were differentially expressed between the groups. In vitro studies confirmed that flagellin activated TLR5 inflammatory pathways, decreased insulin signaling, and increased glycerol secretion. Conclusions The in vivo findings suggest that flagellated Clostridium cluster XIV bacteria contribute to the development of obesity through distorted adipose tissue metabolism and inflammation. The in vitro studies in

adipocytes show that the underlying mechanisms of the human findings may be due to flagellin-activated TLR5 signaling.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing

Authors: Pekkala, S., Munukka, E., Kong, L., Pöllänen, E., Autio, R., Roos, C., Wiklund, P., Fischer-Posovszky, P., Wabitsch, M., Alen, M., Huovinen, P., Cheng, S.

Number of pages: 10

Pages: 581-590

Publication date: 2015

Peer-reviewed: Yes

Publication information

Journal: Obesity

Volume: 23

Issue number: 3

ISSN (Print): 1930-7381

Ratings:

Scopus rating (2016): SJR 2.033 SNIP 1.217

Scopus rating (2015): SJR 2.217 SNIP 1.256

Scopus rating (2014): SJR 2.039 SNIP 1.311

Scopus rating (2013): SJR 2.239 SNIP 1.502

Scopus rating (2012): SJR 2.077 SNIP 1.467

Scopus rating (2011): SJR 2.203 SNIP 1.578

Scopus rating (2010): SJR 1.99 SNIP 1.395

Scopus rating (2009): SJR 1.81 SNIP 1.248

Scopus rating (2008): SJR 1.685 SNIP 1.241

Scopus rating (2007): SJR 1.938 SNIP 1.465

Scopus rating (2006): SJR 1.762 SNIP 1.318

Scopus rating (2005): SJR 1.797 SNIP 1.41

Scopus rating (2004): SJR 1.683 SNIP 1.32

Scopus rating (2003): SJR 1.475 SNIP 1.073

Scopus rating (2002): SJR 1.144 SNIP 1.093

Scopus rating (2001): SJR 1.453 SNIP 1.218

Scopus rating (2000): SJR 1.376 SNIP 1.221

Scopus rating (1999): SJR 1.229 SNIP 1.064

Original language: English

DOIs:

10.1002/oby.20993

Bibliographical note

siirretään 2015
Contribution: organisation=sgn,FACT1=1
Portfolio EDEND: 2015-01-14
Publisher name:

Wiley-Blackwell Publishing

Source: researchoutputwizard

Source-ID: 27

Research output: Scientific - peer-review › Article

Transcription closed and open complex dynamics studies reveal balance between genetic determinants and co-factors

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Research group: Computational Systems Biology, Research group:

Molecular Signaling Lab, Prostate cancer research center (PCRC)

Authors: Sala, A., Shoaib, M., Anufrieva, O., Mutharasu, G., Hoque, R. J., Yli-Harja, O., Kandhavelu, M.

Publication date: 2015

Peer-reviewed: Yes

Publication information

Journal: Physical Biology

Volume: 12
Issue number: 3
Article number: 036003
ISSN (Print): 1478-3967

Ratings:

Scopus rating (2016): SJR 0.877 SNIP 0.52 CiteScore 1.54
Scopus rating (2015): SJR 1.268 SNIP 0.689 CiteScore 2.06
Scopus rating (2014): SJR 1.639 SNIP 0.811 CiteScore 2.53
Scopus rating (2013): SJR 1.499 SNIP 0.731 CiteScore 2.61
Scopus rating (2012): SJR 1.543 SNIP 0.866 CiteScore 2.48
Scopus rating (2011): SJR 1.341 SNIP 0.869 CiteScore 2.63
Scopus rating (2010): SJR 1.852 SNIP 0.978
Scopus rating (2009): SJR 2.129 SNIP 0.985
Scopus rating (2008): SJR 2.103 SNIP 1.133
Scopus rating (2007): SJR 1.914 SNIP 1.057
Scopus rating (2006): SJR 1.409 SNIP 0.794
Scopus rating (2005): SJR 0.858 SNIP 0.894

Original language: English

DOIs:

10.1088/1478-3975/12/3/036003

Bibliographical note

AUX=sgn,"Shoaib, Muhammad"

AUX=sgn,"Anufrieva, Olga"

AUX=sgn,"Hoque, Rawnak Jahan"

Source: Bibtext

Source-ID: urn:35ad5cb9e2adcad2c696c79c78257cf3

Research output: Scientific - peer-review > Article

Typical and atypical domain combinations in human protein kinases: functions, disease causing mutations and conservation in other primates

General information

State: Published

Ministry of Education publication type: A2 Review article in a scientific journal

Organisations: Department of Signal Processing

Authors: Rakshambikai, R., Manoharan, M., Gnanavel, M., Srinivasan, N., Mutharasu, G.

Number of pages: 17

Pages: 25132-25148

Publication date: 2015

Peer-reviewed: Yes

Publication information

Journal: RSC Advances

Volume: 5

Issue number: 32

ISSN (Print): 2046-2069

Ratings:

Scopus rating (2016): CiteScore 3.06 SJR 0.875 SNIP 0.743
Scopus rating (2015): SJR 0.959 SNIP 0.837 CiteScore 3.42
Scopus rating (2014): SJR 1.114 SNIP 0.965 CiteScore 3.87
Scopus rating (2013): SJR 1.117 SNIP 0.903 CiteScore 3.74
Scopus rating (2012): SJR 0.863 SNIP 0.603 CiteScore 2.4

Original language: English

DOIs:

10.1039/C4RA11685B

Source: Bibtext

Source-ID: urn:9fca52452fe67a1aff95063567ca45a5

Research output: Scientific - peer-review > Review Article

Ultrathin Polyimide Membrane as Cell Carrier for Subretinal Transplantation of Human Embryonic Stem Cell Derived Retinal Pigment Epithelium

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Computational Biophysics and Imaging Group, BioMediTech, Integrated Technologies for Tissue Engineering Research (ITTE), Univ Tampere, University of Tampere, Inst Biosci & Med Technol BioMediTech

Authors: Ilmarinen, T., Hiidenmaa, H., Kööbi, P., Nymark, S., Sorkio, A., Wang, J., Stanzel, B. V., Thielges, F., Oksala, O. E., Kataja, M., Uusitalo, H. M. T., Skottman, H.

Publication date: 2015

Peer-reviewed: Yes

Publication information

Journal: PLoS One

ISSN (Print): 1932-6203

Ratings:

Scopus rating (2016): CiteScore 3.11 SJR 1.201 SNIP 1.092

Scopus rating (2015): SJR 1.414 SNIP 1.131 CiteScore 3.32

Scopus rating (2014): SJR 1.545 SNIP 1.141 CiteScore 3.54

Scopus rating (2013): SJR 1.74 SNIP 1.147 CiteScore 3.94

Scopus rating (2012): SJR 1.945 SNIP 1.142 CiteScore 4.15

Scopus rating (2011): SJR 2.369 SNIP 1.23 CiteScore 4.58

Scopus rating (2010): SJR 2.631 SNIP 1.161

Scopus rating (2009): SJR 2.473 SNIP 0.985

Scopus rating (2008): SJR 2.323 SNIP 0.96

Scopus rating (2007): SJR 1.289 SNIP 0.525

Original language: English

DOIs:

10.1371/journal.pone.0143669

Research output: Scientific - peer-review > Article

VECSELS: Innovative light sources for PDT

Photodynamic therapy (PDT) with porphyrins and red light (610–630 nm) is finding increasing clinical application for both the eradication of relatively small tumors and the palliation of inoperable or obstructive tumors. PDT also shows some promise for the sterilization of the tumor bed after surgical removal of neoplastic masses. Optically pumped vertical external-cavity surface-emitting lasers (VECSELS) appear to be a very innovative and efficient technology in this specific wavelength range. Furthermore, VECSELS are power scalable and wavelength tunable, and are an appealing light source for PDT.

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Optoelectronics Research Centre, Research group: Semiconductor Technology and Applications

Authors: Kantola, E. L., Leinonen, T. P., Penttinen, J., Korpjärvi, V., Mordon, S. R., Guina, M.

Publication date: 2015

Host publication information

Title of host publication: 2015 conference of International Photodynamic association, 22.-26.5.2015, Rio de Janeiro, Brazil

Publication series

Name: Photodiagnosis and Photodynamic Therapy

Publisher: Elsevier

Volume: 12

No.: 3

ISSN (Electronic): 1572-1000

DOIs:

doi:10.1016/j.pdpdt.2015.07.084

Bibliographical note

xabstract

Research output: Scientific - peer-review > Conference contribution

W2E - Wellness Warehouse Engine for Semantic Interoperability of Consumer Health Data

Novel health monitoring devices and applications allow consumers easy and ubiquitous ways to monitor their health status. However, technologies from different providers lack both technical and semantic interoperability and hence the resulting health data is often deeply tied to a specific service, which is limiting its re-usability and utilization in different services. We have designed a Wellness Warehouse Engine (W2E) that bridges this gap and enables seamless exchange of data between different services. W2E provides interfaces to various data sources and makes data available via unified Representational State Transfer Application Programming Interface (REST API) to other services. Importantly, it includes Unifier – an engine that allows transforming input data into generic units re-usable by other services, and Analyzer – an engine that allows advanced analysis of input data, such as combining different data sources into new output parameters. In this paper, we describe the architecture of W2E and demonstrate its applicability by using it for unifying data from four consumer activity trackers, using a test base of 20 subjects each carrying out three different tracking sessions. Finally, we discuss challenges of building a scalable Unifier engine for the ever-enlarging number of new devices.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Department of Pervasive Computing, Department of Electronics and Communications Engineering, Research group: Personal Health Informatics-PHI, Augmented Human Activities (AHA), Research Community on Data-to-Decision (D2D), Czech Tech Univ, Czech Technical University Prague

Authors: Honko, H., Andalibi, V., Aaltonen, T., Parak, J., Saaranen, M., Viik, J., Korhonen, I.

Publication date: 2015

Peer-reviewed: Yes

Publication information

Journal: IEEE Journal of Biomedical and Health Informatics

ISSN (Print): 2168-2194

Ratings:

Scopus rating (2016): CiteScore 3.68 SJR 0.852 SNIP 1.971

Scopus rating (2015): SJR 0.823 SNIP 2.297 CiteScore 3.15

Scopus rating (2014): SJR 0.692 SNIP 2.37 CiteScore 1.93

Scopus rating (2013): SJR 1.049 SNIP 2.405

Scopus rating (2012): SJR 0.799 SNIP 2.261

Scopus rating (2011): SJR 0.681 SNIP 2.042

Scopus rating (2010): SJR 0.632 SNIP 1.862

Scopus rating (2009): SJR 0.588 SNIP 1.809

Scopus rating (2008): SJR 0.605 SNIP 2.01

Scopus rating (2007): SJR 0.716 SNIP 2.154

Scopus rating (2006): SJR 0.685 SNIP 2.199

Scopus rating (2005): SJR 0.596 SNIP 1.843

Scopus rating (2004): SJR 0.486 SNIP 1.355

Scopus rating (2003): SJR 0.616 SNIP 1.65

Scopus rating (2002): SJR 0.491 SNIP 1.309

Scopus rating (2001): SJR 0.821 SNIP 1.548

Scopus rating (2000): SJR 0.459 SNIP 1.515

Scopus rating (1999): SJR 0.367 SNIP 0.952

Original language: English

ASJC Scopus subject areas: Biomedical Engineering

DOIs:

10.1109/JBHI.2015.2469718

Bibliographical note

ORG=sgn,0.65

ORG=tie,0.25

ORG=elt,0.1

Research output: Scientific - peer-review › Article

Yellow-orange-red VECSELs: Emergence of a compact and versatile laser platform for medical applications: ePoster**General information**

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Optoelectronics Research Centre, Research group: Semiconductor Technology and Applications

Authors: Guina, M., Kantola, E. L., Leinonen, T. P., Penttinen, J., Mordon, S. R.

Publication date: 2015

Host publication information

Title of host publication: 2015 annual conference of the American Society for Laser Medicine & Surgery, Florida, USA.

Bibliographical note

xposter

Research output: Scientific - peer-review › Conference contribution

Yellow-orange semiconductor disk lasers for medical applications**General information**

State: Unpublished

Ministry of Education publication type: B3 Non-refereed article in conference proceedings

Organisations: Optoelectronics Research Centre, Research group: Semiconductor Technology and Applications,

Research group: Ultrafast and intense lasers

Authors: Kantola, E. L., Leinonen, T. P., Leino, I. J. J., Rantamäki, A. J., Penttinen, J., Tavast, M. J. M., Guina, M. D.

Publication date: 2015

Host publication information

Title of host publication: Poster in Symposium on Future Prospects for Photonics, November 5.-6. 2015, Tampere, Finland

Bibliographical note

xposter

Research output: Scientific › Conference contribution

A Strap for a Portable Pulse Measuring Device and a Portable Pulse Measuring Device

According to one aspect, there is provided a strap (102) for a pulse measuring device, wherein the strap (102) comprises an indicator (112) configured to indicate tightness of the strap. According to another aspect, there is provided a portable pulse measuring device comprising a strap (112) configured to fasten the portable pulse measuring device on a human; and a mechanical indicator (112) configured to indicate tightness of the strap.

General information

State: Published

Ministry of Education publication type: H1 Granted patent

Organisations: Department of Signal Processing, Research group: Personal Health Informatics-PHI, PULSEON OY

Authors: Nousiainen, J., Korhonen, I., Saunamäki, J., Hattula, J.

Publication date: 18 Dec 2014

Publication information

IPC: A44B 11/ 00 A I

Patent number: WO2014199017

Priority date: 11/06/13

Priority number: FI20130005640

Original language: English

Source: espacenet

Source-ID: WO2014199017

Research output: Scientific › Patent

Portable Pulse Measuring Device

According to an aspect of the invention there is provided a portable pulse measuring device. The device comprises a lighting configuration comprising at least three elements (100, 102, 104, 106) selected from a light-emitting source (104, 106) for emitting radiant energy through a human body tissue and a light detector (100, 102) for detecting the intensity of said radiant energy after propagation through the human body tissue and for providing input signals representative of said propagation, wherein the lighting configuration comprises at least one light-emitting source (104, 106) and at least one light detector (100, 102); processing means for determining pulse rate in response to processing the input signals. The elements in the lighting configuration are arranged in the portable pulse measuring device in a configuration where the light-emitting sources (104, 106) in the lighting configuration are asymmetrically disposed in relation to the light detectors (100, 102) in the lighting configuration.

General information

State: Published

Ministry of Education publication type: H1 Granted patent

Organisations: Department of Signal Processing, Research group: Personal Health Informatics-PHI, PULSEON OY

Authors: Nousiainen, J., Korhonen, I.

Publication date: 20 Nov 2014

Publication information

IPC: A61B 5/ 0295 A I

Patent number: WO2014184447

Priority date: 15/05/13

Priority number: FI20130005520

Original language: English

Source: espacenet

Source-ID: WO2014184447

Research output: Scientific > Patent

Kumpi on kovempaa, marmorin vai luu?

General information

State: Published

Ministry of Education publication type: E1 Popularised article, newspaper article

Organisations: Department of Materials Science

Authors: Hokka, M.

Publication date: 3 Nov 2014

Peer-reviewed: Unknown

Publication information

Journal: Helsingin sanomat

ISSN (Print): 0355-2047

Original language: Finnish

Links:

<http://www.hs.fi/tiede/a1414898936659>

Bibliographical note

Contribution: organisation=mol,FACT1=1
Portfolio EDEND: 2014-12-31

Source: researchoutputwizard

Source-ID: 489

Research output: General public > Article

Microscopic determination of second-order nonlinear optical susceptibility tensors

We demonstrate a microscopy technique that extracts tensorial information about the second-order nonlinear optical susceptibility and hyperpolarizability of molecular materials. Our technique is based on polarization-dependent second-harmonic generation and a genetic algorithm, using which the best possible match with the measured data, and the possible susceptibility tensor components are found. In contrast to existing techniques, which access only the magnitude of the nonlinear response, our technique also provides information about the phase of the tensor components, which is associated with molecular resonances. After verifying the technique using simulated model structures with well-known symmetries, we demonstrate its capabilities using model surface samples consisting of single purple membrane (PM) fragments of bacteriorhodopsin (bR) chromoproteins. Since the supramolecular structures of PM, bR, and photoactive retinal molecules are known, complex-valued tensorial information on the molecular hyperpolarizabilities can also be extracted. Our technique opens new possibilities for obtaining detailed structural information on biomolecular samples with microscopic resolution.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Research group: Nonlinear Optics, Research area: Optics, Department of Physics, Frontier Photonics

Authors: Naskali, L., Huttunen, M., Virkki, M., Bautista, G., Der, A., Kauranen, M.

Number of pages: 6

Pages: 26409-26414

Publication date: 31 Oct 2014

Peer-reviewed: Yes

Publication information

Journal: Journal of Physical Chemistry C

Volume: 118

Issue number: 45

ISSN (Print): 1932-7447

Ratings:

Scopus rating (2016): SJR 1.948 SNIP 1.181 CiteScore 4.48

Scopus rating (2015): SJR 1.917 SNIP 1.268 CiteScore 4.68

Scopus rating (2014): SJR 2.027 SNIP 1.448 CiteScore 5.08

Scopus rating (2013): SJR 2.134 SNIP 1.439 CiteScore 5.14

Scopus rating (2012): SJR 2.514 SNIP 1.46 CiteScore 4.98

Scopus rating (2011): SJR 2.32 SNIP 1.457 CiteScore 4.92

Scopus rating (2010): SJR 2.438 SNIP 1.356

Scopus rating (2009): SJR 2.128 SNIP 1.417

Scopus rating (2008): SJR 1.856 SNIP 1.033

Original language: English

DOIs:

10.1021/jp509453b

Bibliographical note

Contribution: organisation=fys,FACT1=1
Portfolio EDEND: 2014-12-15
Publisher name: American Chemical Society

Source: researchoutputwizard

Source-ID: 1125

Research output: Scientific - peer-review > Article

Printable, Transparent, and Flexible Touch Panels Working in Sunlight and Moist Environments

The ongoing revolution of touch-based user interfaces sets new requirements for touch panel technologies, including the need to operate in a wide range of environments. Such touch panels need to endure moisture and sunlight. Moreover, they often need to be curved or flexible. Thus, there is a need for new technologies suitable, for example, for home appliances used in the kitchen or the bathroom, automotive applications, and e-paper. In this work, the development of transparent and flexible touch panels for moist environments is reported. A piezoelectric polymer, poly(vinylidene difluoride) (PVDF), is used as a functional substrate material. Transparent electrodes are fabricated on both sides of a PVDF film using a graphene-based ink and spray coating. The excellent performance of the touch panels is demonstrated in moist and underwater conditions. Also, the transparent device shows very small pyroelectric response to radiative heating in comparison to a non-transparent device. Solution processable electrode materials in combination with functional substrates allow the low-cost and high-throughput manufacturing of touch panels using printing technologies.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Department of Automation Science and Engineering, Research group: Personal Electronics Group, Research group: Laboratory for Future Electronics, Research area: Microsystems, Augmented Human Activities (AHA), Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Vuorinen, T., Zakrzewski, M., Rajala, S., Lupo, D., Vanhala, J., Palovuori, K., Tuukkanen, S.

Number of pages: 8

Pages: 6340-6347

Publication date: 29 Oct 2014

Peer-reviewed: Yes

Publication information

Journal: Advanced Functional Materials

Volume: 24

Issue number: 40
ISSN (Print): 1616-301X
Ratings:

Scopus rating (2016): SJR 4.915 SNIP 2.24 CiteScore 11.56
Scopus rating (2015): SJR 4.964 SNIP 2.55 CiteScore 11.93
Scopus rating (2014): SJR 4.603 SNIP 2.61 CiteScore 11.32
Scopus rating (2013): SJR 4.445 SNIP 2.39 CiteScore 10.6
Scopus rating (2012): SJR 5.679 SNIP 2.643 CiteScore 10.41
Scopus rating (2011): SJR 4.849 SNIP 2.481 CiteScore 9.47
Scopus rating (2010): SJR 4.754 SNIP 2.263
Scopus rating (2009): SJR 4.08 SNIP 2.088
Scopus rating (2008): SJR 4.247 SNIP 2.12
Scopus rating (2007): SJR 4.415 SNIP 2.294
Scopus rating (2006): SJR 4.847 SNIP 2.416
Scopus rating (2005): SJR 4.132 SNIP 2.291
Scopus rating (2004): SJR 3.875 SNIP 2.35
Scopus rating (2003): SJR 2.615 SNIP 1.775
Scopus rating (2002): SJR 2.115 SNIP 1.331
Scopus rating (2001): SJR 0.497 SNIP 0.882
Scopus rating (2000): SJR 0.261 SNIP 0.503
Scopus rating (1999): SJR 0.432 SNIP 0.637

Original language: English

Keywords: CARBON NANOTUBE, FILM SENSOR, SUPERCAPACITORS, PERFORMANCE, ELECTRODES, VIBRATION

Electronic versions:

Vuorinen_2014_PVDF_Touch-panels_Post-print
DOIs:

10.1002/adfm.201401140

Links:

<http://urn.fi/URN:NBN:fi:tty-201603183663>

Bibliographical note

Contribution: organisation=elt,FACT1=0.86
Contribution: organisation=ase,FACT2=0.14
Portfolio EDEND: 2014-08-21
Publisher name: Wiley

Source: researchoutputwizard

Source-ID: 1778

Research output: Scientific - peer-review > Article

Polarized THG Microscopy Identifies Compositionally Different Lipid Droplets in Mammalian Cells

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Research group: Nonlinear Optics, Research area: Optics, Department of Physics, Frontier Photonics

Authors: Bautista, G., Pfisterer, S. G., Huttunen, M. J., Ranjan, S., Kanerva, K., Ikonen, E., Kauranen, M.

Number of pages: 7

Pages: 2230-2236

Publication date: 10 Oct 2014

Peer-reviewed: Yes

Publication information

Journal: Biophysical Journal

Volume: 107

Issue number: 10

ISSN (Print): 1542-0086

Ratings:

Scopus rating (2016): SJR 1.946 SNIP 1.018 CiteScore 3.06

Scopus rating (2015): SJR 2.145 SNIP 1.173 CiteScore 3.3

Scopus rating (2014): SJR 2.203 SNIP 1.166 CiteScore 3.33

Scopus rating (2013): SJR 2.229 SNIP 1.165 CiteScore 3.64
Scopus rating (2012): SJR 2.343 SNIP 1.154 CiteScore 3.57
Scopus rating (2011): SJR 2.322 SNIP 1.204 CiteScore 3.75
Scopus rating (2010): SJR 2.646 SNIP 1.303
Scopus rating (2009): SJR 2.953 SNIP 1.361
Scopus rating (2008): SJR 3.222 SNIP 1.416
Scopus rating (2007): SJR 3.119 SNIP 1.422
Scopus rating (2006): SJR 2.807 SNIP 1.416
Scopus rating (2005): SJR 2.659 SNIP 1.403
Scopus rating (2004): SJR 2.494 SNIP 1.491
Scopus rating (2003): SJR 2.617 SNIP 1.428
Scopus rating (2002): SJR 2.508 SNIP 1.45
Scopus rating (2001): SJR 2.428 SNIP 1.386
Scopus rating (2000): SJR 2.603 SNIP 1.395
Scopus rating (1999): SJR 2.775 SNIP 1.437
Original language: English
DOIs:
10.1016/j.bpj.2014.10.009

Bibliographical note

Contribution: organisation=fys,FACT1=1
Portfolio EDEND: 2014-12-15
Source: researchoutputwizard
Source-ID: 156
Research output: Scientific - peer-review > Article

How mono-valent cations bend peptide turns and a first-principles database of amino acids and dipeptides

In this contribution we detail our efforts to investigate the structural effects of cations binding to peptides and amino acids. We perform first-principles studies employing long-range dispersion-corrected approximate density-functional theory and compare to gas-phase experiments.

General information

State: Published
Ministry of Education publication type: A4 Article in a conference publication
Organisations: Department of Physics, Research area: Computational Physics, Computational Science X (CompX), Fritz Haber Institute of the Max Planck Society, COMP Centre of Excellence, Department of Applied Physics, Aalto University, Duke University
Authors: Baldauf, C., Ropo, M., Blum, V., Scheffler, M.
Number of pages: 2
Pages: 119-120
Publication date: 6 Oct 2014

Host publication information

Title of host publication: International Conference of Computational Methods in Sciences and Engineering 2014 (ICCMSE 2014)
Volume: 1618
Publisher: American Institute of Physics Inc.
Editors: Simos, T. E., Kalogiratou, Z., Monovasilis, T.
ISBN (Print): 9780735412552

Publication series

Name: AIP Conference Proceedings
Volume: 1618
ISSN (Print): 0094-243X
ASJC Scopus subject areas: Physics and Astronomy(all)
Keywords: benchmarks, conformation database, density-functional theory, Peptide conformation, theoretical vibrational spectroscopy
DOIs:
10.1063/1.4897692
Source: Scopus
Source-ID: 84947544071
Research output: Scientific - peer-review > Conference contribution

Membrane-associated proteins do care about lipids - perspective based on atomistic molecular dynamics simulations

This thesis consists of three original articles that deal with lipid-protein interactions investigated using atomistic molecular dynamics simulations method, which in some cases were complemented with experimental data. Since very few molecular details of these important interactions are known, the data shown in this thesis can help to understand and develop a broader view on the role of lipids in protein's function. In the first part of this thesis, the membrane-binding part of the COMT protein was studied using the atomistic molecular dynamics simulations. The results indicate that the role of the transmembrane helix and the linker part of this protein is to enclose the enzymatic part of the protein in the close vicinity of the membrane, and therefore to keep it in the specific membrane-water interface environment. Moreover, the particular kind of protein fold, which includes a specific salt bridge in the linker part of the protein, was found in almost all of the simulations, and this information was evaluated further to reveal that this can be the general folding motif for all similar proteins that possess one transmembrane helix and a short linker part that joins it with the rest of the protein. By continuation of the urge to explain the role of the membrane in enzymatic function of COMT, another idea was also investigated: namely, the suggestion that ligands for that enzyme might have different characteristics in regard to their affinity to how the membrane was evaluated, to check whether the membrane binding part of COMT role is indeed meant to make it more accessible to those ligands which stay close to the membrane. This idea was studied with the atomistic molecular dynamics simulations where two COMT ligands—dopamine and L-dopa—were simulated with the membranes of various compositions, and furthermore the results were validated by experiments. The data from that study was consistent with the suggested idea of preferential binding of some ligands to lipids, but also this finding has been shown to have more possible implications for the neurotransmission process and other highly important physiological processes. The second part of this work focuses on the role of cholesterol in hydrophobic matching of peptides and the resulting sorting of transmembrane peptides according to their hydrophobic length. Experimental data from collaborating team suggested that under negative mismatch and the presence of cholesterol in membranes, peptides could laterally sort. Nevertheless, molecular mechanisms of that were unclear. Atomistic molecular dynamics simulations performed for this part of the thesis revealed that cholesterol increases the significance of the negative hydrophobic mismatch, and thus it shifts preference of proteins in such conditions to cluster into domains to minimize the mismatch. In the second part of this study, extended atomistic molecular dynamics simulations showed that cholesterol has a preference to stay in the vicinity of the peptide under negative mismatch when compared to a positive mismatch case. Even more strikingly, cholesterol orientates around the negatively mismatched peptide in a special geometrical configuration with its rough side exposed in the direction of peptide. In summation, studies for this work demonstrated a view on some aspects of the lipid-protein interactions at the molecular level retrieved through the atomistic molecular dynamics simulations. Importantly, many of the aspects presented here were validated with experiments or suggested explanation for the phenomena observed beforehand by experimental methods. Certainly, lipids are important for the function of proteins, and as it is shown in this thesis, joining experimental and computational approach is a very good way to understand this complicated interplay better and to provide atomistic details of these dynamic processes.

General information

State: Published

Ministry of Education publication type: G5 Doctoral dissertation (article)

Organisations: Research area: Computational Physics, Research group: Biological Physics and Soft Matter, Department of Physics

Authors: Orlowski, A.

Number of pages: 83

Publication date: 6 Oct 2014

Publication information

Publisher: Tampere University of Technology

ISBN (Print): 978-952-15-3362-4

ISBN (Electronic): 978-952-15-3380-8

Original language: English

Publication series

Name: Tampere University of Technology. Publication

Publisher: Tampere University of Technology

Volume: 1244

ISSN (Print): 1459-2045

Electronic versions:

[orlowski.pdf](#)

Links:

<http://urn.fi/URN:ISBN:978-952-15-3380-8>

Bibliographical note

Awarding institution: Tampere University of Technology

Source: researchoutputwizard

Source-ID: 1196

Capacitive Facial Activity Measurement

The human facial activity consists of voluntary and spontaneous behavior that can be measured to provide valuable information for several application domains. The objective of this thesis is to introduce a new, capacitive measurement method for the task. The motivation to develop a new method was to avoid some of the drawbacks that existing methods have. The existing ones that have been used to measure activity from the entire face are electromyography (EMG) that measures the electric activity of the facial muscles and image-based methods that use machine vision. EMG has drawbacks due to its requirement to attach electrodes to the face, whereas vision-based methods rely on using cameras and heavy computational processing to collect information about the facial behaviour. The presented capacitive method does not require physical contact to the face, the computational requirements of the needed signal processing are low, and it can be used in mobile applications because the measurement can be integrated to head-mounted devices. The thesis includes several studies where prototypes were constructed, experiments carried out, signal and data processing methods applied, and results analysed. The method was first applied as a way to detect facial movements for human-computer interaction. It was integrated with a gaze tracker to point targets on a computer screen with the gaze and click with facial movements. Later, the method was extended from the detection of single facial movements to be feasible in the detection and classification of movements and expressions of the entire face. It was also applied to the measurement of the activation intensities of certain facial muscles. The results of the thesis show that the new measurement method detects facial movements with a good performance. Pointing and clicking also performs well when the detection method is combined with gaze tracking. The classification of facial movements performs very well with the ones included in the experiments of the thesis, and the classification can be expected to work also with more complex facial expressions. Further, the measurement method's performance in determining the intensities of facial muscle activations was good for ones that have a wide movement range. Finally, the thesis also states the limitations of the new measurement method and includes suggestions to overcome them and to develop the method further.

General information

State: Published

Ministry of Education publication type: G5 Doctoral dissertation (article)

Organisations: Department of Automation Science and Engineering

Authors: Rantanen, V.

Number of pages: 50

Publication date: 26 Sep 2014

Publication information

Place of publication: Tampere

Publisher: Tampere University of Technology

ISBN (Print): 978-952-15-3338-9

Original language: English

Publication series

Name: Tampere University of Technology. Publication

Publisher: Tampere University of Technology

No.: 1235

ISSN (Print): 1459-2045

Electronic versions:

[rantanen.pdf](#)

[rantanen_errata.pdf](#)

Links:

<http://urn.fi/URN:ISBN:978-952-15-3355-6>

Bibliographical note

Awarding institution: Tampere University of Technology

Source: researchoutputwizard

Source-ID: 1354

Research output: Collection of articles › Doctoral Thesis

Computational Modeling of Functional Gold Nanoparticles in Biological Environment

This work focuses on exploring the properties and functions of charged monolayer-protected gold nanoparticles (AuNPs) in biologically relevant environments by use of atomic-scale molecular dynamics (MD) simulations.

The use of nanoparticles (NPs) in modern technology has been increasing rapidly during the last few years. NPs of different kinds have already been employed, e.g., in nanomedicine as cancer treatments, cleaning agents, cosmetics and new materials for industrial purposes. AuNPs are one type of nanoagents that are being employed for such purposes, and according to recent experimental findings they may have cytotoxic properties. In particular, AuNPs of 2-nm diameter or less are known to permeate through plasma membranes and induce cell death. Hence, studying potential harmful effects

of AuNPs is of importance. Understanding the interaction between NPs and cell membranes is relevant also because all trafficking between the cell interior and extracellular space takes place through the cell membrane.

The first study concentrated on the properties of AuNPs in aqueous solution at physiological temperature (310 K). The results showed that electrostatic properties modulate the formation of a complex comprised of the AuNP together with surrounding ions and water, and suggested that electrostatics is one of the central factors in the complexation of AuNPs with other nanomaterials and biological systems. The results highlighted the importance of long-range electrostatic interactions in determining NP properties in aqueous solutions. This observation was concluded to indicate an important role in the interplay between NPs and lipid membranes, which surround cells.

The second part of the research comprises of studying AuNPs in the presence of model cell membranes. The binding of AuNP and membrane reorganization processes were discovered to be governed by co-operative effects where AuNP, counter ions, water and membrane all contribute. The results suggest that a permeation of a cationic AuNP takes place through pore-formation with partial NP neutralization, leading to membrane disruption at higher NP concentrations. The results also suggested a potential mechanism for cytotoxicity as cationic AuNP binding to the extracellular leaflet may trigger apoptosis through translocation of phosphatidylserine.

Summa summarum, the work presented here provides novel aspects on the interactions of functional AuNPs on cellular level by means of atomistic MD simulation.

General information

State: Published

Ministry of Education publication type: G5 Doctoral dissertation (article)

Organisations: Research area: Computational Physics, Research group: Biological Physics and Soft Matter, Department of Physics

Authors: Heikkilä, E.

Number of pages: 104

Publication date: 8 Sep 2014

Publication information

Publisher: Tampere University of Technology

ISBN (Print): 978-952-15-3337-2

ISBN (Electronic): 978-952-15-3346-4

Original language: English

Publication series

Name: Tampere University of Technology. Publication

Publisher: Tampere University of Technology

Volume: 1234

ISSN (Print): 1459-2045

Electronic versions:

heikkila.pdf

Links:

<http://urn.fi/URN:ISBN:978-952-15-3346-4>

Bibliographical note

Awarding institution: Tampere University of Technology

Source: researchoutputwizard

Source-ID: 422

Research output: Collection of articles > Doctoral Thesis

Flexible Piezoelectric Energy Harvesting Circuit With Printable Supercapacitor and Diodes

We report a flexible energy harvesting circuit fabricated by roll-to-roll compatible, solution-processable methods. The circuit incorporates a supercapacitor fabricated from a viscous carbon nanotube dispersion, printed Schottky diodes, and a piezoelectric element. Used low-temperature materials enabled component integration on poly(ethylene terephthalate) substrate. The supercapacitor was built with a paper separator and an aqueous NaCl electrolyte. Together with carbon-based electrodes, these materials translated into a disposable and environmentally safe electronic device. The energy harvested from mechanical movement was used to drive a commercial electrochromic display.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Department of Automation Science and Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Pörhönen, J., Rajala, S., Lehtimäki, S., Tuukkanen, S.

Number of pages: 6
Pages: 3303-3308
Publication date: Sep 2014
Peer-reviewed: Yes

Publication information

Journal: IEEE Transactions on Electron Devices
Volume: 61

Issue number: 9
ISSN (Print): 0018-9383

Ratings:

Scopus rating (2016): SJR 1.022 SNIP 1.735 CiteScore 2.85

Scopus rating (2015): SJR 1.328 SNIP 1.791 CiteScore 2.97

Scopus rating (2014): SJR 1.376 SNIP 1.772 CiteScore 3.06

Scopus rating (2013): SJR 1.411 SNIP 1.801 CiteScore 2.84

Scopus rating (2012): SJR 1.33 SNIP 1.808 CiteScore 2.66

Scopus rating (2011): SJR 1.688 SNIP 2.146 CiteScore 3.16

Scopus rating (2010): SJR 1.673 SNIP 1.73

Scopus rating (2009): SJR 1.875 SNIP 1.923

Scopus rating (2008): SJR 1.922 SNIP 1.974

Scopus rating (2007): SJR 1.952 SNIP 2.096

Scopus rating (2006): SJR 1.839 SNIP 2.183

Scopus rating (2005): SJR 1.792 SNIP 2.21

Scopus rating (2004): SJR 2.151 SNIP 2.206

Scopus rating (2003): SJR 2.566 SNIP 1.891

Scopus rating (2002): SJR 2.414 SNIP 2.102

Scopus rating (2001): SJR 2.067 SNIP 2.03

Scopus rating (2000): SJR 2.171 SNIP 1.697

Scopus rating (1999): SJR 1.816 SNIP 1.657

Original language: English

Keywords: Energy harvesting, piezoelectricity, printed electronics, supercapacitor, FILM SENSOR, RECTIFIER, DEVICES
Electronic versions:

Pörhönen_Piezo-harvestrer_Self-Archive

DOIs:

10.1109/TED.2014.2341713

Links:

<http://urn.fi/URN:NBN:fi:tty-201601293496>

Bibliographical note

Contribution: organisation=elt,FACT1=0.75
Contribution: organisation=ase,FACT2=0.25
Portfolio EDEND: 2014-10-30
Publisher name: Institute of Electrical and Electronics Engineers IEEE

Source: researchoutputwizard

Source-ID: 1293

Research output: Scientific - peer-review > Article

Development of chip-surface stimulus electrode array for fully-implantable subretinal prosthesis chip

In this study, we have developed a chip-surface stimulus electrode array for fully-implantable subretinal prosthesis chip. To realize visual restoration with high resolution, stimulus electrodes should be miniaturized and arrayed with high density. When we miniaturize them, however, their electrochemical impedances become higher and their amount of charge injection become smaller. Additionally, as the number of electrodes increases, it becomes difficult to make electrical connection to each pixel of the retinal prosthesis chip and each electrode by electrical wiring. To overcome these problems, we have developed the stimulus electrodes that have low electrochemical impedances and large charge injection capacities, and established a fabrication process of chip-surface stimulus electrode array. We fabricated the stimulus electrodes made of extremely porous platinum which had large-surface-area compared with conventional Pt. We also fabricated the chip-surface stimulus electrodes array on the subretinal prosthesis chip which surface was rough and covered with insulator film.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Biomaterials and Tissue Engineering Group, BioMediTech, Integrated Technologies for Tissue Engineering Research (ITTE), International

Graduate School in Biomedical Engineering and Medical Physics (Ministry of Education in Finland), Graduate School of Engineering, Tohoku University
Authors: Sasaki, Y., Suzuki, T., Iwagami, T., Tani, T., Naganuma, H., Kino, H., Hyttinen, J., Kellomäki, M., Tanaka, T.
Pages: O-253-O-254
Publication date: 17 Aug 2014
Peer-reviewed: Yes

Publication information

Journal: Transactions of Japanese Society for Medical and Biological Engineering

Volume: 52

ISSN (Print): 1347-443X

Ratings:

Scopus rating (2016): SJR 0.101 SNIP 0.024

Scopus rating (2015): SJR 0.1 SNIP 0

Scopus rating (2014): SJR 0.124 SNIP 0.013

Scopus rating (2013): SJR 0.103 SNIP 0.393

Scopus rating (2012): SJR 0.105 SNIP 0.149

Scopus rating (2011): SJR 0.104 SNIP 0.198

Scopus rating (2010): SJR 0.103 SNIP 0.193

Scopus rating (2006): SJR 0.101 SNIP 0.043

Scopus rating (2005): SJR 0.106 SNIP 0.126

Scopus rating (2004): SJR 0.103 SNIP 0.487

Scopus rating (2003): SJR 0.111 SNIP 0.167

Scopus rating (2002): SJR 0.112 SNIP 0.052

Scopus rating (2001): SJR 0.106 SNIP 0.283

Scopus rating (2000): SJR 0.122 SNIP 0.194

Scopus rating (1999): SJR 0.106 SNIP 0.075

Original language: English

ASJC Scopus subject areas: Biomedical Engineering

Keywords: Electrode, Extremely porous platinum, Retinal prosthesis

DOIs:

10.11239/jsmbe.52.O-253

Source: Scopus

Source-ID: 84939439184

Research output: Scientific - peer-review > Article

Development of Si neural probe module with adjustable gain amplifier for neuronal signal recording

In recent years, lots of research on biomedical technologies directly using bio-signals such as BMI (Brain Machine Interface) have been performed intensively. Among bio-signals, ECoG (Electrocorticogram), LFP (Local Field Potential), and AP (Action Potential) are usually recorded especially for diagnosis, treatment, and prevention of brain diseases. These bio-signals have different amplitudes and frequency bandwidths, and the signal intensities vary accordingly with recording electrode conditions and individual variation. Therefore, a multiple bio-signals recording system having adjustable gain and bandwidth is strongly required. In this study, we designed the adjustable gain amplifier appropriate for the system, and fabricated the module composed of the amplifier and a Si neural probe for the multiple bio-signal recording in the deep brain. Additionally, we verified fundamental functions of the module by in vitro experiments.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Biomaterials and Tissue Engineering Group, Research group: Computational Biophysics and Imaging Group, BioMediTech, Integrated Technologies for Tissue Engineering Research (ITTE), Graduate School of Engineering, Electrical and Electronics Engineering Department, Department of Bioengineering and Robotics, Tohoku University, Nagasaki Institute of Applied Science

Authors: Tani, T., Naganuma, H., Harashima, T., Iwagami, T., Kino, H., Kiyoyama, K., Kellomäki, M., Hyttinen, J., Tanaka, T.

Pages: O-377-O-378

Publication date: 17 Aug 2014

Peer-reviewed: Yes

Publication information

Journal: Transactions of Japanese Society for Medical and Biological Engineering

Volume: 52
ISSN (Print): 1347-443X
Ratings:

Scopus rating (2016): SJR 0.101 SNIP 0.024

Scopus rating (2015): SJR 0.1 SNIP 0

Scopus rating (2014): SJR 0.124 SNIP 0.013

Scopus rating (2013): SJR 0.103 SNIP 0.393

Scopus rating (2012): SJR 0.105 SNIP 0.149

Scopus rating (2011): SJR 0.104 SNIP 0.198

Scopus rating (2010): SJR 0.103 SNIP 0.193

Scopus rating (2006): SJR 0.101 SNIP 0.043

Scopus rating (2005): SJR 0.106 SNIP 0.126

Scopus rating (2004): SJR 0.103 SNIP 0.487

Scopus rating (2003): SJR 0.111 SNIP 0.167

Scopus rating (2002): SJR 0.112 SNIP 0.052

Scopus rating (2001): SJR 0.106 SNIP 0.283

Scopus rating (2000): SJR 0.122 SNIP 0.194

Scopus rating (1999): SJR 0.106 SNIP 0.075

Original language: English

ASJC Scopus subject areas: Biomedical Engineering

Keywords: Adjustable gain amplifier, Multiple bio-signal recording, Si neural probe

DOIs:

10.11239/jsmbe.52.O-377

Source: Scopus

Source-ID: 84939449061

Research output: Scientific - peer-review > Article

Textile-Based Sensors and Smart Clothing System for Respiratory Monitoring

Long-term respiratory monitoring provides valuable information for diagnostic and clinical treatment. Traditional measures of respiration require a mouthpiece or a mask, neither of which can be used as ubiquitous healthcare equipment. Using a smart clothing system seems to be a better alternative. Researchers in the field of smart textiles have focused on the development of health-related products since the 1990s, and textile-based sensors used for respiratory measurements have been discussed in several projects. Although the soft and flexible characteristics of textile-based sensors make them attractive, the flexibility of the materials also affects the signal quality. In a laboratory situation, where each sensor is tested as a single element, this is not as critical as in a user situation, where the sensor is integrated into the clothing and worn by different users engaging in different activities. The principal objective of this thesis was to explore the possibility of performing reliable respiratory monitoring using a clothing platform. The research began by investigating the possible methods and materials that can be used to produce textile-based sensors for respiratory monitoring applications. The aim was to determine the most suitable method for integrating the sensing function into the clothing system. Study results have shown that sensors made with a conductive coating demonstrated superior performance in terms of sensitivity, stability, and reliability. Therefore, five prototype systems based on conductive coating technique were developed. Sensor placement, signal collection techniques, and the clothing system configuration were the main concerns, while issues related to the sensor wearability, maintenance, and aesthetic appearance, as well as the environment and health, were also discussed. Knitting was found to be the most economical method for producing the textile-based sensors; however, sensors made of knit fabric do not perform as well as the coated ones. Therefore, elastic-conductive hybrid yarns have been created to improve the electro-mechanical properties of knitted-based sensors, and eventually, a prototype with two sensors and a built-in data-bus was made by fully-fashion knitting technique. Two smart clothing system prototypes, based on conductive coating technique, were tested systematically by ten subjects. The first prototype consisted of one sensing element, and the results show that the smart clothing system could successfully monitor the subjects' breathing patterns during sitting, standing, and different forms of running. The system has also proven to be useful in the observation of sleep apnea disorder symptoms. The second prototype consisted of two sensing elements. Apart from all the characteristics of the first prototype system, a system with two sensing elements can be used to determine the relationship between the rib cage and abdomen compartments, which provides information for certain diseases, e.g., cardiac arrhythmias. The second smart clothing system prototype was compared with a conventional respiratory belt for validation. Signals from the clothing system and the respiratory belt were collected simultaneously with a self-designed LabVIEW program, and further processed with MATLAB. Quantitative analyses were conducted based upon different comparison techniques, such as Pearson's correlation, ANOVA and Fast Fourier Transform analysis. The results demonstrate that the smart clothing system can provide reliable respiratory measurements, with signals of comparable quality to the conventional respiratory belt. In addition, the wearability and user acceptance were studied by means of a survey. The survey results indicate that users were more comfortable with the smart clothing system and that most believe that using a smart clothing system will improve both health condition and quality of life.

General information

State: Published
Ministry of Education publication type: G5 Doctoral dissertation (article)
Organisations: Department of Materials Science
Authors: Guo, L.
Number of pages: 87
Publication date: 23 May 2014

Publication information

Place of publication: Tampere
Publisher: Tampere University of Technology
ISBN (Print): 978-952-15-3280-1
Original language: English

Publication series

Name: Tampere University of Technology. Publication
Publisher: Tampere University of Technology
No.: 1210
ISSN (Print): 1459-2045
Electronic versions:
guo.pdf
Links:
<http://urn.fi/URN:ISBN:978-952-15-3295-5>

Bibliographical note

Awarding institution: Tampere University of Technology
Source: researchoutputwizard
Source-ID: 381
Research output: Collection of articles > Doctoral Thesis

Quantitative Analysis of Dynamic Association in Live Biological Fluorescent Samples

Determining vesicle localization and association in live microscopy may be challenging due to non-simultaneous imaging of rapidly moving objects with two excitation channels. Besides errors due to movement of objects, imaging may also introduce shifting between the image channels, and traditional colocalization methods cannot handle such situations. Our approach to quantifying the association between tagged proteins is to use an object-based method where the exact match of object locations is not assumed. Point-pattern matching provides a measure of correspondence between two point-sets under various changes between the sets. Thus, it can be used for robust quantitative analysis of vesicle association between image channels. Results for a large set of synthetic images shows that the novel association method based on point-pattern matching demonstrates robust capability to detect association of closely located vesicles in live cell-microscopy where traditional colocalization methods fail to produce results. In addition, the method outperforms compared Iterated Closest Points registration method. Results for fixed and live experimental data shows the association method to perform comparably to traditional methods in colocalization studies for fixed cells and to perform favorably in association studies for live cells.

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Department of Signal Processing, Research group: Vision, Pori Department, Research group: Data-analytics and Optimization, Research group: Computational Systems Biology, Research Community on Data-to-Decision (D2D), Prostate cancer research center (PCRC), Univ Jyväskylä, University of Jyväskylä, Dept Biol & Environm Sci, Nanosci Ctr, Univ Jyväskylä, University of Jyväskylä, Dept Math Informat Technol
Authors: Ruusuvaori, P., Paavolainen, L., Rutanen, K., Maki, A., Huttunen, H., Marjomaki, V.
Number of pages: 11
Publication date: 11 Apr 2014
Peer-reviewed: Yes

Publication information

Journal: PLoS One
Volume: 9
Issue number: 4
Article number: 94245
ISSN (Print): 1932-6203
Ratings:
Scopus rating (2016): CiteScore 3.11 SJR 1.201 SNIP 1.092
Scopus rating (2015): SJR 1.414 SNIP 1.131 CiteScore 3.32

Scopus rating (2014): SJR 1.545 SNIP 1.141 CiteScore 3.54

Scopus rating (2013): SJR 1.74 SNIP 1.147 CiteScore 3.94

Scopus rating (2012): SJR 1.945 SNIP 1.142 CiteScore 4.15

Scopus rating (2011): SJR 2.369 SNIP 1.23 CiteScore 4.58

Scopus rating (2010): SJR 2.631 SNIP 1.161

Scopus rating (2009): SJR 2.473 SNIP 0.985

Scopus rating (2008): SJR 2.323 SNIP 0.96

Scopus rating (2007): SJR 1.289 SNIP 0.525

Original language: English

Keywords: COLOCALIZATION, IMAGES, MICROSCOPY, REGISTRATION, ALGORITHM, TRACKING, OBJECTS

DOIs:

10.1371/journal.pone.0094245

Bibliographical note

Contribution: organisation=sgn,FACT1=0.5
Contribution: organisation=mat,FACT2=0.5
Portfolio EDEND: 2014-

11-25
Publisher name: Public Library of Science
publication_forum: 65163

Source: researchoutputwizard

Source-ID: 1412

Research output: Scientific - peer-review > Article

Adipose Stem Cells Used to Reconstruct 13 Cases With Cranio-Maxillofacial Hard-Tissue Defects

Although isolated reports of hard-tissue reconstruction in the cranio-maxillofacial skeleton exist, multipatient case series are lacking. This study aimed to review the experience with 13 consecutive cases of cranio-maxillofacial hard-tissue defects at four anatomically different sites, namely frontal sinus (3 cases), cranial bone (5 cases), mandible (3 cases), and nasal septum (2 cases). Autologous adipose tissue was harvested from the anterior abdominal wall, and adipose-derived stem cells were cultured, expanded, and then seeded onto resorbable scaffold materials for subsequent reimplantation into hard-tissue defects. The defects were reconstructed with either bioactive glass or β -tricalcium phosphate scaffolds seeded with adipose-derived stem cells (ASCs), and in some cases with the addition of recombinant human bone morphogenetic protein-2. Production and use of ASCs were done according to good manufacturing practice guidelines. Follow-up time ranged from 12 to 52 months. Successful integration of the construct to the surrounding skeleton was noted in 10 of the 13 cases. Two cranial defect cases in which nonrigid resorbable containment meshes were used sustained bone resorption to the point that they required the procedure to be redone. One septal perforation case failed outright at 1 year because of the postsurgical resumption of the patient's uncontrolled nasal picking habit.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, BioMediTech, Integrated Technologies for Tissue Engineering Research (ITTE), Oulu Univ Hosp, Dept Clin Chem, Tampere Univ Hosp, University of Tampere, Dept Otolaryngol Head & Neck Surg & Oral Dis, Tampere Univ Hosp, University of Tampere, Dept Neurosci & Rehabil, Cent Hosp Cent Finland Hlth Care Dist, Central Finland Central Hospital, Dept Oral & Maxillofacial Surg, Univ Tampere, University of Tampere, Inst Biosci & Med Technol BioMediTech, Tampere Univ Technol, Tampere University of Technology, Dept Biomed Engr

Authors: Sandor, G. K., Numminen, J., Wolff, J., Thesleff, T., Miettinen, A., Tuovinen, V. J., Mannerstrom, B., Patrikoski, M., Seppänen, R., Miettinen, S., Rautiainen, M., Ohman, J.

Number of pages: 11

Pages: 530-540

Publication date: Apr 2014

Peer-reviewed: Yes

Publication information

Journal: Stem Cells Translational Medicine

Volume: 3

Issue number: 4

ISSN (Print): 2157-6564

Ratings:

Scopus rating (2016): SJR 1.637 SNIP 0.931 CiteScore 4.16

Scopus rating (2015): SJR 2.098 SNIP 1.216 CiteScore 4.89

Scopus rating (2014): SJR 2.291 SNIP 1.61 CiteScore 5.44

Scopus rating (2013): SJR 1.297 SNIP 1.048 CiteScore 3.44

Original language: English

Keywords: Adipose stem cells, Bioactive glass, beta-Tricalcium phosphate, Bone morphogenetic protein, HUMAN OSTEOGENIC PROTEIN-1, VASCULARIZED BONE-GRAFT, DONOR-SITE MORBIDITY, MANDIBULAR RECONSTRUCTION, GROWTH-FACTORS, ENGINEERED BONE, FREE FIBULA, REPAIR, DIFFERENTIATION,

SCAFFOLDS

DOIs:

10.5966/sctm.2013-0173

Bibliographical note

INT=elt,"Seppänen, Riitta"

Source: WOS

Source-ID: 000333938200018

Research output: Scientific - peer-review › Article

Accurate Cortical Bone Detection in Peripheral Quantitative Computed Tomography Images

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Cervinka, T., Hyttinen, J., Sievänen, H.

Number of pages: 4

Pages: 289-292

Publication date: 2014

Host publication information

Title of host publication: 13th Mediterranean Conference on Medical and Biological Engineering and Computing 2013, MEDICON 2013, Part IV, Seville, Spain, 25.-28.9.2013

Publisher: Springer

Editor: Roa Romero, L. M.

ISBN (Print): 978-3-319-00845-5

ISBN (Electronic): 978-3-319-00846-2

Publication series

Name: International Federation for Medical and Biological Engineering Proceedings

Volume: 41

ISSN (Print): 1680-0737

DOIs:

10.1007/978-3-319-00846-2_72

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-02-15
Publisher name: Springer

Source: researchoutputwizard

Source-ID: 211

Research output: Scientific - peer-review › Conference contribution

Acute mild traumatic brain injury is not associated with white matter change on diffusion tensor imaging

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Ilvesmäki, T., Luoto, T. M., Hakulinen, U., Brander, A., Ryymin, P., Eskola, H., Iverson, G. L., Öhman, J.

Number of pages: 7

Pages: 1876-1882

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: Brain

Volume: 137

Issue number: 7

ISSN (Print): 0006-8950

Ratings:

Scopus rating (2016): SJR 5.472 SNIP 2.732 CiteScore 7.31

Scopus rating (2015): SJR 6.17 SNIP 2.998 CiteScore 7.99

Scopus rating (2014): SJR 5.806 SNIP 3.05 CiteScore 8.19
Scopus rating (2013): SJR 6.149 SNIP 3.216 CiteScore 9.09
Scopus rating (2012): SJR 5.694 SNIP 3.128 CiteScore 9.05
Scopus rating (2011): SJR 5.533 SNIP 3.126 CiteScore 9.05
Scopus rating (2010): SJR 5.638 SNIP 3.112
Scopus rating (2009): SJR 5.744 SNIP 3.171
Scopus rating (2008): SJR 5.445 SNIP 2.93
Scopus rating (2007): SJR 4.79 SNIP 2.819
Scopus rating (2006): SJR 4.46 SNIP 2.986
Scopus rating (2005): SJR 4.486 SNIP 2.936
Scopus rating (2004): SJR 4.555 SNIP 3.106
Scopus rating (2003): SJR 4.166 SNIP 3.186
Scopus rating (2002): SJR 3.51 SNIP 2.768
Scopus rating (2001): SJR 3.827 SNIP 2.765
Scopus rating (2000): SJR 3.959 SNIP 3.187
Scopus rating (1999): SJR 3.856 SNIP 3.268
Original language: English
DOIs:
10.1093/brain/awu095

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-08-19
Publisher name: Oxford University Press
Source: researchoutputwizard
Source-ID: 537
Research output: Scientific - peer-review › Article

A Health-IoT Platform Based on the Integration of Intelligent Packaging, Unobtrusive Bio-Sensor, and Intelligent Medicine Box

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Department of Electronics and Communications Engineering, Augmented Human Activities (AHA)
Authors: Yang, G., Xie, L., Mäntysalo, M., Zhou, X., Pang, Z., Xu, L., Kao-Walter, S., Chen, Q., Zheng, L.
Number of pages: 12
Pages: 2180-2191
Publication date: 2014
Peer-reviewed: Yes

Publication information

Journal: IEEE Transactions on Industrial Informatics
Volume: 10
Issue number: 4
ISSN (Print): 1551-3203
Ratings:
Scopus rating (2016): SJR 2.446 SNIP 3.339 CiteScore 8.62
Scopus rating (2015): SJR 2.557 SNIP 3.331 CiteScore 7.57
Scopus rating (2014): SJR 2.298 SNIP 3.992 CiteScore 8.17
Scopus rating (2013): SJR 2.204 SNIP 4.664 CiteScore 9.38
Scopus rating (2012): SJR 1.038 SNIP 3.259 CiteScore 5.56
Scopus rating (2011): SJR 0.875 SNIP 2.514 CiteScore 4.08
Scopus rating (2010): SJR 0.615 SNIP 2.072
Scopus rating (2009): SJR 0.99 SNIP 2.3
Scopus rating (2008): SJR 1.012 SNIP 2.59
Scopus rating (2007): SJR 0.803 SNIP 1.734
Scopus rating (2006): SJR 1.433 SNIP 1.738
Original language: English
DOIs:
10.1109/TII.2014.2307795

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-11-10
Publisher name: Institute of Electrical and Electronics Engineers IEEE

Source: researchoutputwizard

Source-ID: 1815

Research output: Scientific - peer-review › Article

Altistaako vai ei - Etäluettavat sähkömittarit kartoitettiin

General information

State: Published

Ministry of Education publication type: D1 Article in a trade journal

Organisations: Department of Electronics and Communications Engineering

Authors: Korpinen, L., Pääkkönen, R.

Number of pages: 4

Pages: 15-18

Publication date: 2014

Peer-reviewed: Unknown

Publication information

Journal: Sähkö & Tele

Volume: 87

Issue number: 4

Original language: Finnish

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-06-27
Publisher name: Sähköinsinööriliitto

Source: researchoutputwizard

Source-ID: 779

Research output: Professional › Article

A multi-tissue segmentation of the human head for detailed computational models

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Hannula, M., Narra, N., Onnela, N., Dastidar, P., Hyttinen, J.

Number of pages: 4

Pages: 2484-2487

Publication date: 2014

Host publication information

Title of host publication: 2014 36th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), August 26-30, 2014. Chicago, Illinois, USA.

Publisher: Institute of Electrical and Electronics Engineers IEEE

ISBN (Print): 978-1-4244-7929-0

DOIs:

10.1109/EMBC.2014.6944126

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-10-08
Publisher name: Institute of Electrical and Electronics Engineers IEEE

Source: researchoutputwizard

Source-ID: 410

Research output: Scientific - peer-review › Conference contribution

Analysis of Virus Textures in Transmission Electron Microscopy Images

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Nanni, L., Paci, M., Santos, F. L. C. D., Brahnam, S., Hyttinen, J.

Number of pages: 9

Pages: 83-91

Publication date: 2014

Host publication information

Title of host publication: Innovation in Medicine and Healthcare 2014. 2nd KES International Conference on Innovation in Medicine and Healthcare (InMed-14), 9-11 July 2014, San Sebastian, Spain

Publisher: IOS Press

ISBN (Print): 978-1-61499-473-2

ISBN (Electronic): 978-1-61499-474-9

Publication series

Name: Studies in Health Technology and Informatics

Volume: 207

ISSN (Print): 0926-9630

ISSN (Electronic): 1879-8365

DOIs:

10.3233/978-1-61499-474-9-83

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-12-09
Publisher name: IOS Press

Source: researchoutputwizard

Source-ID: 1121

Research output: Scientific - peer-review › Conference contribution

A new Generation Sweating Thermal Manikin for the Evaluation of the Thermoregulation Properties of Protective Clothing

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Materials Science

Authors: Varheenmaa, M.

Number of pages: 5

Pages: 1-5

Publication date: 2014

Host publication information

Title of host publication: Ambience14&10i3m, Tampere Hall, Tampere, Finland 7-9 September 2014

Editor: Varheenmaa, M.

ISBN (Print): 978-952-15-3269-6

Publication series

Name: Proceedings of Ambience, Scientific Conference for Smart Textiles

ISSN (Electronic): 2342-4540

Bibliographical note

Contribution: organisation=mol,FACT1=1
Portfolio EDEND: 2014-10-16

Source: researchoutputwizard

Source-ID: 1703

Research output: Scientific - peer-review › Conference contribution

Anomalous diffusion models and their properties: non-stationarity, non-ergodicity, and ageing at the centenary of single particle tracking

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Research area: Computational Physics, Research group: Biological Physics and Soft Matter, Department of Physics

Authors: Metzler, R., Jeon, J., Cherstvy, A. G., Barkai, E.

Number of pages: 37

Pages: 24128-24164

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: Physical Chemistry Chemical Physics

Volume: 16

Issue number: 44

ISSN (Print): 1463-9076

Ratings:

Scopus rating (2016): SJR 1.678 SNIP 1.117 CiteScore 4.06

Scopus rating (2015): SJR 1.771 SNIP 1.244 CiteScore 4.45

Scopus rating (2014): SJR 1.772 SNIP 1.253 CiteScore 4.29

Scopus rating (2013): SJR 1.715 SNIP 1.216 CiteScore 4.05

Scopus rating (2012): SJR 1.916 SNIP 1.184 CiteScore 3.67

Scopus rating (2011): SJR 1.697 SNIP 1.203 CiteScore 3.6

Scopus rating (2010): SJR 1.802 SNIP 1.196

Scopus rating (2009): SJR 2.127 SNIP 1.369

Scopus rating (2008): SJR 2.158 SNIP 1.211

Scopus rating (2007): SJR 1.84 SNIP 1.138

Scopus rating (2006): SJR 1.467 SNIP 1.128

Scopus rating (2005): SJR 1.389 SNIP 1.104

Scopus rating (2004): SJR 1.173 SNIP 1.007

Scopus rating (2003): SJR 1.093 SNIP 0.925

Scopus rating (2002): SJR 1.122 SNIP 0.973

Scopus rating (2001): SJR 1.09 SNIP 0.914

Scopus rating (2000): SJR 0.948 SNIP 1.068

Scopus rating (1999): SJR 0.121 SNIP 0

Original language: English

DOIs:

10.1039/c4cp03465a

Bibliographical note

Contribution: organisation=fys,FACT1=1
Portfolio EDEND: 2014-12-15
Publisher name: R S C Publications

Source: researchoutputwizard

Source-ID: 1077

Research output: Scientific - peer-review > Article

Antibacterial properties and chemical stability of superhydrophobic silver-containing surface produced by sol-gel route

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Materials Science, Engineering materials science and solutions (EMASS)

Authors: Heinonen, S., Huttunen-Saarivirta, E., Nikkanen, J., Raulio, M., Priha, O., Laakso, J., Strogårds, E., Levänen, E.

Number of pages: 13

Pages: 149-161

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: Colloids and Surfaces A: Physicochemical and Engineering Aspects

Volume: 453

ISSN (Print): 0927-7757

Ratings:

Scopus rating (2016): SJR 0.797 SNIP 1.104 CiteScore 2.93

Scopus rating (2015): SJR 0.803 SNIP 1.116 CiteScore 2.83

Scopus rating (2014): SJR 0.843 SNIP 1.252 CiteScore 2.81

Scopus rating (2013): SJR 0.811 SNIP 1.255 CiteScore 2.6

Scopus rating (2012): SJR 0.841 SNIP 1.189 CiteScore 2.34

Scopus rating (2011): SJR 0.812 SNIP 1.183 CiteScore 2.43
Scopus rating (2010): SJR 0.872 SNIP 1.115
Scopus rating (2009): SJR 0.848 SNIP 1.059
Scopus rating (2008): SJR 0.886 SNIP 1.041
Scopus rating (2007): SJR 0.795 SNIP 0.978
Scopus rating (2006): SJR 0.822 SNIP 1.091
Scopus rating (2005): SJR 0.813 SNIP 1.004
Scopus rating (2004): SJR 0.844 SNIP 1.106
Scopus rating (2003): SJR 0.824 SNIP 1.033
Scopus rating (2002): SJR 0.763 SNIP 0.945
Scopus rating (2001): SJR 0.825 SNIP 0.971
Scopus rating (2000): SJR 0.69 SNIP 0.782
Scopus rating (1999): SJR 0.621 SNIP 0.82

Original language: English

DOIs:

10.1016/j.colsurfa.2014.04.037

Bibliographical note

Contribution: organisation=mol,FACT1=1
Portfolio EDEND: 2014-06-30
Publisher name: Elsevier

Source: researchoutputwizard

Source-ID: 444

Research output: Scientific - peer-review > Article

Application of Optical Heart Rate Monitoring

General information

State: Published

Ministry of Education publication type: A3 Part of a book or another research book

Organisations: Department of Signal Processing, Research group: Personal Health Informatics-PHI, Research Community on Data-to-Decision (D2D)

Authors: Lemay, M., Bertschi, M., Sola, J., Renevey, P., Parak, J., Korhonen, I.

Number of pages: 24

Pages: 105-129

Publication date: 2014

Host publication information

Title of host publication: Wearable Sensors: Fundamentals, Implementation and Applications

Publisher: Elsevier; Imprint: Academic Press

Editors: Sazonov, E., Neuman, M. R.

ISBN (Print): 978-0-12-418662-0

DOIs:

10.1016/B978-0-12-418662-0.00023-4

Links:

<http://www.elsevier.com/books/wearable-sensors/sazonov/978-0-12-418662-0>

Bibliographical note

Available online 21 August 2014
Contribution: organisation=sgn,FACT1=1
Portfolio EDEND: 2014-12-10

Source: researchoutputwizard

Source-ID: 918

Research output: Scientific - peer-review > Chapter

Are breaks in daily Self-Weighing Associated with Weight Gain

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Research group: Personal Health Informatics-PHI, Research Community on Data-to-Decision (D2D)

Authors: Helander, E. E., Vuorinen, A., Wansink, B., Korhonen, I. K.

Number of pages: 4

Pages: 1-4

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: PLoS One

Volume: 9

Issue number: 11

Article number: 113164

ISSN (Print): 1932-6203

Ratings:

Scopus rating (2016): CiteScore 3.11 SJR 1.201 SNIP 1.092

Scopus rating (2015): SJR 1.414 SNIP 1.131 CiteScore 3.32

Scopus rating (2014): SJR 1.545 SNIP 1.141 CiteScore 3.54

Scopus rating (2013): SJR 1.74 SNIP 1.147 CiteScore 3.94

Scopus rating (2012): SJR 1.945 SNIP 1.142 CiteScore 4.15

Scopus rating (2011): SJR 2.369 SNIP 1.23 CiteScore 4.58

Scopus rating (2010): SJR 2.631 SNIP 1.161

Scopus rating (2009): SJR 2.473 SNIP 0.985

Scopus rating (2008): SJR 2.323 SNIP 0.96

Scopus rating (2007): SJR 1.289 SNIP 0.525

Original language: English

DOIs:

10.1371/journal.pone.0113164

Bibliographical note

Contribution: organisation=sgn,FACT1=1
Portfolio EDEND: 2014-12-02
Publisher name: Public Library of Science

Source: researchoutputwizard

Source-ID: 450

Research output: Scientific - peer-review › Article

A secretomics analysis reveals major differences in the macrophage responses towards different types of carbon nanotubes

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Materials Science, Engineering materials science and solutions (EMASS)

Authors: Palomäki, J., Sund, J., Vippola, M., Kinaret, P., Greco, D., Savolainen, K., Puustinen, A., Alenius, H.

Number of pages: 10

Pages: 1-10

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: Nanotoxicology

ISSN (Print): 1743-5390

Ratings:

Scopus rating (2016): SJR 1.594 SNIP 1.251 CiteScore 5.8

Scopus rating (2015): SJR 2.106 SNIP 1.551 CiteScore 7.14

Scopus rating (2014): SJR 1.711 SNIP 1.311 CiteScore 5.92

Scopus rating (2013): SJR 2.009 SNIP 1.433 CiteScore 6.39

Scopus rating (2012): SJR 2.106 SNIP 1.378 CiteScore 6.49

Scopus rating (2011): SJR 1.584 SNIP 1.097 CiteScore 4.77

Scopus rating (2010): SJR 1.404 SNIP 1.244

Scopus rating (2009): SJR 1.501 SNIP 1.436

Scopus rating (2008): SJR 1.039 SNIP 0.887

Original language: English

DOIs:

10.3109/17435390.2014.969346

Bibliographical note

Contribution: organisation=mol,FACT1=1
Portfolio EDEND: 2014-10-30
Publisher name: Informa Healthcare
Source: researchoutputwizard
Source-ID: 1220
Research output: Scientific - peer-review > Article

A Semi-Automatic Segmentation Method for the Structural Analysis of Carotid Atherosclerotic Plaques by Computed Tomography Angiography

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Department of Electronics and Communications Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)
Authors: Caetano Santos, F. L., Joutsen, A., Terada, M., Salenius, J., Eskola, H.
Number of pages: 11
Pages: 930-940
Publication date: 2014
Peer-reviewed: Yes

Publication information

Journal: Journal of Atherosclerosis and Thrombosis
Volume: 21
Issue number: 9
ISSN (Print): 1340-3478
Ratings:

Scopus rating (2016): SJR 1.051 SNIP 1.08 CiteScore 2.37
Scopus rating (2015): SJR 1.005 SNIP 1.007 CiteScore 2.34
Scopus rating (2014): SJR 1.062 SNIP 1.154 CiteScore 2.89
Scopus rating (2013): SJR 1.452 SNIP 1.222 CiteScore 3.25
Scopus rating (2012): SJR 1.232 SNIP 1.256 CiteScore 2.99
Scopus rating (2011): SJR 1.038 SNIP 1.031 CiteScore 2.82
Scopus rating (2010): SJR 0.779 SNIP 1.116
Scopus rating (2009): SJR 1.118 SNIP 1.103
Scopus rating (2008): SJR 1.602 SNIP 1.04
Scopus rating (2007): SJR 1.388 SNIP 0.985
Scopus rating (2006): SJR 0.915
Scopus rating (2005): SJR 0.905
Scopus rating (2004): SJR 0.654
Scopus rating (2003): SJR 0.561
Scopus rating (2002): SJR 0.464
Scopus rating (2001): SJR 0.211
Scopus rating (2000): SJR 0.482
Scopus rating (1999): SJR 0.311
Original language: English
DOIs:
10.5551/jat.21279

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-08-19
Publisher name: Japan Atherosclerosis Society
Source: researchoutputwizard
Source-ID: 198
Research output: Scientific - peer-review > Article

A Simplified Method for Calculation of High Voltage Power Substation Electric Fields

General information

State: Published
Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering
Authors: Okun, O., Korpinen, L.
Number of pages: 2
Publication date: 2014

Host publication information

Title of host publication: EHE2014, 5th International Conference on Electromagnetic Fields, Health and Environment, Porto, Portugal, 24th - 26th April, 2014
Publisher: Portuguese Association for the Development of Electrical Engineering
Article number: PS.5
ISBN (Print): 978-972-8822-28-6

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-05-25
Publisher name: Portuguese Association for the Development of Electrical Engineering
Source: researchoutputwizard
Source-ID: 1190
Research output: Scientific - peer-review > Conference contribution

A structural and functional perspective on the evolution of the heme-copper oxidases

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Research area: Computational Physics, Research group: Biological Physics and Soft Matter, Department of Physics, Computational Science X (CompX)
Authors: Sharma, V., Wikström, M.
Number of pages: 6
Pages: 3787-3792
Publication date: 2014
Peer-reviewed: Yes

Publication information

Journal: FEBS Letters
Volume: 588
Issue number: 21
ISSN (Print): 0014-5793
Ratings:

Scopus rating (2016): SJR 1.898 SNIP 0.885 CiteScore 3.48
Scopus rating (2015): SJR 2.02 SNIP 0.927 CiteScore 3.49
Scopus rating (2014): SJR 1.86 SNIP 0.871 CiteScore 3.19
Scopus rating (2013): SJR 2.328 SNIP 0.984 CiteScore 3.71
Scopus rating (2012): SJR 2.259 SNIP 0.914 CiteScore 3.67
Scopus rating (2011): SJR 2.264 SNIP 0.837 CiteScore 3.5
Scopus rating (2010): SJR 2.197 SNIP 0.795
Scopus rating (2009): SJR 2.131 SNIP 0.792
Scopus rating (2008): SJR 2.15 SNIP 0.79
Scopus rating (2007): SJR 2.115 SNIP 0.813
Scopus rating (2006): SJR 2.18 SNIP 0.849
Scopus rating (2005): SJR 2.108 SNIP 0.84
Scopus rating (2004): SJR 2.299 SNIP 0.887
Scopus rating (2003): SJR 2.32 SNIP 0.924
Scopus rating (2002): SJR 2.185 SNIP 0.945
Scopus rating (2001): SJR 2.154 SNIP 0.955
Scopus rating (2000): SJR 2.219 SNIP 0.94
Scopus rating (1999): SJR 2.456 SNIP 0.997
Original language: English
DOIs:

10.1016/j.febslet.2014.09.020

Bibliographical note

Contribution: organisation=fys,FACT1=1
Portfolio EDEND: 2014-12-15
Publisher name: Elsevier BV; Federation of European Biochemical Societies
Source: researchoutputwizard
Source-ID: 1487
Research output: Scientific - peer-review > Article

A texture analysis method for MR images of airway dilator muscles: a feasibility study

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Augmented Human Activities (AHA), Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Kõlhi, P., Järnstedt, J., Sikiö, M., Viik, J., Dastidar, P., Peltomäki, T., Eskola, H.

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: Dentomaxillofacial Radiology

Volume: 43

Issue number: 5

Article number: 20130403

ISSN (Print): 0250-832X

Ratings:

Scopus rating (2016): SJR 0.761 SNIP 0.989 CiteScore 1.36

Scopus rating (2015): SJR 0.981 SNIP 1.326 CiteScore 1.73

Scopus rating (2014): SJR 0.893 SNIP 1.261 CiteScore 1.46

Scopus rating (2013): SJR 0.827 SNIP 1.2 CiteScore 1.42

Scopus rating (2012): SJR 0.871 SNIP 1.362 CiteScore 1.61

Scopus rating (2011): SJR 0.982 SNIP 1.412 CiteScore 1.6

Scopus rating (2010): SJR 0.855 SNIP 1.215

Scopus rating (2009): SJR 1.025 SNIP 1.184

Scopus rating (2008): SJR 0.711 SNIP 1.137

Scopus rating (2007): SJR 0.898 SNIP 1.425

Scopus rating (2006): SJR 0.501 SNIP 0.944

Scopus rating (2005): SJR 0.474 SNIP 0.948

Scopus rating (2004): SJR 0.507 SNIP 1.01

Scopus rating (2003): SJR 0.436 SNIP 1.086

Scopus rating (2002): SJR 0.372 SNIP 0.791

Scopus rating (2001): SJR 0.397 SNIP 0.957

Scopus rating (2000): SJR 0.383 SNIP 0.771

Scopus rating (1999): SJR 0.416 SNIP 0.825

Original language: English

DOIs:

10.1259/dmfr.20130403

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-08-19
Publisher name: British Institute of Radiology

Source: researchoutputwizard

Source-ID: 746

Research output: Scientific - peer-review > Article

Atomistic Molecular Dynamics Simulations of Cytochrome bc1, and Epiderm Growth Factor Receptor Proteins

General information

State: Published

Ministry of Education publication type: G4 Doctoral dissertation (monograph)

Organisations: Research area: Computational Physics, Research group: Biological Physics and Soft Matter, Department of Physics

Authors: Kaszuba, K.
Publication date: 2014

Publication information

Publisher: Tampere University of Technology
ISBN (Print): 978-952-15-3417-1
Original language: English

Publication series

Name: Tampere University of Technology, Publication
Publisher: Tampere University of Technology
Volume: 1271
ISSN (Print): 1459-2045

Bibliographical note

Awarding institution: Tampere University of Technology
Source: researchoutputwizard
Source-ID: 676
Research output: Monograph > Doctoral Thesis

Atomistic simulations of anionic Au₁₄₄(SR)₆₀ nanoparticles interacting with asymmetric model lipid membranes

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Research area: Computational Physics, Research group: Biological Physics and Soft Matter, Research group: Materials and Molecular Modeling, Department of Physics, Computational Science X (CompX)
Authors: Heikkilä, E., Martinez-Seara, H., Gurtovenko, A. A., Vattulainen, I., Akola, J.
Number of pages: 9
Pages: 2852-2860
Publication date: 2014
Peer-reviewed: Yes

Publication information

Journal: Biochimica et Biophysica Acta: Biomembranes
Volume: 1838
Issue number: 11
ISSN (Print): 0005-2736
Ratings:

Scopus rating (2016): SJR 1.511 SNIP 1.101 CiteScore 3.55
Scopus rating (2015): SJR 1.782 SNIP 1.142 CiteScore 3.8
Scopus rating (2014): SJR 1.869 SNIP 1.09 CiteScore 3.64
Scopus rating (2013): SJR 1.592 SNIP 0.975 CiteScore 3.45
Scopus rating (2012): SJR 1.833 SNIP 1.156 CiteScore 3.99
Scopus rating (2011): SJR 1.644 SNIP 1.227 CiteScore 4.17
Scopus rating (2010): SJR 2.179 SNIP 1.291
Scopus rating (2009): SJR 2.152 SNIP 1.298
Scopus rating (2008): SJR 2.035 SNIP 1.123
Scopus rating (2007): SJR 2.021 SNIP 1.158
Scopus rating (2006): SJR 1.922 SNIP 1.212
Scopus rating (2005): SJR 2.037 SNIP 1.231
Scopus rating (2004): SJR 1.5 SNIP 1.147
Scopus rating (2003): SJR 1.401 SNIP 1.115
Scopus rating (2002): SJR 1.594 SNIP 1.228
Scopus rating (2001): SJR 1.509 SNIP 1.053
Scopus rating (2000): SJR 1.089 SNIP 0.907
Scopus rating (1999): SJR 0.95 SNIP 0.841
Original language: English

DOIs:

10.1016/j.bbamem.2014.07.027

Bibliographical note

Contribution: organisation=fys,FACT1=1
Portfolio EDEND: 2014-12-09
Publisher name: Elsevier BV

Source: researchoutputwizard

Source-ID: 423

Research output: Scientific - peer-review > Article

Biofunctional hybrid materials: bimolecular organosilane monolayers on FeCr alloys

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Optoelectronics Research Centre, Research group: Surface Science, Frontier Photonics, Multi-scaled biodata analysis and modelling (MultiBAM)

Authors: Vuori, L., Leppiniemi, J., Hannula, M., Lahtonen, K., Hirsimäki, M., Nömmiste, E., Costelle, L., Hytönen, V. P., Valden, M.

Number of pages: 10

Pages: 1-10

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: Nanotechnology

Volume: 25

Issue number: 43

Article number: 435603

ISSN (Print): 0957-4484

Ratings:

Scopus rating (2016): SJR 1.096 SNIP 0.814 CiteScore 2.87

Scopus rating (2015): SJR 1.18 SNIP 0.966 CiteScore 3.07

Scopus rating (2014): SJR 1.465 SNIP 1.258 CiteScore 3.09

Scopus rating (2013): SJR 1.585 SNIP 1.244 CiteScore 2.74

Scopus rating (2012): SJR 1.846 SNIP 1.306 CiteScore 3.34

Scopus rating (2011): SJR 1.892 SNIP 1.461 CiteScore 3.86

Scopus rating (2010): SJR 1.844 SNIP 1.259

Scopus rating (2009): SJR 1.819 SNIP 1.28

Scopus rating (2008): SJR 1.875 SNIP 1.333

Scopus rating (2007): SJR 1.91 SNIP 1.36

Scopus rating (2006): SJR 1.934 SNIP 1.378

Scopus rating (2005): SJR 1.925 SNIP 1.445

Scopus rating (2004): SJR 1.849 SNIP 1.477

Scopus rating (2003): SJR 1.427 SNIP 1.371

Scopus rating (2002): SJR 0.962 SNIP 0.993

Scopus rating (2001): SJR 0.901 SNIP 0.94

Scopus rating (2000): SJR 0.881 SNIP 0.891

Scopus rating (1999): SJR 1.131 SNIP 0.953

Original language: English

DOIs:

10.1088/0957-4484/25/43/435603

Bibliographical note

Contribution: organisation=orc,FACT1=1
Portfolio EDEND: 2014-10-17
Publisher name: Institute of Physics

Source: researchoutputwizard

Source-ID: 1773

Research output: Scientific - peer-review > Article

Bone loss patterns in cortical, subcortical, and trabecular compartments during simulated microgravity

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Cervinka, T., Sievänen, H., Hyttinen, J., Rittweger, J.

Number of pages: 9

Pages: 80-88

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: Journal of Applied Physiology

Volume: 117

Issue number: 1

ISSN (Print): 8750-7587

Ratings:

Scopus rating (2016): SJR 1.485 SNIP 1.243 CiteScore 2.75

Scopus rating (2015): SJR 1.623 SNIP 1.219 CiteScore 2.6

Scopus rating (2014): SJR 1.594 SNIP 1.304 CiteScore 2.56

Scopus rating (2013): SJR 1.7 SNIP 1.482 CiteScore 2.75

Scopus rating (2012): SJR 1.631 SNIP 1.546 CiteScore 2.81

Scopus rating (2011): SJR 1.662 SNIP 1.593 CiteScore 2.63

Scopus rating (2010): SJR 1.713 SNIP 1.552

Scopus rating (2009): SJR 1.58 SNIP 1.443

Scopus rating (2008): SJR 1.73 SNIP 1.433

Scopus rating (2007): SJR 1.646 SNIP 1.523

Scopus rating (2006): SJR 1.383 SNIP 1.424

Scopus rating (2005): SJR 1.423 SNIP 1.38

Scopus rating (2004): SJR 1.432 SNIP 1.322

Scopus rating (2003): SJR 1.459 SNIP 1.367

Scopus rating (2002): SJR 1.349 SNIP 1.26

Scopus rating (2001): SJR 1.161 SNIP 1.451

Scopus rating (2000): SJR 1.183 SNIP 1.431

Scopus rating (1999): SJR 1.239 SNIP 1.372

Original language: English

DOIs:

10.1152/jappphysiol.00021.2014

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-08-30
Publisher name: American Physiological Society

Source: researchoutputwizard

Source-ID: 212

Research output: Scientific - peer-review > Article

Carbon-based nanomaterials accelerate arteriolar thrombus formation in the murine microcirculation independently of their shape

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Materials Science, Engineering materials science and solutions (EMASS)

Authors: Holzer, M., Bihari, P., Praetner, M., Uhl, B., Reichel, C., Fent, J., Vippola, M., Lakatos, S., Krombach, F.

Number of pages: 10

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: Journal of Applied Toxicology

ISSN (Print): 0260-437X

Ratings:

Scopus rating (2016): SJR 0.897 SNIP 0.95 CiteScore 3.04

Scopus rating (2015): SJR 1.018 SNIP 1.068 CiteScore 3.02
Scopus rating (2014): SJR 0.947 SNIP 1.017 CiteScore 2.85
Scopus rating (2013): SJR 0.807 SNIP 1.074 CiteScore 2.78
Scopus rating (2012): SJR 0.81 SNIP 1.055 CiteScore 2.61
Scopus rating (2011): SJR 0.814 SNIP 0.906 CiteScore 2.52
Scopus rating (2010): SJR 0.729 SNIP 0.957
Scopus rating (2009): SJR 0.573 SNIP 0.773
Scopus rating (2008): SJR 0.567 SNIP 0.748
Scopus rating (2007): SJR 0.597 SNIP 0.883
Scopus rating (2006): SJR 0.534 SNIP 0.927
Scopus rating (2005): SJR 0.517 SNIP 0.911
Scopus rating (2004): SJR 0.479 SNIP 0.733
Scopus rating (2003): SJR 0.414 SNIP 0.628
Scopus rating (2002): SJR 0.398 SNIP 0.754
Scopus rating (2001): SJR 0.459 SNIP 0.684
Scopus rating (2000): SJR 0.297 SNIP 0.581
Scopus rating (1999): SJR 0.403 SNIP 0.809

Original language: English

DOIs:

10.1002/jat.2996

Bibliographical note

Article first published online: 14 FEB 2014
Contribution: organisation=mol,FACT1=1
Portfolio EDEND: 2014-08-06

Publisher name: Wiley

Source: researchoutputwizard

Source-ID: 494

Research output: Scientific - peer-review › Article

Cardiac pacemakers and electromagnetic fields : comparison of experimental results in France and Finland

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering

Authors: Magne, I., Korpinen, L., Souques, M.

Number of pages: 6

Pages: 1149-1154

Publication date: 2014

Host publication information

Title of host publication: Proceedings of the 2014 International symposium on electromagnetic compatibility (EMC Europe 2014), Gothenburg, Sweden, September 1-4, 2014

Publisher: Institute of Electrical and Electronics Engineers IEEE

ISBN (Print): 978-1-4799-3225-2

ISBN (Electronic): 978-1-4799-3226-9

DOIs:

10.1109/EMCEurope.2014.6931076

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-10-19
Publisher name: Institute of Electrical and Electronics Engineers IEEE

Source: researchoutputwizard

Source-ID: 989

Research output: Scientific - peer-review › Conference contribution

Cationic Au Nanoparticle Binding with Plasma Membrane-like Lipid Bilayers: Potential Mechanism for Spontaneous Permeation to Cells Revealed by Atomistic Simulations

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed
Organisations: Research area: Computational Physics, Research group: Biological Physics and Soft Matter, Research group: Materials and Molecular Modeling, Department of Physics, Computational Science X (CompX)
Authors: Heikkilä, E., Martinez-Seara, H., Gurtovenko, A. A., Javanainen, M., Häkkinen, H., Vattulainen, I., Akola, J.
Number of pages: 11
Pages: 11131-11141
Publication date: 2014
Peer-reviewed: Yes

Publication information

Journal: Journal of Physical Chemistry C

Volume: 118

Issue number: 20

ISSN (Print): 1932-7447

Ratings:

Scopus rating (2016): SJR 1.948 SNIP 1.181 CiteScore 4.48

Scopus rating (2015): SJR 1.917 SNIP 1.268 CiteScore 4.68

Scopus rating (2014): SJR 2.027 SNIP 1.448 CiteScore 5.08

Scopus rating (2013): SJR 2.134 SNIP 1.439 CiteScore 5.14

Scopus rating (2012): SJR 2.514 SNIP 1.46 CiteScore 4.98

Scopus rating (2011): SJR 2.32 SNIP 1.457 CiteScore 4.92

Scopus rating (2010): SJR 2.438 SNIP 1.356

Scopus rating (2009): SJR 2.128 SNIP 1.417

Scopus rating (2008): SJR 1.856 SNIP 1.033

Original language: English

DOIs:

10.1021/jp5024026

Bibliographical note

Contribution: organisation=fys,FACT1=1
Portfolio EDEND: 2014-09-30
Publisher name: American Chemical Society

Source: researchoutputwizard

Source-ID: 424

Research output: Scientific - peer-review > Article

Center of Rotation Function as a General Method for Center of Rotation Detection

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering

Authors: Jesus, D., Soto, A., Lehti, M., Hyttinen, J., Figueiras, E.

Number of pages: 3

Publication date: 2014

Host publication information

Title of host publication: Biomedical Optics 2014, OSA Technical Digest, April 26-30, 2014, Miami, Florida, United States

Article number: BM3A.59

ISBN (Print): 978-1-55752-997-8

DOIs:

10.1364/BIOMED.2014.BM3A.59

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-09-19

Source: researchoutputwizard

Source-ID: 599

Research output: Scientific - peer-review > Conference contribution

Characterization of dynamical systems under noise using recurrence networks: Application to simulated and EEG data

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed
Organisations: Department of Electronics and Communications Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)
Authors: Puthanmadam Subramaniam, N., Hyttinen, J.
Number of pages: 11
Pages: 3464-3474
Publication date: 2014
Peer-reviewed: Yes

Publication information

Journal: Physics Letters A

Volume: 378

Issue number: 46

ISSN (Print): 0375-9601

Ratings:

Scopus rating (2016): SJR 0.683 SNIP 1.064 CiteScore 1.69

Scopus rating (2015): SJR 0.713 SNIP 1.159 CiteScore 1.74

Scopus rating (2014): SJR 0.699 SNIP 1.024 CiteScore 1.71

Scopus rating (2013): SJR 0.631 SNIP 1.065 CiteScore 1.77

Scopus rating (2012): SJR 0.797 SNIP 1.167 CiteScore 1.91

Scopus rating (2011): SJR 0.873 SNIP 1.188 CiteScore 1.97

Scopus rating (2010): SJR 0.94 SNIP 1.116

Scopus rating (2009): SJR 0.994 SNIP 1.2

Scopus rating (2008): SJR 1.057 SNIP 1.109

Scopus rating (2007): SJR 0.89 SNIP 0.995

Scopus rating (2006): SJR 0.764 SNIP 0.962

Scopus rating (2005): SJR 0.883 SNIP 1.02

Scopus rating (2004): SJR 0.898 SNIP 0.988

Scopus rating (2003): SJR 0.796 SNIP 0.951

Scopus rating (2002): SJR 0.85 SNIP 1.012

Scopus rating (2001): SJR 0.762 SNIP 0.995

Scopus rating (2000): SJR 0.937 SNIP 0.903

Scopus rating (1999): SJR 1.018 SNIP 0.937

Original language: English

DOIs:

10.1016/j.physleta.2014.10.005

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-10-29
Publisher name: Elsevier BV

Source: researchoutputwizard

Source-ID: 1312

Research output: Scientific - peer-review > Article

Characterization of microstructures using contour tree connectivity for fluid flow analysis

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Aydogan, D. B., Hyttinen, J.

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: Journal of the Royal Society. Interface

Volume: 11

Issue number: 95

Article number: 20131042

ISSN (Print): 1742-5689

Ratings:

Scopus rating (2016): CiteScore 3.04 SJR 1.412 SNIP 1.22
Scopus rating (2015): SJR 1.571 SNIP 1.38 CiteScore 3.5
Scopus rating (2014): SJR 1.564 SNIP 1.572 CiteScore 3.59
Scopus rating (2013): SJR 1.8 SNIP 1.825 CiteScore 4.88
Scopus rating (2012): SJR 1.999 SNIP 2.043 CiteScore 5.06
Scopus rating (2011): SJR 1.776 SNIP 1.87 CiteScore 4.53
Scopus rating (2010): SJR 1.613 SNIP 1.541
Scopus rating (2009): SJR 1.65 SNIP 1.54
Scopus rating (2008): SJR 1.326 SNIP 1.261
Scopus rating (2007): SJR 1.385 SNIP 1.357
Scopus rating (2006): SJR 0.878 SNIP 1.197
Scopus rating (2005): SJR 0.629 SNIP 0.987

Original language: English

DOIs:

10.1098/rsif.2013.1042

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-05-09
Publisher name: Royal Society Publishing

Source: researchoutputwizard

Source-ID: 127

Research output: Scientific - peer-review > Article

Cholesterol level affects surface charge of lipid membranes in saline solution

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Research area: Computational Physics, Research group: Biological Physics and Soft Matter, Department of Physics, Computational Science X (CompX)

Authors: Magarkar, A., Dhawan, V., Kallilinteri, P., Viitala, T., Elmowafy, M., Rog, T., Bunker, A.

Number of pages: 5

Pages: 1-5

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: Scientific Reports

Volume: 4

Article number: 5005

ISSN (Print): 2045-2322

Ratings:

Scopus rating (2016): CiteScore 4.63 SJR 1.625 SNIP 1.401

Scopus rating (2015): SJR 2.057 SNIP 1.684 CiteScore 5.3

Scopus rating (2014): SJR 2.103 SNIP 1.544 CiteScore 4.75

Scopus rating (2013): SJR 1.886 SNIP 1.51 CiteScore 4.06

Scopus rating (2012): SJR 1.458 SNIP 0.896 CiteScore 2.44

Original language: English

DOIs:

10.1038/srep05005

Bibliographical note

Contribution: organisation=fys,FACT1=1
Portfolio EDEND: 2014-09-30
Publisher name: Nature Publishing Group

Source: researchoutputwizard

Source-ID: 985

Research output: Scientific - peer-review > Article

Cholesterol, sphingolipids and glycolipids: What do we know about their role in raft-like membranes?

General information

State: Published

Ministry of Education publication type: A2 Review article in a scientific journal

Organisations: Research area: Computational Physics, Research group: Biological Physics and Soft Matter, Department of Physics, Computational Science X (CompX)

Authors: Rog, T., Vattulainen, I.

Number of pages: 22

Pages: 82-104

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: Chemistry and Physics of Lipids

Volume: 184

ISSN (Print): 0009-3084

Ratings:

Scopus rating (2016): SJR 0.976 SNIP 0.862 CiteScore 2.78

Scopus rating (2015): SJR 0.957 SNIP 0.957 CiteScore 2.75

Scopus rating (2014): SJR 0.885 SNIP 1.039 CiteScore 2.62

Scopus rating (2013): SJR 0.82 SNIP 1.055 CiteScore 2.66

Scopus rating (2012): SJR 0.803 SNIP 0.974 CiteScore 2.41

Scopus rating (2011): SJR 0.727 SNIP 0.984 CiteScore 2.56

Scopus rating (2010): SJR 0.874 SNIP 0.964

Scopus rating (2009): SJR 0.9 SNIP 0.995

Scopus rating (2008): SJR 1.114 SNIP 1.057

Scopus rating (2007): SJR 1.083 SNIP 1.091

Scopus rating (2006): SJR 0.808 SNIP 0.881

Scopus rating (2005): SJR 1.038 SNIP 1.035

Scopus rating (2004): SJR 0.69 SNIP 0.831

Scopus rating (2003): SJR 0.917 SNIP 0.817

Scopus rating (2002): SJR 1.005 SNIP 0.813

Scopus rating (2001): SJR 1.097 SNIP 0.827

Scopus rating (2000): SJR 0.738 SNIP 0.742

Scopus rating (1999): SJR 0.737 SNIP 0.705

Original language: English

DOIs:

10.1016/j.chemphyslip.2014.10.004

Bibliographical note

Contribution: organisation=fys,FACT1=1
Portfolio EDEND: 2014-12-15
Publisher name: Elsevier Ireland Ltd

Source: researchoutputwizard

Source-ID: 1391

Research output: Scientific - peer-review > Review Article

Co-exposure with fullerene may strengthen health effects of organic industrial chemicals

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Research area: Computational Physics, Research group: Biological Physics and Soft Matter, Department of Physics, Computational Science X (CompX), Multi-scaled biodata analysis and modelling (MultiBAM)

Authors: Lehto, M., Karilainen, T., Rog, T., Cramariuc, O., Vanhala, E., Yornaesus, J., Taberman, H., Jänis, J., Alenius, H., Vattulainen, I., Laine, O.

Number of pages: 24

Pages: 1-24

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: PLoS One

Volume: 9

Issue number: 12

Article number: e114490

ISSN (Print): 1932-6203

Ratings:

Scopus rating (2016): CiteScore 3.11 SJR 1.201 SNIP 1.092

Scopus rating (2015): SJR 1.414 SNIP 1.131 CiteScore 3.32

Scopus rating (2014): SJR 1.545 SNIP 1.141 CiteScore 3.54

Scopus rating (2013): SJR 1.74 SNIP 1.147 CiteScore 3.94

Scopus rating (2012): SJR 1.945 SNIP 1.142 CiteScore 4.15

Scopus rating (2011): SJR 2.369 SNIP 1.23 CiteScore 4.58

Scopus rating (2010): SJR 2.631 SNIP 1.161

Scopus rating (2009): SJR 2.473 SNIP 0.985

Scopus rating (2008): SJR 2.323 SNIP 0.96

Scopus rating (2007): SJR 1.289 SNIP 0.525

Original language: English

DOIs:

10.1371/journal.pone.0114490

Bibliographical note

Contribution: organisation=fys,FACT1=1
Portfolio EDEND: 2014-12-15
Publisher name: Public Library of Science

Source: researchoutputwizard

Source-ID: 908

Research output: Scientific - peer-review › Article

Comparative assessment of sleep quality estimates using home monitoring technology

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Signal Processing, Research group: Personal Health Informatics-PHI, Research Community on Data-to-Decision (D2D)

Authors: Perez-Macias, J., Jimison, H., Korhonen, I., Pavel, M.

Number of pages: 4

Pages: 4979-4982

Publication date: 2014

Host publication information

Title of host publication: 36th Annual International Conference of the IEEE Engineering in Medicine and Biology Society ,EMBC'14, 26-30 August 2014, Chicago, IL, USA

Place of publication: Piscataway

Publisher: Institute of Electrical and Electronics Engineers

ISBN (Print): 978-1-4244-7929-0

DOIs:

10.1109/EMBC.2014.6944742

Bibliographical note

Contribution: organisation=sgn,FACT1=1
Portfolio EDEND: 2014-12-07

Source: researchoutputwizard

Source-ID: 1266

Research output: Scientific - peer-review › Conference contribution

Comparison of Chondroitin Sulfate and Hyaluronic Acid Doped Conductive Polypyrrole Films for Adipose Stem Cells

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Björninen, M., Siljander, A., Pelto, J., Hyttinen, J., Kellomäki, M., Miettinen, S., Seppänen, R., Haimi, S.

Number of pages: 12

Pages: 1889-1900

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: Annals of Biomedical Engineering

Volume: 42

Issue number: 9

ISSN (Print): 0090-6964

Ratings:

Scopus rating (2016): SJR 1.054 SNIP 1.221 CiteScore 3.13

Scopus rating (2015): SJR 1.179 SNIP 1.355 CiteScore 3.21

Scopus rating (2014): SJR 1.095 SNIP 1.521 CiteScore 3.29

Scopus rating (2013): SJR 1.257 SNIP 1.451 CiteScore 3.38

Scopus rating (2012): SJR 0.926 SNIP 1.242 CiteScore 2.77

Scopus rating (2011): SJR 0.863 SNIP 1.135 CiteScore 2.54

Scopus rating (2010): SJR 0.812 SNIP 1.266

Scopus rating (2009): SJR 0.892 SNIP 1.337

Scopus rating (2008): SJR 1.003 SNIP 1.268

Scopus rating (2007): SJR 1.073 SNIP 1.322

Scopus rating (2006): SJR 1.049 SNIP 1.283

Scopus rating (2005): SJR 0.802 SNIP 1.111

Scopus rating (2004): SJR 0.694 SNIP 1.214

Scopus rating (2003): SJR 0.355 SNIP 1.069

Scopus rating (2002): SJR 0.295 SNIP 0.911

Scopus rating (2001): SJR 0.282 SNIP 1.276

Scopus rating (2000): SJR 0.663 SNIP 0.956

Scopus rating (1999): SJR 0.524 SNIP 0.984

Original language: English

DOIs:

10.1007/s10439-014-1023-7

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-05-30
Publisher name: Springer US

Source: researchoutputwizard

Source-ID: 172

Research output: Scientific - peer-review › Article

Comparison of electric field exposure measurement methods under power lines

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering

Authors: Korpinen, L., Kuisti, H., Tarao, H., Pääkkönen, R., Elovaara, J.

Number of pages: 3

Pages: 221-223

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: Radiation Protection Dosimetry

Volume: 158

Issue number: 2

ISSN (Print): 0144-8420

Ratings:

Scopus rating (2016): SJR 0.444 SNIP 0.727 CiteScore 0.86

Scopus rating (2015): SJR 0.466 SNIP 0.832 CiteScore 0.82

Scopus rating (2014): SJR 0.517 SNIP 0.913 CiteScore 0.89

Scopus rating (2013): SJR 0.538 SNIP 0.815 CiteScore 0.9

Scopus rating (2012): SJR 0.556 SNIP 0.801 CiteScore 0.82

Scopus rating (2011): SJR 0.541 SNIP 1.049 CiteScore 0.96

Scopus rating (2010): SJR 0.574 SNIP 0.802

Scopus rating (2009): SJR 0.475 SNIP 0.75
Scopus rating (2008): SJR 0.586 SNIP 1.022
Scopus rating (2007): SJR 0.483 SNIP 1.011
Scopus rating (2006): SJR 0.372 SNIP 0.705
Scopus rating (2005): SJR 0.401 SNIP 0.723
Scopus rating (2004): SJR 0.428 SNIP 0.842
Scopus rating (2003): SJR 0.341 SNIP 0.523
Scopus rating (2002): SJR 0.45 SNIP 0.834
Scopus rating (2001): SJR 0.476 SNIP 0.899
Scopus rating (2000): SJR 0.464 SNIP 0.748
Scopus rating (1999): SJR 0.465 SNIP 0.929
Original language: English
DOIs:
10.1093/rpd/nct201

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-03-15
Publisher name: Oxford University Press
Source: researchoutputwizard
Source-ID: 776
Research output: Scientific - peer-review > Article

Comparison of methods to define power line and substation's busbar wire capacitances in electric field calculation task

General information

State: Published
Ministry of Education publication type: A4 Article in a conference publication
Organisations: Department of Electronics and Communications Engineering
Authors: Okun, O., Korpinen, L.
Number of pages: 6
Pages: 79-85
Publication date: 2014

Host publication information

Title of host publication: 8th International Workshop on Biological Effects of Electromagnetic Fields, 21-26 September, 2014, Golden Sands, Varna, Bulgaria
Links:
<http://www.emf2014.emfbg.com/assets/papers.pdf>

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-11-15
Source: researchoutputwizard
Source-ID: 1191
Research output: Scientific - peer-review > Conference contribution

Computational Modeling and Structural Improvement of a Pneumatically Actuated Concentric Double-Shell Structure for Cell Stretching

General information

State: Published
Ministry of Education publication type: A4 Article in a conference publication
Organisations: Department of Automation Science and Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)
Authors: Zhao, F., Kreutzer, J., Kallio, P.
Number of pages: 6
Pages: 906-911
Publication date: 2014

Host publication information

Title of host publication: Proceedings of 2014 IEEE International Conference on Mechatronics and Automation, ICMA 2014, August 3-6, 2014, Tianjin, China
ISBN (Print): 978-1-4799-3978-7
DOIs:

10.1109/ICMA.2014.6885818

Bibliographical note

Contribution: organisation=ase,FACT1=1
Portfolio EDEND: 2014-10-30

Source: researchoutputwizard

Source-ID: 1847

Research output: Scientific - peer-review › Conference contribution

Computational Modeling Supports Induced Pluripotent Stem Cell-derived Cardiomyocytes Reliability as a Model for Human LQT3

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Paci, M., Severi, S., Hyttinen, J.

Number of pages: 4

Pages: 69-72

Publication date: 2014

Host publication information

Title of host publication: Computing in cardiology 2014

Publisher: Computing in Cardiology

ISBN (Print): 978-1-4799-4346-3

ISBN (Electronic): 978-1-4799-4347-0

Links:

<http://www.cinc.org/archives/2014/pdf/0069.pdf>

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-11-30
Publisher name: Computing in Cardiology

Source: researchoutputwizard

Source-ID: 1212

Research output: Scientific - peer-review › Conference contribution

Controlling the synergetic effects in (3-aminopropyl) trimethoxysilane and (3-mercaptopropyl) trimethoxysilane coadsorption on stainless steel surfaces

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Optoelectronics Research Centre, Research group: Surface Science, Frontier Photonics

Authors: Vuori, L., Hannula, M., Lahtonen, K., Jussila, P., Ali-Löyty, H., Hirsimäki, M., Pärna, R., Nömmiste, E., Valden, M.

Number of pages: 11

Pages: 856-866

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: Applied Surface Science

Volume: 317

ISSN (Print): 0169-4332

Ratings:

Scopus rating (2016): SJR 0.951 SNIP 1.225 CiteScore 3.37

Scopus rating (2015): SJR 0.914 SNIP 1.3 CiteScore 3.13

Scopus rating (2014): SJR 0.958 SNIP 1.477 CiteScore 2.96

Scopus rating (2013): SJR 0.965 SNIP 1.488 CiteScore 2.78

Scopus rating (2012): SJR 0.918 SNIP 1.373 CiteScore 2.26

Scopus rating (2011): SJR 0.908 SNIP 1.402 CiteScore 2.27

Scopus rating (2010): SJR 0.924 SNIP 1.141

Scopus rating (2009): SJR 0.842 SNIP 1.023

Scopus rating (2008): SJR 0.899 SNIP 1.087
Scopus rating (2007): SJR 0.795 SNIP 0.945
Scopus rating (2006): SJR 0.852 SNIP 1.052
Scopus rating (2005): SJR 0.679 SNIP 0.946
Scopus rating (2004): SJR 0.964 SNIP 1.126
Scopus rating (2003): SJR 0.988 SNIP 1.027
Scopus rating (2002): SJR 0.921 SNIP 0.954
Scopus rating (2001): SJR 0.841 SNIP 0.796
Scopus rating (2000): SJR 0.866 SNIP 0.772
Scopus rating (1999): SJR 1.064 SNIP 0.907
Original language: English
DOIs:
10.1016/j.apsusc.2014.08.199

Bibliographical note

Contribution: organisation=orc,FACT1=1
Portfolio EDEND: 2014-12-31
Publisher name: Elsevier
Source: researchoutputwizard
Source-ID: 1772
Research output: Scientific - peer-review › Article

Co-operation between Industry, Authorities and Research Institutes in Environmental and Occupational Exposure to Electric and Magnetic Field Questions in Finland

General information

State: Published
Ministry of Education publication type: A4 Article in a conference publication
Organisations: Department of Electronics and Communications Engineering
Authors: Pääkkönen, R., Korpinen, L.
Number of pages: 2
Publication date: 2014

Host publication information

Title of host publication: EHE2014, 5th International Conference on Electromagnetic Fields, Health and Environment, Porto, Portugal, 24th - 26th April, 2014
Publisher: Portuguese Association for the Development of Electrical Engineering
Article number: PS. 23
ISBN (Print): 978-972-8822-28-6

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-05-25
Publisher name: Portuguese Association for the Development of Electrical Engineering
Source: researchoutputwizard
Source-ID: 1207
Research output: Scientific - peer-review › Conference contribution

Correlations between Functional Imaging Markers Derived from PET/CT and Diffusion-Weighted MRI in Diffuse Large B-Cell Lymphoma and Follicular Lymphoma

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Department of Electronics and Communications Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)
Authors: Wu, X., Pertovaara, H., Korkola, P., Dastidar, P., Järvenpää, R., Eskola, H., Kellokumpu-Lehtinen, P.
Publication date: 2014
Peer-reviewed: Yes

Publication information

Journal: PLoS One
Volume: 9
Issue number: 1
Article number: e84999

ISSN (Print): 1932-6203

Ratings:

Scopus rating (2016): CiteScore 3.11 SJR 1.201 SNIP 1.092

Scopus rating (2015): SJR 1.414 SNIP 1.131 CiteScore 3.32

Scopus rating (2014): SJR 1.545 SNIP 1.141 CiteScore 3.54

Scopus rating (2013): SJR 1.74 SNIP 1.147 CiteScore 3.94

Scopus rating (2012): SJR 1.945 SNIP 1.142 CiteScore 4.15

Scopus rating (2011): SJR 2.369 SNIP 1.23 CiteScore 4.58

Scopus rating (2010): SJR 2.631 SNIP 1.161

Scopus rating (2009): SJR 2.473 SNIP 0.985

Scopus rating (2008): SJR 2.323 SNIP 0.96

Scopus rating (2007): SJR 1.289 SNIP 0.525

Original language: English

DOIs:

10.1371/journal.pone.0084999

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-04-29
Publisher name: Public Library of Science

Source: researchoutputwizard

Source-ID: 1806

Research output: Scientific - peer-review › Article

Current densities and total contact currents for 110 and 220 kV power line tasks

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering

Authors: Korpinen, L., Kuisti, H., Elovaara, J.

Number of pages: 5

Pages: 531-535

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: Bioelectromagnetics

Volume: 35

Issue number: 7

ISSN (Print): 0197-8462

Ratings:

Scopus rating (2016): SJR 0.572 SNIP 1.1 CiteScore 1.99

Scopus rating (2015): SJR 0.599 SNIP 1.079 CiteScore 1.86

Scopus rating (2014): SJR 0.624 SNIP 1.259 CiteScore 1.79

Scopus rating (2013): SJR 0.68 SNIP 1.341 CiteScore 2.13

Scopus rating (2012): SJR 0.623 SNIP 1.15 CiteScore 1.98

Scopus rating (2011): SJR 0.515 SNIP 1.225 CiteScore 2.27

Scopus rating (2010): SJR 0.817 SNIP 1.206

Scopus rating (2009): SJR 0.717 SNIP 1.334

Scopus rating (2008): SJR 0.691 SNIP 0.992

Scopus rating (2007): SJR 0.754 SNIP 1.363

Scopus rating (2006): SJR 0.553 SNIP 1.341

Scopus rating (2005): SJR 0.619 SNIP 1.4

Scopus rating (2004): SJR 0.649 SNIP 1.242

Scopus rating (2003): SJR 0.598 SNIP 0.916

Scopus rating (2002): SJR 0.576 SNIP 1.101

Scopus rating (2001): SJR 0.61 SNIP 1.556

Scopus rating (2000): SJR 0.772 SNIP 1.359

Scopus rating (1999): SJR 0.548 SNIP 1.369

Original language: English

DOIs:

10.1002/bem.21870

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-10-19
Publisher name: John Wiley & Sons

Source: researchoutputwizard

Source-ID: 773

Research output: Scientific - peer-review › Article

Degradation mechanisms of bioresorbable polyesters. Part 1. Effects of random scission, end scission and autocatalysis

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Gleadall, A., Pan, J., Krufft, M., Kellomäki, M.

Number of pages: 10

Pages: 2223-2232

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: Acta Biomaterialia

Volume: 10

Issue number: 5

ISSN (Print): 1742-7061

Ratings:

Scopus rating (2016): CiteScore 6.66 SJR 1.789 SNIP 1.921

Scopus rating (2015): SJR 1.997 SNIP 1.99 CiteScore 6.58

Scopus rating (2014): SJR 1.814 SNIP 2.324 CiteScore 6.53

Scopus rating (2013): SJR 1.963 SNIP 2.269 CiteScore 6.41

Scopus rating (2012): SJR 1.904 SNIP 2.125 CiteScore 5.51

Scopus rating (2011): SJR 1.808 SNIP 1.91 CiteScore 5.15

Scopus rating (2010): SJR 1.794 SNIP 1.964

Scopus rating (2009): SJR 1.399 SNIP 1.662

Scopus rating (2008): SJR 1.404 SNIP 1.981

Scopus rating (2007): SJR 1.199 SNIP 1.493

Scopus rating (2006): SJR 0.837 SNIP 1.131

Original language: English

DOIs:

10.1016/j.actbio.2013.12.039

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-04-30
Publisher name: Elsevier

Source: researchoutputwizard

Source-ID: 349

Research output: Scientific - peer-review › Article

Degradation mechanisms of bioresorbable polyesters. Part 2. Effects of initial molecular weight and residual monomer

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Gleadall, A., Pan, J., Krufft, M., Kellomäki, M.

Number of pages: 8

Pages: 2233-2240

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: Acta Biomaterialia

Volume: 10

Issue number: 5

ISSN (Print): 1742-7061

Ratings:

Scopus rating (2016): CiteScore 6.66 SJR 1.789 SNIP 1.921

Scopus rating (2015): SJR 1.997 SNIP 1.99 CiteScore 6.58

Scopus rating (2014): SJR 1.814 SNIP 2.324 CiteScore 6.53

Scopus rating (2013): SJR 1.963 SNIP 2.269 CiteScore 6.41

Scopus rating (2012): SJR 1.904 SNIP 2.125 CiteScore 5.51

Scopus rating (2011): SJR 1.808 SNIP 1.91 CiteScore 5.15

Scopus rating (2010): SJR 1.794 SNIP 1.964

Scopus rating (2009): SJR 1.399 SNIP 1.662

Scopus rating (2008): SJR 1.404 SNIP 1.981

Scopus rating (2007): SJR 1.199 SNIP 1.493

Scopus rating (2006): SJR 0.837 SNIP 1.131

Original language: English

DOIs:

10.1016/j.actbio.2014.01.017

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-04-30
Publisher name: Elsevier

Source: researchoutputwizard

Source-ID: 350

Research output: Scientific - peer-review > Article

Dehydroergosterol as an Analogue for Cholesterol: Why It Mimics Cholesterol So Well - or Does It?

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Research area: Computational Physics, Research group: Biological Physics and Soft Matter, Department of Physics, Computational Science X (CompX), Multi-scaled biodata analysis and modelling (MultiBAM)

Authors: Pourmousa, M., Rog, T., Mikkeli, R., Vattulainen, I., Solanko, L. M., Wustner, D., Holmgaard List, N., Kongsted, J., Karttunen, M.

Number of pages: 13

Pages: 7345-7357

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: Journal of Physical Chemistry Part B

Volume: 118

Issue number: 26

ISSN (Print): 1520-6106

Ratings:

Scopus rating (2016): SJR 1.348 SNIP 1.02 CiteScore 3.03

Scopus rating (2015): SJR 1.367 SNIP 1.096 CiteScore 3.25

Scopus rating (2014): SJR 1.44 SNIP 1.14 CiteScore 3.28

Scopus rating (2013): SJR 1.494 SNIP 1.2 CiteScore 3.53

Scopus rating (2012): SJR 1.92 SNIP 1.251 CiteScore 3.66

Scopus rating (2011): SJR 1.78 SNIP 1.226 CiteScore 3.62

Scopus rating (2010): SJR 1.849 SNIP 1.214

Scopus rating (2009): SJR 2.232 SNIP 1.349

Scopus rating (2008): SJR 2.543 SNIP 1.381

Scopus rating (2007): SJR 2.346 SNIP 1.282

Scopus rating (2006): SJR 2.369 SNIP 1.415

Scopus rating (2005): SJR 2.275 SNIP 1.474

Scopus rating (2004): SJR 2.148 SNIP 1.511
Scopus rating (2003): SJR 2.034 SNIP 1.47
Scopus rating (2002): SJR 2.118 SNIP 1.496
Scopus rating (2001): SJR 2.053 SNIP 1.508
Scopus rating (2000): SJR 2.145 SNIP 1.527
Scopus rating (1999): SJR 1.713 SNIP 1.8
Original language: English
DOIs:

10.1021/jp406883k

Bibliographical note

Contribution: organisation=fys,FACT1=1
Portfolio EDEND: 2014-09-30
Publisher name: American Chemical Society

Source: researchoutputwizard

Source-ID: 1296

Research output: Scientific - peer-review > Article

Detection of Prostate Cancer by an Electronic Nose; A Proof of Principle Study

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Automation Science and Engineering, Integrated Technologies for Tissue Engineering Research (ITTE), Prostate cancer research center (PCRC)

Authors: Roine, A., Veskimäe, E., Tuokko, A., Kumpulainen, P., Koskimäki, J., Keinänen, T. A., Häkkinen, M. R., Vepsäläinen, J., Paavonen, T., Lekkala, J., Lehtimäki, T., Tammela, T. L., Oksala, N. K.

Number of pages: 6

Pages: 230-235

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: Journal of Urology

Volume: 192

Issue number: 1

ISSN (Print): 0022-5347

Ratings:

Scopus rating (2016): SJR 2.389 SNIP 1.904 CiteScore 1.61

Scopus rating (2015): SJR 2.333 SNIP 1.747 CiteScore 1.6

Scopus rating (2014): SJR 2.258 SNIP 1.847 CiteScore 1.73

Scopus rating (2013): SJR 2.25 SNIP 1.807 CiteScore 1.76

Scopus rating (2012): SJR 2.102 SNIP 1.711 CiteScore 1.97

Scopus rating (2011): SJR 2.132 SNIP 1.712 CiteScore 2.16

Scopus rating (2010): SJR 2.212 SNIP 1.672

Scopus rating (2009): SJR 2.18 SNIP 1.809

Scopus rating (2008): SJR 2.089 SNIP 1.839

Scopus rating (2007): SJR 2.164 SNIP 1.973

Scopus rating (2006): SJR 2.18 SNIP 1.972

Scopus rating (2005): SJR 1.886 SNIP 1.912

Scopus rating (2004): SJR 1.829 SNIP 1.883

Scopus rating (2003): SJR 1.67 SNIP 2.02

Scopus rating (2002): SJR 1.611 SNIP 1.807

Scopus rating (2001): SJR 1.643 SNIP 1.941

Scopus rating (2000): SJR 1.693 SNIP 1.8

Scopus rating (1999): SJR 1.201 SNIP 1.863

Original language: English

DOIs:

10.1016/j.juro.2014.01.113

Bibliographical note

Contribution: organisation=ase,FACT1=1
Portfolio EDEND: 2014-12-26
Publisher name: Elsevier

Source: researchoutputwizard

Source-ID: 1395

Research output: Scientific - peer-review > Article

Determination of the functionality of monolayers of aminopropyl trimethoxy silane and mercaptopropyl trimethoxy silane on stainless steel with SR-PES and chemical derivatization

General information

State: Published

Ministry of Education publication type: B2 Part of a book or another research book

Organisations: Optoelectronics Research Centre, Research group: Surface Science

Authors: Vuori, L., Hannula, M., Hirsimäki, M., Tönisoo, A., Nömmiste, E., Valden, M.

Number of pages: 2

Pages: 1-2

Publication date: 2014

Host publication information

Title of host publication: Max-Lab Activity Report 2013. Reports 2013 Synchrotron Radiation. Beamline D1011

Place of publication: Lund, Sweden

Publisher: MAX-LAB

Links:

<https://www.maxlab.lu.se/node/1913>

Bibliographical note

Contribution: organisation=orc,FACT1=1
Portfolio EDEND: 2014-12-15

Source: researchoutputwizard

Source-ID: 1771

Research output: Scientific > Chapter

Difference of gaussians revolved along elliptical paths for ultrasound fetal head segmentation

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Research group: Signal and Image Restoration-RST, Department of Signal Processing, Signal Processing Research Community (SPRC)

Authors: Foi, A., Maggioni, M., Pepe, A., Rueda, S., Noble, A. J., Papageorghiou, A. T., Tohka, J.

Number of pages: 11

Pages: 774-784

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: Computerized Medical Imaging and Graphics

Volume: 38

Issue number: 8

ISSN (Print): 0895-6111

Ratings:

Scopus rating (2016): SJR 0.564 SNIP 1.155

Scopus rating (2015): SJR 0.528 SNIP 1.369

Scopus rating (2014): SJR 0.479 SNIP 1.409

Scopus rating (2013): SJR 0.622 SNIP 1.562

Scopus rating (2012): SJR 0.568 SNIP 1.787

Scopus rating (2011): SJR 0.517 SNIP 1.666

Scopus rating (2010): SJR 0.523 SNIP 1.421

Scopus rating (2009): SJR 0.485 SNIP 1.375

Scopus rating (2008): SJR 0.506 SNIP 1.076

Scopus rating (2007): SJR 0.428 SNIP 1.243

Scopus rating (2006): SJR 0.365 SNIP 0.972

Scopus rating (2005): SJR 0.549 SNIP 1.321

Scopus rating (2004): SJR 0.537 SNIP 1.005
Scopus rating (2003): SJR 0.485 SNIP 0.93
Scopus rating (2002): SJR 0.411 SNIP 0.789
Scopus rating (2001): SJR 0.483 SNIP 0.805
Scopus rating (2000): SJR 0.405 SNIP 0.478
Scopus rating (1999): SJR 0.268 SNIP 0.523
Original language: English
DOIs:

10.1016/j.compmedimag.2014.09.006

Bibliographical note

Contribution: organisation=sgn,FACT1=1
Portfolio EDEND: 2014-02-05
Publisher name: Pergamon press
Source: researchoutputwizard
Source-ID: 309
Research output: Scientific - peer-review > Article

Direct laser writing of microstructures for the growth guidance of human pluripotent stem cell derived neuronal cells

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Department of Electronics and Communications Engineering, Research group: Biomaterials and Tissue Engineering Group, Integrated Technologies for Tissue Engineering Research (ITTE)
Authors: Turunen, S., Käpylä, E., Lähteenmäki, M., Ylä-Outinen, L., Narkilahti, S., Kellomäki, M.
Number of pages: 8
Pages: 197-204
Publication date: 2014
Peer-reviewed: Yes

Publication information

Journal: Optics and Lasers in Engineering
Volume: 55
ISSN (Print): 0143-8166
Ratings:

Scopus rating (2016): SJR 0.959 SNIP 1.79 CiteScore 3.06
Scopus rating (2015): SJR 1.056 SNIP 1.872 CiteScore 2.53
Scopus rating (2014): SJR 0.975 SNIP 2.146 CiteScore 2.52
Scopus rating (2013): SJR 0.867 SNIP 1.901 CiteScore 2.4
Scopus rating (2012): SJR 0.863 SNIP 2.121 CiteScore 2.32
Scopus rating (2011): SJR 0.937 SNIP 2.331 CiteScore 2.28
Scopus rating (2010): SJR 0.764 SNIP 1.815
Scopus rating (2009): SJR 0.687 SNIP 1.518
Scopus rating (2008): SJR 0.584 SNIP 1.536
Scopus rating (2007): SJR 0.595 SNIP 1.386
Scopus rating (2006): SJR 0.512 SNIP 1.382
Scopus rating (2005): SJR 0.624 SNIP 1.447
Scopus rating (2004): SJR 0.702 SNIP 1.48
Scopus rating (2003): SJR 0.671 SNIP 1.396
Scopus rating (2002): SJR 0.457 SNIP 1.243
Scopus rating (2001): SJR 0.376 SNIP 1.084
Scopus rating (2000): SJR 0.305 SNIP 0.475
Scopus rating (1999): SJR 1.833 SNIP 0.533

Original language: English
ASJC Scopus subject areas: Biomaterials
DOIs:

10.1016/j.optlaseng.2013.11.003

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-02-15
Publisher name: Elsevier

Source: researchoutputwizard
Source-ID: 1662
Research output: Scientific - peer-review › Article

Direct laser writing of synthetic poly(amino acid) hydrogels and poly(ethylene glycol) diacrylates by two-photon polymerization

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Department of Electronics and Communications Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)
Authors: Käpylä, E., Sedlacik, T., Aydogan, D. B., Viitanen, J., Rypacek, F., Kellomäki, M.
Number of pages: 10
Pages: 280-289
Publication date: 2014
Peer-reviewed: Yes

Publication information

Journal: Materials Science and Engineering C: Materials for Biological Applications

Volume: 43

ISSN (Print): 0928-4931

Ratings:

Scopus rating (2016): SJR 0.857 SNIP 1.176 CiteScore 3.78

Scopus rating (2015): SJR 1.312 SNIP 1.084 CiteScore 3.13

Scopus rating (2014): SJR 0.716 SNIP 1.196 CiteScore 2.88

Scopus rating (2013): SJR 0.755 SNIP 1.346 CiteScore 3.07

Scopus rating (2012): SJR 0.832 SNIP 1.471 CiteScore 2.78

Scopus rating (2011): SJR 0.849 SNIP 1.353 CiteScore 2.93

Scopus rating (2010): SJR 0.81 SNIP 1.083

Scopus rating (2009): SJR 0.753 SNIP 1.208

Scopus rating (2008): SJR 0.796 SNIP 1.08

Scopus rating (2007): SJR 0.682 SNIP 1.035

Scopus rating (2006): SJR 0.656 SNIP 0.976

Scopus rating (2005): SJR 0.747 SNIP 1.009

Scopus rating (2004): SJR 0.639 SNIP 0.843

Scopus rating (2003): SJR 0.609 SNIP 0.7

Scopus rating (2002): SJR 0.482 SNIP 0.67

Scopus rating (2001): SJR 0.467 SNIP 0.664

Scopus rating (2000): SJR 0.489 SNIP 0.394

Scopus rating (1999): SJR 0.251 SNIP 0.379

Original language: English

DOIs:

10.1016/j.msec.2014.07.027

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-08-30
Publisher name: Elsevier S.A.

Source: researchoutputwizard

Source-ID: 658

Research output: Scientific - peer-review › Article

DOT1L -HES6 fusion drives androgen independent growth in prostate cancer

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Prostate cancer research center (PCRC)

Authors: Annala, M., Kivinummi, K., Leinonen, K., Tuominen, J., Zhang, W., Visakorpi, T., Nykter, M.

Number of pages: 4

Pages: 1121-1123

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: EMBO Molecular Medicine

Volume: 6

ISSN (Print): 1757-4676

Ratings:

Scopus rating (2016): SJR 4.84 SNIP 1.869 CiteScore 7.73

Scopus rating (2015): SJR 5.453 SNIP 1.935 CiteScore 7.85

Scopus rating (2014): SJR 4.898 SNIP 1.677 CiteScore 7.05

Scopus rating (2013): SJR 4.984 SNIP 1.577 CiteScore 6.81

Scopus rating (2012): SJR 4.636 SNIP 1.758 CiteScore 6.29

Scopus rating (2011): SJR 5.377 SNIP 2.143 CiteScore 6.64

Scopus rating (2010): SJR 4.043 SNIP 1.982

Original language: English

DOIs:

10.15252/emmm.201404210

Bibliographical note

Contribution: organisation=sgn,FACT1=1
Portfolio EDEND: 2014-10-30
Publisher name: Wiley

Source: researchoutputwizard

Source-ID: 107

Research output: Scientific - peer-review › Article

Early interim PET/CT predicts post-treatment response in diffuse large B-cell lymphoma

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Wu, X., Pertovaara, H., Korkola, P., Vornanen, M., Järvenpää, R., Dastidar, P., Eskola, H., Kellokumpu-Lehtinen, P.

Number of pages: 7

Pages: 1093-1099

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: Acta Oncologica

Volume: 53

Issue number: 8

ISSN (Print): 0284-186X

Ratings:

Scopus rating (2016): SJR 1.385 SNIP 1.171 CiteScore 2.67

Scopus rating (2015): SJR 1.52 SNIP 1.155 CiteScore 2.85

Scopus rating (2014): SJR 1.234 SNIP 1.055 CiteScore 2.43

Scopus rating (2013): SJR 1.477 SNIP 1.342 CiteScore 2.86

Scopus rating (2012): SJR 1.436 SNIP 1.169 CiteScore 2.59

Scopus rating (2011): SJR 1.347 SNIP 1.224 CiteScore 2.58

Scopus rating (2010): SJR 1.166 SNIP 1.093

Scopus rating (2009): SJR 1.176 SNIP 0.886

Scopus rating (2008): SJR 0.902 SNIP 0.881

Scopus rating (2007): SJR 0.945 SNIP 1.052

Scopus rating (2006): SJR 0.788 SNIP 0.842

Scopus rating (2005): SJR 0.776 SNIP 0.929

Scopus rating (2004): SJR 0.819 SNIP 0.917

Scopus rating (2003): SJR 0.907 SNIP 0.915

Scopus rating (2002): SJR 0.691 SNIP 0.876

Scopus rating (2001): SJR 0.516 SNIP 0.695
Scopus rating (2000): SJR 0.385 SNIP 0.541
Scopus rating (1999): SJR 0.363 SNIP 0.563
Original language: English
DOIs:
10.3109/0284186X.2014.927074

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-08-19
Publisher name: Informa Healthcare
Source: researchoutputwizard
Source-ID: 1807
Research output: Scientific - peer-review › Article

Effect of heart rate correction on pre- and post-exercise heart rate variability to predict risk of mortality—an experimental study on the FINCAVAS cohort

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Department of Electronics and Communications Engineering, Augmented Human Activities (AHA)
Authors: Pradhapan, P., Tarvainen, M. P., Nieminen, T., Lehtinen, R., Nikus, K., Lehtimäki, T., Kähönen, M., Viik, J.
Publication date: 2014
Peer-reviewed: Yes

Publication information

Journal: Frontiers in Physiology
Volume: 5
Issue number: 208
ISSN (Print): 1664-042X
Ratings:
Scopus rating (2016): SJR 1.765 SNIP 1.157 CiteScore 3.89
Scopus rating (2015): SJR 1.871 SNIP 1.185 CiteScore 3.78
Scopus rating (2014): SJR 1.517 SNIP 1.049 CiteScore 3.29
Scopus rating (2013): SJR 1.227 SNIP 0.82 CiteScore 2.82
Scopus rating (2012): SJR 0.822 SNIP 0.691 CiteScore 2.14
Scopus rating (2011): SJR 0.501 SNIP 0.534
Original language: English
DOIs:
10.3389/fphys.2014.00208

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-05-30
Publisher name: Frontiers Research Foundation
Source: researchoutputwizard
Source-ID: 1304
Research output: Scientific - peer-review › Article

Effects of Radio Front-end PLL Phase Noise on GNSS Baseband Correlation

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Department of Electronics and Communications Engineering, Wireless Communications and Positioning (WICO)
Authors: Thombre, S., Tchamov, N. N., Lohan, S., Valkama, M., Nurmi, J.
Number of pages: 9
Pages: 13-21
Publication date: 2014
Peer-reviewed: Yes

Publication information

Journal: Navigation

Volume: 61
Issue number: 1
ISSN (Print): 0028-1522
Ratings:

Scopus rating (2016): SJR 0.981 SNIP 1.843 CiteScore 2.14
Scopus rating (2015): SJR 0.466 SNIP 1.571 CiteScore 1.33
Scopus rating (2014): SJR 0.392 SNIP 1.553 CiteScore 1.21
Scopus rating (2013): SJR 0.476 SNIP 1.907 CiteScore 1.3
Scopus rating (2012): SJR 0.65 SNIP 1.487 CiteScore 1.28
Scopus rating (2011): SJR 0.514 SNIP 0.937 CiteScore 0.97
Scopus rating (2010): SJR 0.361 SNIP 0.874
Scopus rating (2009): SJR 0.36 SNIP 1.283
Scopus rating (2008): SJR 0.498 SNIP 1.231
Scopus rating (2007): SJR 0.192 SNIP 0.982
Scopus rating (2006): SJR 0.328 SNIP 1.396
Scopus rating (2005): SJR 0.172 SNIP 0.749
Scopus rating (2004): SJR 0.273 SNIP 1.264
Scopus rating (2003): SJR 0.298 SNIP 0.993
Scopus rating (2002): SJR 0.352 SNIP 0.635
Scopus rating (2001): SJR 0.243 SNIP 0.55
Scopus rating (2000): SJR 0.18 SNIP 0.15
Scopus rating (1999): SJR 0.182
Original language: English
DOIs:
10.1002/navi.54

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-04-29
Publisher name: Wiley-Blackwell Publishing
Source: researchoutputwizard
Source-ID: 1624
Research output: Scientific - peer-review > Article

Electrostatic Threats in Hospital Environment

Uncontrolled electrostatic discharge (ESD) sources may cause unpleasant experiences as well as more serious hazards to health. We have observed surprisingly high energy ESD sources in the hospital environment. These findings are analyzed and discussed in this article. In addition, electrostatic attraction and charge relaxation of materials for medical purposes are studied and solutions are proposed.

General information

State: Published
Ministry of Education publication type: A4 Article in a conference publication
Organisations: Department of Electronics and Communications Engineering, Cascade Metrol, Kanta Hame Cent Hosp, Premix Oy, Ion PhasE, Electrostat Solut Ltd
Authors: Viheriäköski, T., Kokkonen, M., Tamminen, P., Karja, E., Hillberg, J., Smallwood, J.
Number of pages: 9
Publication date: 2014

Host publication information

Title of host publication: 2014 36TH Electrical overstress/electrostatic discharge symposium (EOS/ESD)
Publisher: IEEE COMPUTER SOC

Publication series

Name: Electrical Overstress Electrostatic Discharge Symposium
Publisher: IEEE COMPUTER SOC
ISSN (Print): 0739-5159
Source: WOS
Source-ID: 000355792800054
Research output: Scientific - peer-review > Conference contribution

Enzymatic oxidation of cholesterol: Properties and functional effects of cholestenone in cell membranes

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Research area: Computational Physics, Research group: Biological Physics and Soft Matter, Department of Physics, Computational Science X (CompX)

Authors: Neuvonen, M., Manna, M., Mokka, S., Javanainen, M., Rog, T., Liu, Z., Bittman, R., Vattulainen, I., Ikonen, E.

Number of pages: 13

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: PLoS One

Volume: 9

Issue number: 8

Article number: e103743

ISSN (Print): 1932-6203

Ratings:

Scopus rating (2016): CiteScore 3.11 SJR 1.201 SNIP 1.092

Scopus rating (2015): SJR 1.414 SNIP 1.131 CiteScore 3.32

Scopus rating (2014): SJR 1.545 SNIP 1.141 CiteScore 3.54

Scopus rating (2013): SJR 1.74 SNIP 1.147 CiteScore 3.94

Scopus rating (2012): SJR 1.945 SNIP 1.142 CiteScore 4.15

Scopus rating (2011): SJR 2.369 SNIP 1.23 CiteScore 4.58

Scopus rating (2010): SJR 2.631 SNIP 1.161

Scopus rating (2009): SJR 2.473 SNIP 0.985

Scopus rating (2008): SJR 2.323 SNIP 0.96

Scopus rating (2007): SJR 1.289 SNIP 0.525

Original language: English

DOIs:

10.1371/journal.pone.0103743

Bibliographical note

Contribution: organisation=fys,FACT1=1
Portfolio EDEND: 2014-12-16
Publisher name: Public Library of Science

Source: researchoutputwizard

Source-ID: 1130

Research output: Scientific - peer-review > Article

Evaluation of analytical reconstruction with a new gap-filling method in comparison to iterative reconstruction in [11C]-raclopride PET studies

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Research group: M2oBSI

Authors: Tuna, U., Johansson, J., Ruotsalainen, U.

Number of pages: 13

Pages: 417-429

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: Annals of Nuclear Medicine

Volume: 28

Issue number: 5

ISSN (Print): 0914-7187

Ratings:

Scopus rating (2016): SJR 0.576 SNIP 0.798 CiteScore 1.58

Scopus rating (2015): SJR 0.676 SNIP 0.882 CiteScore 1.62

Scopus rating (2014): SJR 0.73 SNIP 0.998 CiteScore 1.91

Scopus rating (2013): SJR 0.767 SNIP 0.91 CiteScore 1.74

Scopus rating (2012): SJR 0.657 SNIP 0.906 CiteScore 1.72
Scopus rating (2011): SJR 0.553 SNIP 0.945 CiteScore 1.74
Scopus rating (2010): SJR 0.51 SNIP 0.716
Scopus rating (2009): SJR 0.408 SNIP 0.707
Scopus rating (2008): SJR 0.423 SNIP 0.625
Scopus rating (2007): SJR 0.612 SNIP 0.815
Scopus rating (2006): SJR 0.411 SNIP 0.622
Scopus rating (2005): SJR 0.402 SNIP 0.675
Scopus rating (2004): SJR 0.345 SNIP 0.638
Scopus rating (2003): SJR 0.284 SNIP 0.649
Scopus rating (2002): SJR 0.346 SNIP 0.512
Scopus rating (2001): SJR 0.316 SNIP 0.463
Scopus rating (2000): SJR 0.32 SNIP 0.518
Scopus rating (1999): SJR 0.377 SNIP 0.509

Original language: English

DOIs:

10.1007/s12149-014-0832-y

Bibliographical note

Contribution: organisation=sgn,FACT1=1
Portfolio EDEND: 2014-10-30
Publisher name: Springer Japan KK;
Japanese Society of Nuclear Medicine

Source: researchoutputwizard

Source-ID: 1649

Research output: Scientific - peer-review > Article

Evaluation of thermal Comfort Properties of Prototypy Uniforms for Rescue Team Workers

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Materials Science

Authors: Varheenmaa, M.

Number of pages: 6

Pages: 1-6

Publication date: 2014

Host publication information

Title of host publication: Ambience14&10i3m, Tampere Hall, Tampere, Finland 7-9 September 2014

Editor: Varheenmaa, M.

ISBN (Print): 978-952-15-3269-6

Publication series

Name: Proceedings of Ambience, Scientific Conference for Smart Textiles

No.: 1

ISSN (Print): 2342-4540

Bibliographical note

Contribution: organisation=mol,FACT1=1
Portfolio EDEND: 2014-09-23

Source: researchoutputwizard

Source-ID: 1704

Research output: Scientific - peer-review > Conference contribution

Evaluation of Wearable Consumer Heart Rate Monitors Based on Photoplethysmography

Wearable monitoring of heart rate (HR) during physical activity and exercising allows real time control of exercise intensity and training effect. Recently, technologies based on pulse plethysmography (PPG) have become available for personal health management for consumers. However, the accuracy of these monitors is poorly known which limits their application. In this study, we evaluated accuracy of two PPG based (wrist i.e. Mio Alpha vs forearm i.e. Schosche Rhythm) commercially available HR monitors during exercise. 21 healthy volunteers (15 male and 6 female) completed an exercise protocol which included sitting, lying, walking, running, cycling, and some daily activities involving hand movements. HR estimation was compared against values from the reference electrocardiogram (ECG) signal. The heart rate estimation reliability scores for

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Signal Processing, Research group: Personal Health Informatics-PHI, Research Community on Data-to-Decision (D2D)

Authors: Parak, J., Korhonen, I.

Number of pages: 4

Pages: 3670-3673

Publication date: 2014

Host publication information

Title of host publication: 2014 36th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), 26-30 Aug. 2014, Chicago, IL

Place of publication: Pisgataway

Publisher: IEEE

ISBN (Print): 978-1-4244-7929-0

Publication series

Name: IEEE Engineering in Medicine and Biology Society Conference Proceedings

Publisher: IEEE

ISSN (Print): 1557-170X

DOIs:

10.1109/EMBC.2014.6944419

Bibliographical note

Contribution: organisation=sgn,FACT1=1
Portfolio EDEND: 2014-12-09

Source: researchoutputwizard

Source-ID: 1230

Research output: Scientific - peer-review > Conference contribution

Example measurements of exposure to ELF magnetic fields on the metro station in Finland

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering

Authors: Korpinen, L., Lähdetie, A., Amundin, Å., Piippo, H., Sydänheimo, L.

Number of pages: 4

Pages: 338-341

Publication date: 2014

Host publication information

Title of host publication: 8th International Workshop on Biological Effects of Electromagnetic Fields, 21-26 September, 2014, Golden Sands, Varna, Bulgaria

Links:

<http://www.emf2014.emfbg.com/assets/papers.pdf>

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-11-15

Source: researchoutputwizard

Source-ID: 777

Research output: Scientific - peer-review > Conference contribution

Examples of the Teaching of the Health Issues of Electromagnetic Fields at Tampere University of Technology in Finland

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering

Authors: Korpinen, L., Pääkkönen, R.

Number of pages: 2

Publication date: 2014

Host publication information

Title of host publication: EHE2014, 5th International Conference on Electromagnetic Fields, Health and Environment, Porto, Portugal, 24th - 26th April, 2014

Publisher: Portuguese Association for the Development of Electrical Engineering
Article number: PS.20

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-05-25
Publisher name: Portuguese Association for the Development of Electrical Engineering

Source: researchoutputwizard

Source-ID: 770

Research output: Scientific - peer-review › Conference contribution

Exemples se desures de l'exposition aux champs magnétiques ELF dans une station de métro en Finlande

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering

Authors: Korpinen, L., Lähdetie, A., Amundin, Å., Piippo, H., Sydänheimo, L.

Number of pages: 2

Pages: 1-2

Publication date: 2014

Host publication information

Title of host publication: Effets biologiques et sanitaires des rayonnements non ionisants, Limoges, 16 octobre 2014

Publisher: SFRP

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-11-19
Publisher name: SFRP

Source: researchoutputwizard

Source-ID: 778

Research output: Scientific - peer-review › Conference contribution

Exposure to EMF and health issues

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering

Authors: Gobba, F., Korpinen, L.

Number of pages: 2

Publication date: 2014

Host publication information

Title of host publication: Seminar of ICOH, Scientific Committee on Radiation & Work. The Occupational Health Professionals and the Exposures to Electromagnetic Fields (EMF): what about the Directive 2013/35/EU, 7th April 2014 - Paris

Place of publication: Paris

Publisher: International Commission on Occupational Health - ICOH, Commission Internationale de la Sante au Travail - CIST

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-05-25
Publisher name: International Commission on Occupational Health - ICOH, Commission Internationale de la Sante au Travail - CIST

Source: researchoutputwizard

Source-ID: 352

Research output: Scientific - peer-review › Conference contribution

Exposure to RF fields during the remote readings of the smart meter in Finland

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering

Authors: Pääkkönen, R., Lundström, M., Mustaparta, J., Korpinen, L.

Number of pages: 2

Pages: 94-96
Publication date: 2014

Host publication information

Title of host publication: 8th International Workshop on Biological Effects of Electromagnetic Fields, 21-26 September, 2014, Golden Sands, Varna, Bulgaria

Links:

<http://www.emf2014.emfbg.com/assets/papers.pdf>

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-11-15

Source: researchoutputwizard

Source-ID: 1208

Research output: Scientific - peer-review › Conference contribution

Finite element analysis of customized reconstruction plates for mandibular continuity defect therapy

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Narra, N., Valasek, J., Hannula, M., Marcian, P., Sandor, G. K., Hyttinen, J., Wolff, J.

Number of pages: 5

Pages: 264-268

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: Journal of Biomechanics

Volume: 47

Issue number: 1

ISSN (Print): 0021-9290

Ratings:

Scopus rating (2016): SJR 1.2 SNIP 1.368 CiteScore 2.84

Scopus rating (2015): SJR 1.276 SNIP 1.46 CiteScore 2.76

Scopus rating (2014): SJR 1.233 SNIP 1.718 CiteScore 3.01

Scopus rating (2013): SJR 1.522 SNIP 1.783 CiteScore 3.14

Scopus rating (2012): SJR 1.326 SNIP 1.733 CiteScore 2.99

Scopus rating (2011): SJR 1.269 SNIP 1.615 CiteScore 2.82

Scopus rating (2010): SJR 1.174 SNIP 1.747

Scopus rating (2009): SJR 1.39 SNIP 1.867

Scopus rating (2008): SJR 1.455 SNIP 1.899

Scopus rating (2007): SJR 1.575 SNIP 2.14

Scopus rating (2006): SJR 1.518 SNIP 2.11

Scopus rating (2005): SJR 1.223 SNIP 2.208

Scopus rating (2004): SJR 1.057 SNIP 1.909

Scopus rating (2003): SJR 1.314 SNIP 1.737

Scopus rating (2002): SJR 1.124 SNIP 1.605

Scopus rating (2001): SJR 1.234 SNIP 2.158

Scopus rating (2000): SJR 1.525 SNIP 1.971

Scopus rating (1999): SJR 1.137 SNIP 1.835

Original language: English

DOIs:

10.1016/j.jbiomech.2013.11.016

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-02-15

Source: researchoutputwizard

Source-ID: 1124

Research output: Scientific - peer-review › Article

Flexor tendon healing within the tendon sheath using bioabsorbable poly-l/d-lactide 96/4 suture. A histological in vivo study with rabbits

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Viinikainen, A., Göransson, H., Taskinen, H., Røyttä, M., Kellomäki, M., Törmälä, P., Rokkanen, P.

Number of pages: 7

Pages: 1319-1325

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: Journal of Materials Science: Materials in Medicine

Volume: 25

Issue number: 5

ISSN (Print): 0957-4530

Ratings:

Scopus rating (2016): SJR 0.533 SNIP 0.739 CiteScore 2.02

Scopus rating (2015): SJR 0.738 SNIP 0.952 CiteScore 2.46

Scopus rating (2014): SJR 0.739 SNIP 1.348 CiteScore 2.52

Scopus rating (2013): SJR 0.825 SNIP 1.349 CiteScore 3.02

Scopus rating (2012): SJR 0.861 SNIP 1.305 CiteScore 2.68

Scopus rating (2011): SJR 1.006 SNIP 1.228 CiteScore 2.8

Scopus rating (2010): SJR 0.949 SNIP 1.06

Scopus rating (2009): SJR 0.817 SNIP 0.996

Scopus rating (2008): SJR 0.686 SNIP 0.997

Scopus rating (2007): SJR 0.803 SNIP 0.979

Scopus rating (2006): SJR 0.724 SNIP 1.034

Scopus rating (2005): SJR 0.548 SNIP 1.046

Scopus rating (2004): SJR 0.465 SNIP 0.955

Scopus rating (2003): SJR 1.109 SNIP 0.808

Scopus rating (2002): SJR 0.923 SNIP 1.072

Scopus rating (2001): SJR 0.755 SNIP 1.378

Scopus rating (2000): SJR 0.707 SNIP 1.048

Scopus rating (1999): SJR 0.66 SNIP 1.078

Original language: English

DOIs:

10.1007/s10856-014-5160-1

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-04-30
Publisher name: Springer New York

Source: researchoutputwizard

Source-ID: 1734

Research output: Scientific - peer-review > Article

Free radical scavenging and formation by multi-walled carbon nanotubes in cell free conditions and in human bronchial epithelial cells

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Materials Science, Engineering materials science and solutions (EMASS)

Authors: Nymark, P., Alstrup Jensen, K., Suhonen, S., Kembouche, Y., Vippola, M., Kleinjans, J., Catalan, J., Norppa, H., van Delft, J., Briede, J. J.

Number of pages: 18

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: Particle and Fibre Toxicology

Volume: 11

Issue number: 4

ISSN (Print): 1743-8977

Ratings:

Scopus rating (2016): SJR 2.742 SNIP 2.165 CiteScore 9.4

Scopus rating (2015): SJR 3 SNIP 2.013 CiteScore 8.84

Scopus rating (2014): SJR 2.359 SNIP 1.81 CiteScore 6.94

Scopus rating (2013): SJR 2.713 SNIP 2.388 CiteScore 8.5

Scopus rating (2012): SJR 3.032 SNIP 2.075 CiteScore 8.84

Scopus rating (2011): SJR 2.705 SNIP 1.887 CiteScore 7.51

Scopus rating (2010): SJR 2.102 SNIP 1.385

Scopus rating (2009): SJR 2.138 SNIP 1.743

Scopus rating (2008): SJR 2.152 SNIP 1.82

Scopus rating (2007): SJR 1.781 SNIP 1.734

Scopus rating (2006): SJR 1.47 SNIP 1.707

Scopus rating (2005): SJR 0.499 SNIP 0.298

Original language: English

DOIs:

10.1186/1743-8977-11-4

Bibliographical note

Contribution: organisation=mol,FACT1=1
Portfolio EDEND: 2014-06-27
Publisher name: BioMed Central

Source: researchoutputwizard

Source-ID: 1173

Research output: Scientific - peer-review › Article

Fusion of Edge Enhancing Algorithms for Atherosclerotic Carotid Wall Contour Detection in Computed Tomography Angiography

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Santos, F. L. C. D., Joutsen, A., Salenius, J., Eskola, H.

Number of pages: 4

Pages: 925-928

Publication date: 2014

Host publication information

Title of host publication: Computing in cardiology 2014

Publisher: Computing in Cardiology

ISBN (Print): 978-1-4799-4346-3

ISBN (Electronic): 978-1-4799-4347-0

Links:

<http://cinc.org/archives/2014/pdf/0925.pdf>

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-12-09
Publisher name: Computing in Cardiology

Source: researchoutputwizard

Source-ID: 1457

Research output: Scientific - peer-review › Conference contribution

Habit change as a learning Process: Design framework for Mobile Interventions

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Signal Processing, Research group: Personal Health Informatics-PHI, Research Community on Data-to-Decision (D2D)
Authors: Vainio, J., Kaipainen, K., Korhonen, I.
Number of pages: 4
Pages: 801-804
Publication date: 2014

Host publication information

Title of host publication: 2014 IEEE-EMBS International Conference on Biomedical and Health Informatics, BHI, Valencia, Spain, June 1-4, 2014
Place of publication: Piscataway
Publisher: Institute of Electrical and Electronics Engineers
ISBN (Print): 978-1-4799-2132-4
DOIs:
10.1109/BHI.2014.6864485

Bibliographical note

Contribution: organisation=sgn,FACT1=1
Portfolio EDEND: 2014-12-07
Source: researchoutputwizard
Source-ID: 1687
Research output: Scientific - peer-review › Conference contribution

Health coaching in Finland - a market study

General information

State: Published
Ministry of Education publication type: A4 Article in a conference publication
Organisations: Department of Signal Processing, Research group: Personal Health Informatics-PHI, Research Community on Data-to-Decision (D2D)
Authors: Hiekkanen, A., Nieminen, H., Korhonen, I.
Number of pages: 4
Pages: 805-808
Publication date: 2014

Host publication information

Title of host publication: 2014 IEEE-EMBS International Conference on Biomedical and Health Informatics (BHI), 1-4 June 2014, Valencia, Spain
Place of publication: Piscataway
Publisher: Institute of Electrical and Electronics Engineers IEEE
ISBN (Print): 978-1-4799-2131-7
DOIs:
10.1109/BHI.2014.6864486

Bibliographical note

Contribution: organisation=sgn,FACT1=1
Portfolio EDEND: 2014-09-24
Publisher name: Institute of Electrical and Electronics Engineers IEEE
Source: researchoutputwizard
Source-ID: 471
Research output: Scientific - peer-review › Conference contribution

Health surveillance according to the new EU directive 2013/35/EU: possible criteria

General information

State: Published
Ministry of Education publication type: A4 Article in a conference publication
Organisations: Department of Electronics and Communications Engineering
Authors: Gobba, F., Korpinen, L.
Number of pages: 3
Pages: 152-154
Publication date: 2014

Host publication information

Title of host publication: 8th International Workshop on Biological Effects of Electromagnetic Fields, 21-26 September, 2014, Golden Sands, Varna, Bulgaria
Links:

<http://www.emf2014.emfbg.com/assets/papers.pdf>

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-11-15

Source: researchoutputwizard

Source-ID: 353

Research output: Scientific - peer-review › Conference contribution

Heart rate variability evaluation of Emfit sleep mattress breathing categories in NREM sleep

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, BioMediTech, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Tenhunen, M., Hyttinen, J., Lipponen, J. A., Virkkala, J., Kuusimäki, S., Tarvainen, M. P., Karjalainen, P. A., Himanen, S.

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: Clinical Neurophysiology

ISSN (Print): 1388-2457

Ratings:

Scopus rating (2016): SJR 1.379 SNIP 1.394 CiteScore 2.81

Scopus rating (2015): SJR 1.581 SNIP 1.384 CiteScore 2.72

Scopus rating (2014): SJR 1.405 SNIP 1.363 CiteScore 2.61

Scopus rating (2013): SJR 1.523 SNIP 1.468 CiteScore 3

Scopus rating (2012): SJR 1.553 SNIP 1.403 CiteScore 3.03

Scopus rating (2011): SJR 1.713 SNIP 1.678 CiteScore 3.35

Scopus rating (2010): SJR 1.511 SNIP 1.481

Scopus rating (2009): SJR 1.601 SNIP 1.467

Scopus rating (2008): SJR 1.374 SNIP 1.293

Scopus rating (2007): SJR 1.369 SNIP 1.441

Scopus rating (2006): SJR 1.385 SNIP 1.483

Scopus rating (2005): SJR 1.343 SNIP 1.474

Scopus rating (2004): SJR 1.256 SNIP 1.435

Scopus rating (2003): SJR 1.293 SNIP 1.32

Scopus rating (2002): SJR 1.129 SNIP 1.088

Scopus rating (2001): SJR 0.791 SNIP 1.169

Scopus rating (2000): SJR 0.594 SNIP 1.009

Original language: English

DOIs:

10.1016/j.clinph.2014.08.012

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-10-16
Publisher name: Elsevier Ireland

Source: researchoutputwizard

Source-ID: 1612

Research output: Scientific - peer-review › Article

Histogram-based classification of iPSC colony images using machine learning methods

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Augmented Human Activities (AHA), Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Joutsijoki, H., Haponen, M., Baldin, I., Rasku, J., Gizatdinova, Y., Paci, M., Hyttinen, J., Aalto-Setälä, K., Juhola, M.

Number of pages: 7
Pages: 2641-2647
Publication date: 2014

Host publication information

Title of host publication: 2014 IEEE International Conference on Systems, Man, and Cybernetics, October 5-8, 2014, San Diego, CA, USA
Publisher: Institute of Electrical and Electronics Engineers IEEE
ISBN (Print): 978-1-4799-3840-7

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-11-30
Publisher name: Institute of Electrical and Electronics Engineers IEEE
Source: researchoutputwizard
Source-ID: 613
Research output: Scientific - peer-review › Conference contribution

Hiukkaspäästöt suurennuslasin alla

General information

State: Published
Ministry of Education publication type: D1 Article in a trade journal
Organisations: Research area: Aerosol Physics, Department of Physics
Authors: Rönkkö, T., saarikoski, S.
Number of pages: 2
Pages: 16-17
Publication date: 2014
Peer-reviewed: Unknown

Publication information

Journal: Automaatiöväylä
Issue number: 3
ISSN (Print): 0784-6428
Original language: Finnish

Bibliographical note

Contribution: organisation=fys,FACT1=1
Portfolio EDEND: 2014-12-16
Source: researchoutputwizard
Source-ID: 1403
Research output: Professional › Article

How Anacetrapib Inhibits the Activity of the Cholesteryl Ester Transfer Protein? Perspective through Atomistic Simulations

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Research area: Computational Physics, Research group: Biological Physics and Soft Matter, Department of Physics, Computational Science X (CompX)
Authors: Äijänen, T., Koivuniemi, A., Javanainen, M., Rissanen, S., Rog, T., Vattulainen, I.
Number of pages: 14
Pages: 1-14
Publication date: 2014
Peer-reviewed: Yes

Publication information

Journal: PLOS Computational Biology
Volume: 10
Issue number: 11
Article number: e1003987
ISSN (Print): 1553-7358
Ratings:

Scopus rating (2016): SJR 3.144 SNIP 1.342 CiteScore 4.41
Scopus rating (2015): SJR 3.43 SNIP 1.447 CiteScore 4.69
Scopus rating (2014): SJR 3.359 SNIP 1.44 CiteScore 4.74

Scopus rating (2013): SJR 3.295 SNIP 1.457 CiteScore 4.91
Scopus rating (2012): SJR 3.329 SNIP 1.642 CiteScore 5.36
Scopus rating (2011): SJR 3.381 SNIP 1.603 CiteScore 5.25
Scopus rating (2010): SJR 3.523 SNIP 1.554
Scopus rating (2009): SJR 3.273 SNIP 1.44
Scopus rating (2008): SJR 3.58 SNIP 1.371
Scopus rating (2007): SJR 3.09 SNIP 1.264
Scopus rating (2006): SJR 1.988 SNIP 1.018
Original language: English
DOIs:
10.1371/journal.pcbi.1003987

Bibliographical note

Contribution: organisation=fys,FACT1=1
Portfolio EDEND: 2014-12-16
Publisher name: Public Library of Science; International Society for Computational Biology
Source: researchoutputwizard
Source-ID: 72
Research output: Scientific - peer-review > Article

Hybrid and Rogue Kinases Encoded in the Genomes of Model Eukaryotes

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Department of Signal Processing
Authors: Rakshambikai, R., Mutharasu, G., Srivivasan, N.
Number of pages: 9
Publication date: 2014
Peer-reviewed: Yes

Publication information

Journal: PLoS One
ISSN (Print): 1932-6203
Ratings:
Scopus rating (2016): CiteScore 3.11 SJR 1.201 SNIP 1.092
Scopus rating (2015): SJR 1.414 SNIP 1.131 CiteScore 3.32
Scopus rating (2014): SJR 1.545 SNIP 1.141 CiteScore 3.54
Scopus rating (2013): SJR 1.74 SNIP 1.147 CiteScore 3.94
Scopus rating (2012): SJR 1.945 SNIP 1.142 CiteScore 4.15
Scopus rating (2011): SJR 2.369 SNIP 1.23 CiteScore 4.58
Scopus rating (2010): SJR 2.631 SNIP 1.161
Scopus rating (2009): SJR 2.473 SNIP 0.985
Scopus rating (2008): SJR 2.323 SNIP 0.96
Scopus rating (2007): SJR 1.289 SNIP 0.525
Original language: English
DOIs:
10.1371/journal.pone.0107956

Bibliographical note

Contribution: organisation=sgn,FACT1=1
Portfolio EDEND: 2014-10-30
Publisher name: Public Library of Science
Source: researchoutputwizard
Source-ID: 1340
Research output: Scientific - peer-review > Article

Impedance Considerations on MEA - the Effect of Electrode Materials and Coatings

General information

State: Published
Ministry of Education publication type: B3 Non-refereed article in conference proceedings

Organisations: Department of Automation Science and Engineering
Authors: Ryyänen, T., Sivasubramaniapandian, M., Peltola, M., Narkilahti, S., Lekkala, J.
Number of pages: 2
Pages: 268-269
Publication date: 2014

Host publication information

Title of host publication: MEA Meeting 2014, Conference Proceedings of the 9th International Meeting on Substrate-Integrated Microelectrode Arrays; Tübingen Neurotech 2014, 1st Tübingen Symposium on Current Topics in Neurotechnology, July 1 - July 4, 2014, Reutlingen, Germany

Links:

http://www.nmi.de/fileadmin/PDF/Broschueren/MEA2014_Proceedings_web.pdf

Bibliographical note

MEA Meeting 2014, Tübingen Neurotech 2014
Contribution: organisation=ase,FACT1=1
Portfolio EDEND: 2014-12-02

Source: researchoutputwizard

Source-ID: 1416

Research output: Scientific > Conference contribution

Impedance spectroscopy of changes in skin-electrode impedance induced by motion

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Cömert, A., Hyttinen, J.

Number of pages: 19

Pages: 1-19

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: Biomedical Engineering Online

Volume: 13

Issue number: 1

Article number: 149

ISSN (Print): 1475-925X

Ratings:

Scopus rating (2016): CiteScore 2.01 SJR 0.487 SNIP 1.048

Scopus rating (2015): SJR 0.521 SNIP 0.84 CiteScore 1.67

Scopus rating (2014): SJR 0.517 SNIP 1.133 CiteScore 2.02

Scopus rating (2013): SJR 0.577 SNIP 1.007 CiteScore 2.14

Scopus rating (2012): SJR 0.443 SNIP 1.059 CiteScore 1.81

Scopus rating (2011): SJR 0.401 SNIP 1.054 CiteScore 1.73

Scopus rating (2010): SJR 0.428 SNIP 1.102

Scopus rating (2009): SJR 0.521 SNIP 1.408

Scopus rating (2008): SJR 0.537 SNIP 0.97

Scopus rating (2007): SJR 0.453 SNIP 1.205

Scopus rating (2006): SJR 0.622 SNIP 1.282

Scopus rating (2005): SJR 0.502 SNIP 0.947

Scopus rating (2004): SJR 0.404 SNIP 1.181

Scopus rating (2003): SJR 0.151 SNIP 0.313

Original language: English

DOIs:

10.1186/1475-925X-13-149

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-11-30
Publisher name: BioMed Central

Source: researchoutputwizard

Source-ID: 239

Implantable Cardioverter Defibrillators in Electric and Magnetic Fields of 400 kV Power Lines

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering

Authors: Korpinen, L., Kuisti, H., Elovaara, J., Virtanen, V.

Number of pages: 7

Pages: 297-303

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: PACE: Pacing and Clinical Electrophysiology

Volume: 37

Issue number: 3

ISSN (Print): 0147-8389

Ratings:

Scopus rating (2016): SJR 0.813 SNIP 0.695 CiteScore 1.26

Scopus rating (2015): SJR 0.716 SNIP 0.636 CiteScore 1.1

Scopus rating (2014): SJR 0.823 SNIP 0.715 CiteScore 1.21

Scopus rating (2013): SJR 0.939 SNIP 0.764 CiteScore 1.27

Scopus rating (2012): SJR 1.151 SNIP 0.862 CiteScore 1.59

Scopus rating (2011): SJR 0.936 SNIP 0.782 CiteScore 1.43

Scopus rating (2010): SJR 0.89 SNIP 0.768

Scopus rating (2009): SJR 0.895 SNIP 0.951

Scopus rating (2008): SJR 0.833 SNIP 0.88

Scopus rating (2007): SJR 1.111 SNIP 0.966

Scopus rating (2006): SJR 0.865 SNIP 0.788

Scopus rating (2005): SJR 0.743 SNIP 0.834

Scopus rating (2004): SJR 0.711 SNIP 0.822

Scopus rating (2003): SJR 0.668 SNIP 0.89

Scopus rating (2002): SJR 0.687 SNIP 0.785

Scopus rating (2001): SJR 0.869 SNIP 0.8

Scopus rating (2000): SJR 0.888 SNIP 0.895

Scopus rating (1999): SJR 0.805 SNIP 0.888

Original language: English

DOIs:

10.1111/pace.12270

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-04-29

Source: researchoutputwizard

Source-ID: 774

Research output: Scientific - peer-review › Article

Implantable Cardioverter Defibrillators in Magnetic Fields of a 400 kV Substation

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Environmental Health

Authors: Korpinen, L., Kuisti, H., Tarao, H., Elovaara, J., Virtanen, V.

Number of pages: 9

Pages: 205-213

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: Progress In Electromagnetics Research M

Volume: 40

ISSN (Print): 1937-8726

Ratings:

Scopus rating (2016): SJR 0.2 SNIP 0.456 CiteScore 0.67

Scopus rating (2015): SJR 0.248 SNIP 0.494 CiteScore 0.53

Scopus rating (2014): SJR 0.263 SNIP 0.699 CiteScore 0.69

Scopus rating (2013): SJR 0.363 SNIP 0.882 CiteScore 1.14

Scopus rating (2012): SJR 0.35 SNIP 0.758 CiteScore 1.13

Scopus rating (2011): SJR 0.322 SNIP 0.869 CiteScore 1.11

Scopus rating (2010): SJR 0.26 SNIP 0.691

Original language: English

Links:

<http://www.jpier.org/PIERM/pierm40/20.14111604.pdf>

Bibliographical note

Siirretään portfolio15
Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2015-01-19

Source: researchoutputwizard

Source-ID: 775

Research output: Scientific - peer-review > Article

Implants cardiaques et champs électromagnétiques : comparaison de résultats en France et en Finlande

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering

Authors: Magne, I., Souques, M., Korpinen, L.

Number of pages: 2

Pages: 1-2

Publication date: 2014

Host publication information

Title of host publication: Effets biologiques et sanitaires des rayonnements non ionisants, Limoges, 16 octobre 2014

Publisher: SFRP

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-11-19
Publisher name: SFRP

Source: researchoutputwizard

Source-ID: 990

Research output: Scientific - peer-review > Conference contribution

Influence of exercise loading on magnetic resonance image texture of thigh soft tissues

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Sikiö, M., Harrison, L. C., Nikander, R., Ryymin, P., Dastidar, P., Eskola, H. J., Sievänen, H.

Number of pages: 7

Pages: 370-376

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: Clinical Physiology and Functional Imaging

Volume: 34

Issue number: 5

ISSN (Print): 1475-0961

Ratings:

Scopus rating (2016): SJR 0.635 SNIP 0.778 CiteScore 1.49

Scopus rating (2015): SJR 0.538 SNIP 0.668 CiteScore 1.44
Scopus rating (2014): SJR 0.589 SNIP 0.837 CiteScore 1.53
Scopus rating (2013): SJR 0.595 SNIP 0.684 CiteScore 1.53
Scopus rating (2012): SJR 0.464 SNIP 0.909 CiteScore 1.51
Scopus rating (2011): SJR 0.512 SNIP 0.71 CiteScore 1.52
Scopus rating (2010): SJR 0.587 SNIP 0.825
Scopus rating (2009): SJR 0.444 SNIP 0.707
Scopus rating (2008): SJR 0.468 SNIP 0.841
Scopus rating (2007): SJR 0.435 SNIP 0.703
Scopus rating (2006): SJR 0.446 SNIP 0.776
Scopus rating (2005): SJR 0.505 SNIP 0.715
Scopus rating (2004): SJR 0.424 SNIP 0.69
Scopus rating (2003): SJR 0.519 SNIP 0.791
Scopus rating (2002): SJR 0.427 SNIP 0.592
Scopus rating (2001): SJR 0.393 SNIP 0.796
Scopus rating (2000): SJR 0.378 SNIP 0.78
Scopus rating (1999): SJR 0.264 SNIP 0.634

Original language: English

DOIs:

10.1111/cpf.12107

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2013-11-29
Publisher name: Wiley-Blackwell Publishing Ltd.

Source: researchoutputwizzard

Source-ID: 1507

Research output: Scientific - peer-review > Article

Inhalation or rod-like carbon nanotubes causes unconventional allergic airway inflammation

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Materials Science, Engineering materials science and solutions (EMASS)

Authors: Rydman, E. M., Ilves, M., Koivisto, A. J., Kinaret, P. S. A., Fortino, V., Savinko, T. S., Lehto, M. T., Pulkkinen, V., Vippola, M., Hämeri, K. J., Matikainen, S., Wolff, H., Savolainen, K. M., Greco, D., Alenius, H.

Number of pages: 17

Pages: 1-17

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: Particle and Fibre Toxicology

Volume: 11

Issue number: 48

ISSN (Print): 1743-8977

Ratings:

Scopus rating (2016): SJR 2.742 SNIP 2.165 CiteScore 9.4
Scopus rating (2015): SJR 3 SNIP 2.013 CiteScore 8.84
Scopus rating (2014): SJR 2.359 SNIP 1.81 CiteScore 6.94
Scopus rating (2013): SJR 2.713 SNIP 2.388 CiteScore 8.5
Scopus rating (2012): SJR 3.032 SNIP 2.075 CiteScore 8.84
Scopus rating (2011): SJR 2.705 SNIP 1.887 CiteScore 7.51
Scopus rating (2010): SJR 2.102 SNIP 1.385
Scopus rating (2009): SJR 2.138 SNIP 1.743
Scopus rating (2008): SJR 2.152 SNIP 1.82
Scopus rating (2007): SJR 1.781 SNIP 1.734
Scopus rating (2006): SJR 1.47 SNIP 1.707

Scopus rating (2005): SJR 0.499 SNIP 0.298
Original language: English
DOIs:
10.1186/s12989-014-0048-2
Links:
<http://www.particleandfibretoxicology.com/content/11/1/48>

Bibliographical note

Contribution: organisation=mol,FACT1=1
Portfolio EDEND: 2014-12-01
Publisher name: BioMed Central
Source: researchoutputwizard
Source-ID: 1414
Research output: Scientific - peer-review > Article

Innovatiiviset materiaali- ja rakenneratkaisut hyttystorjunnassa

General information

State: Published
Ministry of Education publication type: D1 Article in a trade journal
Organisations: Department of Materials Science
Authors: Jylhä, K.
Number of pages: 1
Pages: 13-13
Publication date: 2014
Peer-reviewed: Unknown

Publication information

Journal: Tekstiilehti
Issue number: 2
ISSN (Print): 0040-2370
Original language: Finnish
Links:
<http://www.tekstiilehti.fi/binary/file/-/id/12/fid/337/>

Bibliographical note

Contribution: organisation=mol,FACT1=1
Portfolio EDEND: 2014-05-27
Publisher name: Suomen tekstiiliteknillinen liitto
Source: researchoutputwizard
Source-ID: 626
Research output: Professional > Article

Integrated microfluidic culture environments for in vitro cell studies

General information

State: Published
Ministry of Education publication type: B3 Non-refereed article in conference proceedings
Organisations: Department of Automation Science and Engineering
Authors: Kreutzer, J., Kallio, P.
Number of pages: 5
Pages: 10-14
Publication date: 2014

Host publication information

Title of host publication: COST Action MP 1205 Advances in Optofluidics: Integration of Optical Control and Photonics with Microfluidics, General meeting, FOCAS Research Institute, Dublin, 24-25, April 2014

Publication series

Name: Annual conference of the COST Action MP 1205 Advances in Optofluidics

Bibliographical note

Contribution: organisation=ase,FACT1=1
Portfolio EDEND: 2014-09-08
Source: researchoutputwizard
Source-ID: 810
Research output: Scientific > Conference contribution

Integration of inkjet and RF SoC technologies to fabricate wireless physiological monitoring system

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Department of Automation Science and Engineering, Augmented Human Activities (AHA), Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Sillanpää, H., Vehkaoja, A., Vorobiev, D., Nurmentaus, S., Lekkala, J., Mäntysalo, M.

Pages: 1-5

Publication date: 2014

Host publication information

Title of host publication: 2014 Electronics System-Integration Technology Conference (ESTC), 16-18 September 2014, Helsinki, Finland

Publisher: Institute of Electrical and Electronics Engineers IEEE

ISBN (Print): 978-1-4799-4026-4

DOIs:

10.1109/ESTC.2014.6962739

Bibliographical note

Contribution: organisation=elt,FACT1=0.8
Contribution: organisation=ase,FACT2=0.2
Portfolio EDEND: 2014-12-29
Publisher name: Institute of Electrical and Electronics Engineers IEEE

Source: researchoutputwizard

Source-ID: 1511

Research output: Scientific - peer-review › Conference contribution

Integrative genomics and transcriptomics analysis of human embryonic and induced pluripotent stem cells

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing

Authors: Laurila, K., Autio, R., Kong, L., Närvä, E., Hussein, S., Otonkoski, T., Lahesmaa, R., Lähdesmäki, H.

Number of pages: 24

Pages: 1-24

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: BioData Mining

ISSN (Print): 1756-0381

Ratings:

Scopus rating (2016): SJR 0.833 SNIP 0.652 CiteScore 1.53

Scopus rating (2015): SJR 1.141 SNIP 0.689 CiteScore 2.14

Scopus rating (2014): SJR 1.121 SNIP 0.941 CiteScore 2.21

Scopus rating (2013): SJR 0.754 SNIP 0.707 CiteScore 1.81

Scopus rating (2012): SJR 1.081 SNIP 1.242 CiteScore 2.35

Scopus rating (2011): SJR 0.671 SNIP 1.382 CiteScore 2.15

Scopus rating (2010): SJR 0.484 SNIP 0.799

Original language: English

DOIs:

10.1186/s13040-014-0032-2

Bibliographical note

Contribution: organisation=sgn,FACT1=1
Portfolio EDEND: 2014-12-20
Publisher name: BioMed Central

Source: researchoutputwizard

Source-ID: 900

Research output: Scientific - peer-review › Article

Investigating local spatially-enhanced structural and textural descriptors for classification of iPSC colony images

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Augmented Human Activities (AHA), Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Gizatdinova, Y., Rasku, J., Haponen, M., Joutsijoki, H., Baldin, I., Paci, M., Hyttinen, J., Aalto-Setälä, K., Juhola, M.

Number of pages: 5

Pages: 3361-3365

Publication date: 2014

Host publication information

Title of host publication: 2014 36th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), 26-30 Aug. 2014, Chicago, IL, USA

Publisher: Institute of Electrical and Electronics Engineers IEEE

ISBN (Print): 978-1-4244-7929-0

DOIs:

10.1109/EMBC.2014.6944343

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-12-01
Publisher name: Institute of Electrical and Electronics Engineers IEEE

Source: researchoutputwizard

Source-ID: 348

Research output: Scientific - peer-review > Conference contribution

In vitro bioluminescence used as a method for real-time inhibition zone testing for antibiotic-releasing composites

Aims: This study describes the potential of real-time bioluminescence imaging in evaluating the antibiotic efficiency of two cylinder-shaped bioabsorbable antibiotic-releasing composites by in vitro inhibition zone tests. The bacterial infections of bone tissue can cause extensive hard and soft tissue damage and decrease the efficiency of oral antibiotic therapy due to the poor blood circulation in the infected area. To overcome this problem, new, locally antibiotic-releasing biodegradable composites have been developed. **Study Design & Methodology:** The two composites evaluated in this study were composed of poly(L-lactide-co-ε-caprolactone) matrix, β-tricalcium phosphate ceramic and either ciprofloxacin or rifampicin antibiotic. The composites were tested with genetically modified model pathogens of osteomyelitis (*Pseudomonas aeruginosa* and *Staphylococcus epidermidis*) in vitro in inhibition zone tests using a method of real-time bioluminescence. **Results:** The first signs of the effect of the released ciprofloxacin or rifampicin became visible after four hours of incubation and were seen as changed bioluminescence around the composite pellet on a culture dish. Both of the composite types showed excellent effects against the sensor bacteria within the diffusion area. Bioluminescence measurements suggested that no survivor bacteria capable of evolving resistant strains were left inside the inhibition zones. The *S. epidermidis* bacterial strain was an inhibition sensor and *P. aeruginosa* was a stress sensor. **Conclusion:** These results highlight the potential of the composite materials against the pathogens of osteomyelitis. The approach allows continuous visual inspection of the efficacy of the antibiotics against the bacteria.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Department of Chemistry and Bioengineering

Authors: Männistö, N. M., Ahola, N., Karp, M. T., Veiranto, M., Kellomäki, M.

Number of pages: 20

Pages: 235-254

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: British Microbiology Research Journal

Volume: 4

Issue number: 2

ISSN (Print): 2231-0886

Original language: English

Electronic versions:

mannisto_in_vitro_bioluminescence_used_as_a_method.pdf

DOIs:

10.9734/BMRJ/2014/6661

Links:

<http://urn.fi/URN:NBN:fi:tty-201401301069>

Bibliographical note

Contribution: organisation=keb,FACT1=0.5
Contribution: organisation=elt,FACT2=0.5
Portfolio EDEND: 2014-02-15
Publisher name: Sciencedomain International
Source: researchoutputwizard
Source-ID: 1026
Research output: Scientific - peer-review › Article

In Vivo Transcription Kinetics of a Synthetic Gene Uninvolved in Stress-Response Pathways in Stressed Escherichia coli Cells

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Department of Signal Processing, Research group: Laboratory of Biosystem Dynamics-LBD, Multi-scaled biodata analysis and modelling (MultiBAM)
Authors: Muthukrishnan, A., Martikainen, A., Neeli-Venkata, R., S. Ribeiro, A.
Number of pages: 9
Pages: 1-9
Publication date: 2014
Peer-reviewed: Yes

Publication information

Journal: PLoS One
ISSN (Print): 1932-6203
Ratings:
Scopus rating (2016): CiteScore 3.11 SJR 1.201 SNIP 1.092
Scopus rating (2015): SJR 1.414 SNIP 1.131 CiteScore 3.32
Scopus rating (2014): SJR 1.545 SNIP 1.141 CiteScore 3.54
Scopus rating (2013): SJR 1.74 SNIP 1.147 CiteScore 3.94
Scopus rating (2012): SJR 1.945 SNIP 1.142 CiteScore 4.15
Scopus rating (2011): SJR 2.369 SNIP 1.23 CiteScore 4.58
Scopus rating (2010): SJR 2.631 SNIP 1.161
Scopus rating (2009): SJR 2.473 SNIP 0.985
Scopus rating (2008): SJR 2.323 SNIP 0.96
Scopus rating (2007): SJR 1.289 SNIP 0.525
Original language: English
DOIs:
10.1371/journal.pone.0109005

Bibliographical note

Contribution: organisation=sgn,FACT1=1
Portfolio EDEND: 2014-10-30
Publisher name: Public Library of Science
Source: researchoutputwizard
Source-ID: 1115
Research output: Scientific - peer-review › Article

Learning healthy habits with a mobile self-intervention

General information

State: Published
Ministry of Education publication type: A4 Article in a conference publication
Organisations: Department of Signal Processing, Research group: Personal Health Informatics-PHI, Research Community on Data-to-Decision (D2D)
Authors: Vainio, J., Korhonen, I., Kenttä, O., Järvinen, J., Kaipainen, K.
Number of pages: 8
Pages: 150-157
Publication date: 2014

Host publication information

Title of host publication: Proceedings of the 8th International Conference on Pervasive Computing Technologies for Healthcare ,Pervasive Health 2014, 20-23 May 2014, OFFIS Oldenburg, Germany
Place of publication: Brussels

Publisher: ICST (Institute for Computer Sciences, Social-Informatics and Telecommunications Engineering)
Editors: Boll, S., Köhler, F.
ISBN (Print): 978-1-63190-011-2
DOIs:
10.4108/icst.pervasivehealth.2014.254951

Bibliographical note

Contribution: organisation=sgn,FACT1=1
Portfolio EDEND: 2014-12-08
Source: researchoutputwizard
Source-ID: 1688
Research output: Scientific - peer-review > Conference contribution

L'enseignement sur « questions sur la santé et exposition aux champs électromagnétiques » à l'université de technologie de Tampere en Finlande

General information

State: Published
Ministry of Education publication type: A4 Article in a conference publication
Organisations: Department of Electronics and Communications Engineering
Authors: Korpinen, L.
Number of pages: 2
Publication date: 2014

Host publication information

Title of host publication: Effets biologiques et sanitaires des rayonnements non ionisants, Limoges, 16 octobre 2014
Publisher: SFRP

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-10-19
Publisher name: SFRP
Source: researchoutputwizard
Source-ID: 772
Research output: Scientific - peer-review > Conference contribution

Measurements of magnetic fields and contact currents produced by domestic induction hobs

General information

State: Published
Ministry of Education publication type: A4 Article in a conference publication
Organisations: Department of Electronics and Communications Engineering
Authors: Taro, H., Korpinen, L., Hayashi, N., Isaka, K.
Number of pages: 2
Pages: 138-139
Publication date: 2014

Host publication information

Title of host publication: 8th International Workshop on Biological Effects of Electromagnetic Fields, 21-26 September, 2014, Golden Sands, Varna, Bulgaria
Links:
<http://www.emf2014.emfbg.com/assets/papers.pdf>

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-11-15
Source: researchoutputwizard
Source-ID: 1606
Research output: Scientific - peer-review > Conference contribution

Mesures préliminaires des émissions de champ électromagnétique (50-100kHz) d'un compteur intelligent en Finlande

General information

State: Published
Ministry of Education publication type: A4 Article in a conference publication
Organisations: Department of Electronics and Communications Engineering
Authors: Pääkkönen, R., Lundström, M., Mustaparta, J., Korpinen, L.
Number of pages: 3

Pages: 1-3
Publication date: 2014

Host publication information

Title of host publication: Effets biologiques et sanitaires des rayonnements non ionisants, Limoges, 16 octobre 2014
Publisher: SFRP

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-10-19
Publisher name: SFRP
Source: researchoutputwizard
Source-ID: 1209
Research output: Scientific - peer-review › Conference contribution

Mixing and segregation of ring polymers: spatial confinement and molecular crowding effects

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Research area: Computational Physics, Research group: Biological Physics and Soft Matter, Department of Physics
Authors: Shin, J., Cherstvy, A., Metzler, R.
Number of pages: 19
Pages: 1-19
Publication date: 2014
Peer-reviewed: Yes

Publication information

Journal: New Journal of Physics
Volume: 16
Article number: 053047
ISSN (Print): 1367-2630
Ratings:

Scopus rating (2016): SJR 1.788 SNIP 1.031 CiteScore 2.97
Scopus rating (2015): SJR 1.938 SNIP 1.047 CiteScore 2.8
Scopus rating (2014): SJR 2.806 SNIP 1.307 CiteScore 2.89
Scopus rating (2013): SJR 2.871 SNIP 1.372 CiteScore 2.77
Scopus rating (2012): SJR 3.352 SNIP 1.533 CiteScore 3.4
Scopus rating (2011): SJR 3.47 SNIP 1.634 CiteScore 3.99
Scopus rating (2010): SJR 3.395 SNIP 1.421
Scopus rating (2009): SJR 3.215 SNIP 1.503
Scopus rating (2008): SJR 2.913 SNIP 1.396
Scopus rating (2007): SJR 2.825 SNIP 1.354
Scopus rating (2006): SJR 2.2 SNIP 1.296
Scopus rating (2005): SJR 1.641 SNIP 1.116
Scopus rating (2004): SJR 1.211 SNIP 1.009
Scopus rating (2003): SJR 1.057 SNIP 0.75
Scopus rating (2002): SJR 0.77 SNIP 0.666
Scopus rating (2001): SJR 1.033 SNIP 0.843
Scopus rating (2000): SJR 1.326 SNIP 1.307
Scopus rating (1999): SJR 0.737 SNIP 0.26

Original language: English

DOIs:

10.1088/1367-2630/16/5/053047

Bibliographical note

Contribution: organisation=fys,FACT1=1
Portfolio EDEND: 2014-12-18
Publisher name: Institute of Physics Publishing Ltd.; Deutsche Physikalische Gesellschaft
Source: researchoutputwizard
Source-ID: 1494
Research output: Scientific - peer-review › Article

Modeling Drug Delivery in Gravity-Driven Microfluidic System

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Automation Science and Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Mäki, A., Kreutzer, J., Kallio, P.

Number of pages: 8

Pages: 1-8

Publication date: 2014

Host publication information

Title of host publication: Proceedings of the ASME 2014 4th Joint US-European Fluids Engineering Division Summer Meeting and 12th International Conference on Nanochannels, Microchannels, and Minichannels, FEDSM2014, August 3-7, 2014, Chicago, Illinois, USA

Publisher: American Society of Mechanical Engineers

ISBN (Print): 978-0-7918-4627-8

DOIs:

10.1115/ICNMM2014-21183

Bibliographical note

Contribution: organisation=ase,FACT1=1
Portfolio EDEND: 2014-12-26

Source: researchoutputwizard

Source-ID: 1001

Research output: Scientific - peer-review > Conference contribution

Molecular Dynamics Simulation of Inverse-Phosphocholine Lipids

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Research area: Computational Physics, Research group: Biological Physics and Soft Matter, Department of Physics, Computational Science X (CompX)

Authors: Magarkar, A., Rog, T., Bunker, A.

Number of pages: 6

Pages: 19444-19449

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: Journal of Physical Chemistry C

Volume: 118

Issue number: 33

ISSN (Print): 1932-7447

Ratings:

Scopus rating (2016): SJR 1.948 SNIP 1.181 CiteScore 4.48

Scopus rating (2015): SJR 1.917 SNIP 1.268 CiteScore 4.68

Scopus rating (2014): SJR 2.027 SNIP 1.448 CiteScore 5.08

Scopus rating (2013): SJR 2.134 SNIP 1.439 CiteScore 5.14

Scopus rating (2012): SJR 2.514 SNIP 1.46 CiteScore 4.98

Scopus rating (2011): SJR 2.32 SNIP 1.457 CiteScore 4.92

Scopus rating (2010): SJR 2.438 SNIP 1.356

Scopus rating (2009): SJR 2.128 SNIP 1.417

Scopus rating (2008): SJR 1.856 SNIP 1.033

Original language: English

DOIs:

10.1021/jp505633y

Bibliographical note

Contribution: organisation=fys,FACT1=1
Portfolio EDEND: 2014-09-30
Publisher name: American Chemical Society

Source: researchoutputwizard
Source-ID: 984
Research output: Scientific - peer-review › Article

Molecular Dynamics Simulation of PEGylated Membranes with Cholesterol: Building Toward the DOXIL Formulation

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Research area: Computational Physics, Research group: Biological Physics and Soft Matter, Department of Physics, Computational Science X (CompX)
Authors: Magarkar, A., Rog, T., Bunker, A.
Number of pages: 9
Pages: 15541-15549
Publication date: 2014
Peer-reviewed: Yes

Publication information

Journal: Journal of Physical Chemistry C
Volume: 118
Issue number: 28
ISSN (Print): 1932-7447
Ratings:
Scopus rating (2016): SJR 1.948 SNIP 1.181 CiteScore 4.48
Scopus rating (2015): SJR 1.917 SNIP 1.268 CiteScore 4.68
Scopus rating (2014): SJR 2.027 SNIP 1.448 CiteScore 5.08
Scopus rating (2013): SJR 2.134 SNIP 1.439 CiteScore 5.14
Scopus rating (2012): SJR 2.514 SNIP 1.46 CiteScore 4.98
Scopus rating (2011): SJR 2.32 SNIP 1.457 CiteScore 4.92
Scopus rating (2010): SJR 2.438 SNIP 1.356
Scopus rating (2009): SJR 2.128 SNIP 1.417
Scopus rating (2008): SJR 1.856 SNIP 1.033
Original language: English
DOIs:
10.1021/jp504962m

Bibliographical note

Contribution: organisation=fys,FACT1=1
Portfolio EDEND: 2014-09-30
Publisher name: American Chemical Society
Source: researchoutputwizard
Source-ID: 986
Research output: Scientific - peer-review › Article

Monitoring Arterial Pulse Waves With Synchronous Body Sensor Network

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Department of Automation Science and Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)
Authors: Peltokangas, M., Vehkaoja, A., Verho, J., Huotari, M., Röning, J., Lekkala, J.
Number of pages: 7
Pages: 1781-1787
Publication date: 2014
Peer-reviewed: Yes

Publication information

Journal: IEEE Journal of Biomedical and Health Informatics
Volume: 18
Issue number: 6
ISSN (Print): 2168-2194
Ratings:

Scopus rating (2016): CiteScore 3.68 SJR 0.852 SNIP 1.971
Scopus rating (2015): SJR 0.823 SNIP 2.297 CiteScore 3.15
Scopus rating (2014): SJR 0.692 SNIP 2.37 CiteScore 1.93
Scopus rating (2013): SJR 1.049 SNIP 2.405
Scopus rating (2012): SJR 0.799 SNIP 2.261
Scopus rating (2011): SJR 0.681 SNIP 2.042
Scopus rating (2010): SJR 0.632 SNIP 1.862
Scopus rating (2009): SJR 0.588 SNIP 1.809
Scopus rating (2008): SJR 0.605 SNIP 2.01
Scopus rating (2007): SJR 0.716 SNIP 2.154
Scopus rating (2006): SJR 0.685 SNIP 2.199
Scopus rating (2005): SJR 0.596 SNIP 1.843
Scopus rating (2004): SJR 0.486 SNIP 1.355
Scopus rating (2003): SJR 0.616 SNIP 1.65
Scopus rating (2002): SJR 0.491 SNIP 1.309
Scopus rating (2001): SJR 0.821 SNIP 1.548
Scopus rating (2000): SJR 0.459 SNIP 1.515
Scopus rating (1999): SJR 0.367 SNIP 0.952
Original language: English
DOIs:
10.1109/JBHI.2014.2328788

Bibliographical note

Contribution: organisation=ase,FACT1=1
Portfolio EDEND: 2014-11-21
Publisher name: Institute of Electrical and Electronics Engineers
Source: researchoutputwizard
Source-ID: 1255
Research output: Scientific - peer-review › Article

Morphological and Texture Features for HEp-2 Cells Classification

General information

State: Published
Ministry of Education publication type: A4 Article in a conference publication
Organisations: Department of Electronics and Communications Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)
Authors: Nanni, L., Paci, M., Santos, F. L. C. D., Hyttinen, J.
Number of pages: 4
Pages: 45-48
Publication date: 2014

Host publication information

Title of host publication: 2014 1st Workshop on Pattern Recognition Techniques for Indirect Immunofluorescence Images (I3A), 24-24 August 2014, Stockholm, Sweden
Publisher: Institute of Electrical and Electronics Engineers IEEE
ISBN (Print): 978-1-4799-4252-7
DOIs:
10.1109/I3A.2014.11

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-12-09
Publisher name: Institute of Electrical and Electronics Engineers IEEE
Source: researchoutputwizard
Source-ID: 1122
Research output: Scientific - peer-review › Conference contribution

Motion Analysis Method for Determining Cardiomyocyte Beating Properties Based on Digital Image Correlation and Templates

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Ahola, A., Pradhapan, P., Laurila, E., Aalto-Setälä, K., Hyttinen, J.

Number of pages: 4

Pages: 1137-1140

Publication date: 2014

Host publication information

Title of host publication: Computing in cardiology 2014

Publisher: Computing in Cardiology

ISBN (Print): 978-1-4799-4346-3

Links:

<http://www.cinc.org/archives/2014/pdf/1137.pdf>

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-12-19
Publisher name: Computing in Cardiology

Source: researchoutputwizard

Source-ID: 64

Research output: Scientific - peer-review > Conference contribution

MRI based dementia classification using semi-supervised learning and domain adaption

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Signal Processing, Research group: Vision

Authors: Moradi, E., Gaser, C., Huttunen, H., Tohka, J., Alzheimer's, D. N. I.

Number of pages: 9

Pages: 65-73

Publication date: 2014

Host publication information

Title of host publication: MICCAI 2014 Workshop Proceedings, Challenge on Computer-Aided Diagnosis of Dementia, based on Structural MRI Data September 14-18 2014, Boston, USA

Links:

<http://caddementia.grand-challenge.org/workshop/>

Bibliographical note

Contribution: organisation=sgn,FACT1=1
Portfolio EDEND: 2014-12-11

Source: researchoutputwizard

Source-ID: 1099

Research output: Scientific - peer-review > Conference contribution

Murein lytic enzyme TgaA of *Bifidobacterium bifidum* MIMBb75 modulates dendritic cell maturation through its cysteine- and histidine-dependent amidohydrolase/peptidase (CHAP) amidase domain

Bifidobacteria are Gram-positive inhabitants of the human gastrointestinal tract that have evolved close interaction with their host and especially with the host's immune system. The molecular mechanisms underlying such interactions, however, are largely unidentified. In this study, we investigated the immunomodulatory potential of *Bifidobacterium bifidum* MIMBb75, a bacterium of human intestinal origin commercially used as a probiotic. Particularly, we focused our attention on TgaA, a protein expressed on the outer surface of MIMBb75's cells and homologous to other known bacterial immunoactive proteins. TgaA is a peptidoglycan lytic enzyme containing two active domains: lytic murein transglycosylase (LT) and cysteine- and histidine-dependent amidohydrolase/peptidase (CHAP). We ran immunological experiments stimulating dendritic cells (DCs) with the *B. bifidum* MIMBb75 and TgaA, with the result that both the bacterium and the protein activated DCs and triggered interleukin-2 (IL-2) production. In addition, we observed that the heterologous expression of TgaA in *Bifidobacterium longum* transferred to the bacterium the ability to induce IL-2. Subsequently, immunological experiments performed using two purified recombinant proteins corresponding to the single domains LT and CHAP demonstrated that the CHAP domain is the immune-reactive region of TgaA. Finally, we also showed that TgaA-dependent activation of DCs requires the protein CD14, marginally involves TRIF, and is independent of Toll-like receptor 4 (TLR4) and MyD88. In conclusion, our study suggests that the bacterial CHAP domain is a novel microbe-associated molecular pattern actively participating in the cross talk mechanisms between *bifidobacteria* and the host's immune system. © 2014, American Society for Microbiology.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Chemistry and Bioengineering, Research group: Industrial Bioengineering and Applied Organic Chemistry, Tampere University of Technology, Urban circular bioeconomy (UrCirBio), Department of Food Environmental and Nutritional Sciences, Università degli Studi di Milano, Department of Biotechnology and Biosciences, University of Milano-Bicocca

Authors: Guglielmetti, S., Zaroni, I., Balzaretto, S., Miriani, M., Taverniti, V., de Noni, I., Presti, I., Stuknyte, M., Scarafoni, A., Arioli, S., Iametti, S., Bonomi, F., Mora, D., Karp, M., Granucci, F.

Number of pages: 8

Pages: 5170-5177

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: Applied and Environmental Microbiology

Volume: 80

Issue number: 17

ISSN (Print): 0099-2240

Ratings:

Scopus rating (2016): SJR 1.691 SNIP 1.243 CiteScore 4.08

Scopus rating (2015): SJR 1.896 SNIP 1.351 CiteScore 4.14

Scopus rating (2014): SJR 1.862 SNIP 1.402 CiteScore 4.02

Scopus rating (2013): SJR 1.909 SNIP 1.41 CiteScore 4.25

Scopus rating (2012): SJR 1.967 SNIP 1.427 CiteScore 4.29

Scopus rating (2011): SJR 1.91 SNIP 1.453 CiteScore 4.12

Scopus rating (2010): SJR 1.885 SNIP 1.431

Scopus rating (2009): SJR 1.975 SNIP 1.529

Scopus rating (2008): SJR 2.168 SNIP 1.574

Scopus rating (2007): SJR 2.045 SNIP 1.652

Scopus rating (2006): SJR 2.054 SNIP 1.594

Scopus rating (2005): SJR 2.078 SNIP 1.646

Scopus rating (2004): SJR 2.123 SNIP 1.641

Scopus rating (2003): SJR 2.108 SNIP 1.806

Scopus rating (2002): SJR 2.044 SNIP 1.739

Scopus rating (2001): SJR 2 SNIP 1.737

Scopus rating (2000): SJR 1.958 SNIP 1.75

Scopus rating (1999): SJR 2.316 SNIP 1.723

Original language: English

ASJC Scopus subject areas: Applied Microbiology and Biotechnology, Food Science, Biotechnology, Ecology

DOIs:

10.1128/AEM.00761-14

Links:

<http://www.scopus.com/inward/record.url?scp=84905922553&partnerID=8YFLogxK> (Link to publication in Scopus)

Bibliographical note

Contribution: organisation=keb,FACT1=1
Portfolio EDEND: 2014-05-19
Publisher name: American Society for Microbiology

Source: researchoutputwizard

Source-ID: 374

Research output: Scientific - peer-review › Article

Nonergodicity, fluctuations, and criticality in heterogeneous diffusion processes

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Research area: Computational Physics, Research group: Biological Physics and Soft Matter, Department of Physics

Authors: Cherstvy, A., Metzler, R.

Number of pages: 12

Pages: 1-12

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: Physical Review E

Volume: 90

Issue number: 1

Article number: 012134

ISSN (Print): 1539-3755

Ratings:

Scopus rating (2016): SJR 0.993 SNIP 0.896 CiteScore 1.95

Scopus rating (2015): SJR 1.047 SNIP 0.978 CiteScore 1.89

Scopus rating (2014): SJR 1.22 SNIP 1.123 CiteScore 2.05

Scopus rating (2013): SJR 1.311 SNIP 1.239 CiteScore 2.28

Scopus rating (2012): SJR 1.42 SNIP 1.226 CiteScore 2.28

Scopus rating (2011): SJR 1.485 SNIP 1.225 CiteScore 2.28

Scopus rating (2010): SJR 1.69 SNIP 1.215

Scopus rating (2009): SJR 1.694 SNIP 1.259

Scopus rating (2008): SJR 1.96 SNIP 1.314

Scopus rating (2007): SJR 1.926 SNIP 1.332

Scopus rating (2006): SJR 1.787 SNIP 1.324

Scopus rating (2005): SJR 1.71 SNIP 1.302

Scopus rating (2004): SJR 1.672 SNIP 1.214

Scopus rating (2003): SJR 1.303 SNIP 1.166

Scopus rating (2002): SJR 0.936 SNIP 1.241

Scopus rating (2001): SJR 0.709 SNIP 1.429

Scopus rating (2000): SJR 0.299 SNIP 1.252

Scopus rating (1999): SJR 0.381 SNIP 1.232

Original language: English

DOIs:

10.1103/PhysRevE.90.012134

Bibliographical note

Contribution: organisation=fys,FACT1=1
Portfolio EDEND: 2014-12-17

Source: researchoutputwizard

Source-ID: 222

Research output: Scientific - peer-review > Article

Non-invasive System for Mechanical Arterial Pulse Wave Measurements

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Automation Science and Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Peltokangas, M., Verho, J., Salpavaara, T., Vehkaoja, A.

Number of pages: 4

Pages: 1493-1496

Publication date: 2014

Host publication information

Title of host publication: XIII Mediterranean Conference on Medical and Biological Engineering and Computing 2013, MEDICON 2013, 25 - 28 September 2013, Seville, Spain. IFMB Proceedings Volume 41

Publisher: Springer

Editor: Roa Romero, L. M.

ISBN (Print): 978-3-319-00845-5

ISBN (Electronic): 978-3-319-00846-2

Publication series

Name: IFMBE Proceedings

ISSN (Print): 1680-0737

DOIs:

10.1007/978-3-319-00846-2_369

Bibliographical note

siirretään portfolio14
Contribution: organisation=ase,FACT1=1
Portfolio EDEND: 2014-02-15
Publisher name: Springer

Source: researchoutputwizard

Source-ID: 1256

Research output: Scientific - peer-review › Conference contribution

Objectively measured physical activity in Finnish employees: a cross-sectional study

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Research group: Personal Health Informatics-PHI

Authors: Mutikainen, S., Helander, E., Pietilä, J., Korhonen, I., Kujala, U. M.

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: BMJ Open

Volume: 4

Issue number: 12

Article number: e005927

ISSN (Print): 2044-6055

Ratings:

Scopus rating (2016): SJR 1.446 SNIP 1.252 CiteScore 2.66

Scopus rating (2015): SJR 1.545 SNIP 1.308 CiteScore 2.74

Scopus rating (2014): SJR 1.371 SNIP 1.163 CiteScore 2.43

Scopus rating (2013): SJR 1.115 SNIP 1.183 CiteScore 2.22

Scopus rating (2012): SJR 0.474 SNIP 1.035 CiteScore 1.62

Original language: English

DOIs:

10.1136/bmjopen-2014-005927

Bibliographical note

Contribution: organisation=sgn,FACT1=1
Portfolio EDEND: 2014-12-20
Publisher name: B M J Group

Source: researchoutputwizard

Source-ID: 1116

Research output: Scientific - peer-review › Article

Occupational and environmental exposure to extremely low frequency-magnetic fields in a large group of workers

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering

Authors: Gobba, F., Rossi, P., Bravo, G., Contessa, G. M., Korpinen, L.

Number of pages: 3

Pages: 284-286

Publication date: 2014

Host publication information

Title of host publication: 8th International Workshop on Biological Effects of Electromagnetic Fields, 21-26 September, 2014, Golden Sands, Varna, Bulgaria

Links:

<http://www.emf2014.emfbg.com/assets/papers.pdf>

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-11-15

Source: researchoutputwizard

Source-ID: 355

Optical projection tomography as a tool for 3D imaging of hydrogels

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Figueiras, E., Soto, A. M., Jesus, D., Lehti, M., Koivisto, J., Parraga, J., Silva-Correia, J., Oliveira, J., Reis, R., Kellomäki, M., Hyttinen, J.

Number of pages: 7

Pages: 3443-3449

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: Biomedical Optics Express

Volume: 5

Issue number: 10

ISSN (Print): 2156-7085

Ratings:

Scopus rating (2016): SJR 1.315 SNIP 1.526 CiteScore 3.8

Scopus rating (2015): SJR 1.432 SNIP 1.647 CiteScore 4.07

Scopus rating (2014): SJR 1.754 SNIP 1.798 CiteScore 3.86

Scopus rating (2013): SJR 1.549 SNIP 1.827 CiteScore 3.98

Scopus rating (2012): SJR 1.301 SNIP 1.662 CiteScore 2.85

Scopus rating (2011): SJR 0.846 SNIP 1.757

Original language: English

DOIs:

10.1364/BOE.5.003443

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-09-10
Publisher name: Optical Society of America

Source: researchoutputwizard

Source-ID: 298

Research output: Scientific - peer-review › Article

Optical projection tomography can be used to investigate spatial distribution of chondrocytes in three-dimensional biomaterial scaffolds for cartilage tissue engineering

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Järvinen, E., Muhonen, V., Haaparanta, A., Kellomäki, M., Kiviranta, I.

Number of pages: 5

Pages: 1549-1553

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: Bio-Medical Materials and Engineering

Volume: 24

Issue number: 3

ISSN (Print): 0959-2989

Ratings:

Scopus rating (2016): SJR 0.254 SNIP 0.415 CiteScore 0.81

Scopus rating (2015): SJR 0.334 SNIP 0.754 CiteScore 0.99

Scopus rating (2014): SJR 0.284 SNIP 0.486 CiteScore 0.94

Scopus rating (2013): SJR 0.349 SNIP 0.55 CiteScore 0.98
Scopus rating (2012): SJR 0.434 SNIP 0.73 CiteScore 1.4
Scopus rating (2011): SJR 0.424 SNIP 0.584 CiteScore 1.31
Scopus rating (2010): SJR 0.403 SNIP 0.328
Scopus rating (2009): SJR 0.367 SNIP 0.434
Scopus rating (2008): SJR 0.428 SNIP 0.543
Scopus rating (2007): SJR 0.544 SNIP 0.534
Scopus rating (2006): SJR 0.405 SNIP 0.581
Scopus rating (2005): SJR 0.295 SNIP 0.511
Scopus rating (2004): SJR 0.354 SNIP 0.831
Scopus rating (2003): SJR 0.392 SNIP 0.523
Scopus rating (2002): SJR 0.461 SNIP 0.69
Scopus rating (2001): SJR 0.373 SNIP 0.623
Scopus rating (2000): SJR 0.215 SNIP 0.32
Scopus rating (1999): SJR 0.426 SNIP 0.661
Original language: English
DOIs:
10.3233/BME-140959

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-06-30
Publisher name: IOS Press
Source: researchoutputwizard
Source-ID: 589
Research output: Scientific - peer-review > Article

Ormocomp-Modified Glass Increases Collagen Binding and Promotes the Adherence and Maturation of Human Embryonic Stem Cell-Derived Retinal Pigment Epithelial Cells

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Department of Electronics and Communications Engineering, Optoelectronics Research Centre, Research group: Surface Science, Frontier Photonics, Integrated Technologies for Tissue Engineering Research (ITTE)
Authors: Käpylä, E., Sorkio, A., Teymouri, S., Lahtonen, K., Vuori, L., Valden, M., Skottman, H., Kellomäki, M., Juuti-Uusitalo, K.
Number of pages: 11
Pages: 1-11
Publication date: 2014
Peer-reviewed: Yes

Publication information

Journal: Langmuir
ISSN (Print): 0743-7463
Ratings:
Scopus rating (2016): SJR 1.55 SNIP 1.188 CiteScore 3.99
Scopus rating (2015): SJR 1.686 SNIP 1.308 CiteScore 4.33
Scopus rating (2014): SJR 1.816 SNIP 1.391 CiteScore 4.59
Scopus rating (2013): SJR 1.895 SNIP 1.356 CiteScore 4.55
Scopus rating (2012): SJR 2.177 SNIP 1.382 CiteScore 4.37
Scopus rating (2011): SJR 2.051 SNIP 1.357 CiteScore 4.42
Scopus rating (2010): SJR 2.148 SNIP 1.4
Scopus rating (2009): SJR 2.156 SNIP 1.351
Scopus rating (2008): SJR 2.383 SNIP 1.34
Scopus rating (2007): SJR 2.449 SNIP 1.434
Scopus rating (2006): SJR 2.375 SNIP 1.428
Scopus rating (2005): SJR 2.157 SNIP 1.463
Scopus rating (2004): SJR 1.963 SNIP 1.458
Scopus rating (2003): SJR 1.953 SNIP 1.4

Scopus rating (2002): SJR 2.011 SNIP 1.489
Scopus rating (2001): SJR 2.01 SNIP 1.382
Scopus rating (2000): SJR 2.039 SNIP 1.479
Scopus rating (1999): SJR 1.719 SNIP 1.496
Original language: English
DOIs:
10.1021/la5023642

Bibliographical note

Contribution: organisation=elt,FACT1=0.7
Contribution: organisation=orc,FACT2=0.3
Portfolio EDEND: 2014-11-30
Publisher name: American Chemical Society
Source: researchoutputwizard
Source-ID: 659
Research output: Scientific - peer-review › Article

Overexpression of SNORD114-3 marks acute promyelocytic leukemia

General information

State: Published
Ministry of Education publication type: B1 Article in a scientific magazine
Organisations: Department of Signal Processing, Multi-scaled biodata analysis and modelling (MultiBAM)
Authors: Liuksiala, T., Teittinen, K., Granberg, K., Heinänen, M., Annala, M., Mäki, M., Nykter, M., Lohi, O.
Number of pages: 3
Pages: 233-236
Publication date: 2014
Peer-reviewed: No

Publication information

Journal: Leukemia
Volume: 28
ISSN (Print): 0887-6924
Ratings:

Scopus rating (2016): SJR 4.929 SNIP 2.213 CiteScore 6.47
Scopus rating (2015): SJR 5.148 SNIP 2.276 CiteScore 6.43
Scopus rating (2014): SJR 4.66 SNIP 1.968 CiteScore 5.83
Scopus rating (2013): SJR 4.643 SNIP 1.744 CiteScore 5.78
Scopus rating (2012): SJR 4.273 SNIP 1.796 CiteScore 6.3
Scopus rating (2011): SJR 4.595 SNIP 1.756 CiteScore 5.48
Scopus rating (2010): SJR 3.878 SNIP 1.668
Scopus rating (2009): SJR 3.416 SNIP 1.622
Scopus rating (2008): SJR 3.117 SNIP 1.566
Scopus rating (2007): SJR 2.606 SNIP 1.309
Scopus rating (2006): SJR 2.434 SNIP 1.396
Scopus rating (2005): SJR 2.117 SNIP 1.296
Scopus rating (2004): SJR 1.88 SNIP 1.141
Scopus rating (2003): SJR 1.851 SNIP 1.204
Scopus rating (2002): SJR 1.656 SNIP 1.16
Scopus rating (2001): SJR 1.484 SNIP 1.015
Scopus rating (2000): SJR 1.184 SNIP 0.962
Scopus rating (1999): SJR 1.075 SNIP 0.948
Original language: English
DOIs:
10.1038/leu.2013.250

Bibliographical note

Letter to the Editor: published online 20 September 2013
Contribution: organisation=sgn,FACT1=1
Portfolio EDEND: 2013-12-29
Publisher name: Nature Publishing Group
Source: researchoutputwizard
Source-ID: 959
Research output: Scientific › Article

Partial volume effect modeling for segmentation and tissue classification of brain magnetic resonance images: A review

General information

State: Published
Ministry of Education publication type: A2 Review article in a scientific journal
Organisations: Department of Signal Processing
Authors: Tohka, J.
Number of pages: 9
Pages: 855-864
Publication date: 2014
Peer-reviewed: Yes

Publication information

Journal: World journal of radiology
Volume: 28
Issue number: 6
Article number: 11
ISSN (Print): 1949-8470
Original language: English

Bibliographical note

Contribution: organisation=sgn,FACT1=1
Portfolio EDEND: 2014-12-02
Publisher name: Baishideng Publishing Group
Source: researchoutputwizard
Source-ID: 1634
Research output: Scientific - peer-review > Review Article

Physicochemical characterization of segmented polyurethanes prepared with glutamine or ascorbic acid as chain extenders and their hydroxyapatite composites

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Department of Electronics and Communications Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)
Authors: Cetina-Diaz, S., Chan-Chan, L., Vargas-Coronado, R., Cervantes-Uc, J., Quintana-Owen, P., Paakinaho, K., Kellomäki, M., Di Silvio, L., Deb, S., Cauch-Rodriguez, J.
Number of pages: 11
Pages: 1966-1976
Publication date: 2014
Peer-reviewed: Yes

Publication information

Journal: Journal of Materials Chemistry B
Volume: 2
Issue number: 14
ISSN (Print): 2050-750X
Ratings:
Scopus rating (2016): CiteScore 4.8 SJR 1.46 SNIP 1.014
Scopus rating (2015): SJR 1.566 SNIP 1.163 CiteScore 5.14
Scopus rating (2014): SJR 1.331 SNIP 1.007 CiteScore 4.69
Original language: English
DOIs:
10.1039/c3tb21500h

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-04-29
Publisher name: RSC Publications
Source: researchoutputwizard
Source-ID: 213
Research output: Scientific - peer-review > Article

Plantar shear stress measurements - A review

General information

State: Published

Ministry of Education publication type: A2 Review article in a scientific journal

Organisations: Department of Automation Science and Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Rajala, S., Lekkala, J.

Number of pages: 9

Pages: 475-483

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: Clinical Biomechanics

Volume: 29

Issue number: 5

ISSN (Print): 0268-0033

Ratings:

Scopus rating (2016): CiteScore 1.99 SJR 0.899 SNIP 1.124

Scopus rating (2015): CiteScore 2.12 SJR 0.999 SNIP 1.288

Scopus rating (2014): CiteScore 2.29 SJR 0.962 SNIP 1.523

Scopus rating (2013): CiteScore 2.38 SJR 1.217 SNIP 1.459

Scopus rating (2012): CiteScore 2.57 SJR 1.261 SNIP 1.665

Scopus rating (2011): CiteScore 2.47 SJR 1.158 SNIP 1.526

Scopus rating (2010): SJR 1.236 SNIP 1.702

Scopus rating (2009): SJR 1.104 SNIP 1.597

Scopus rating (2008): SJR 1.076 SNIP 1.477

Scopus rating (2007): SJR 0.953 SNIP 1.394

Scopus rating (2006): SJR 0.987 SNIP 1.475

Scopus rating (2005): SJR 0.871 SNIP 1.498

Scopus rating (2004): SJR 0.964 SNIP 1.442

Scopus rating (2003): SJR 0.849 SNIP 1.374

Scopus rating (2002): SJR 0.703 SNIP 1.195

Scopus rating (2001): SJR 0.657 SNIP 1.227

Scopus rating (2000): SJR 0.729 SNIP 1.273

Scopus rating (1999): SJR 0.742 SNIP 1.203

Original language: English

DOIs:

10.1016/j.clinbiomech.2014.04.009

Bibliographical note

Contribution: organisation=ase,FACT1=1
Portfolio EDEND: 2014-06-11
Publisher name: Pergamon

Source: researchoutputwizard

Source-ID: 1335

Research output: Scientific - peer-review › Review Article

Pneumatic cell stretching system for cardiac differentiation and culture

This paper introduces a compact mechanical stimulation device suitable for applications to study cellular mechanobiology. The pneumatically controlled device provides equiaxial strain for cells on a coated polydimethylsiloxane (PDMS) membrane and enables real time observation of cells with an inverted microscope. This study presents the implementation and operation principles of the device and characterizes membrane stretching. Different coating materials are also analyzed on an unstretched membrane to optimize the cell attachment on PDMS. As a result, gelatin coating was selected for further experiments to demonstrate the function of the device and evaluate the effect of long-term cyclic equiaxial stretching on human pluripotent stem cells (hPSCs). Cardiac differentiation was induced with mouse visceral endoderm-like (END-2) cells, either on an unstretched membrane or with mechanical stretching. In conclusion, hPSCs grew well on the stretching platform and cardiac differentiation was induced. Thus, the platform provides a new possibility to study the effect of stretching on cellular properties including differentiation and stress induced cardiac diseases.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed
Organisations: Department of Automation Science and Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)
Authors: Kreutzer, J., Ikonen, L., Hirvonen, J., Pekkanen-Mattila, M., Aalto-Setälä, K., Kallio, P.
Number of pages: 6
Pages: 496-501
Publication date: 2014
Peer-reviewed: Yes

Publication information

Journal: Medical Engineering and Physics

Volume: 36

Issue number: 5

ISSN (Print): 1350-4533

Ratings:

Scopus rating (2016): SJR 0.713 SNIP 1.199 CiteScore 2.1

Scopus rating (2015): SJR 0.791 SNIP 1.273 CiteScore 2.11

Scopus rating (2014): SJR 0.739 SNIP 1.638 CiteScore 2.36

Scopus rating (2013): SJR 0.834 SNIP 1.562 CiteScore 2.51

Scopus rating (2012): SJR 0.797 SNIP 1.599 CiteScore 2.34

Scopus rating (2011): SJR 0.753 SNIP 1.638 CiteScore 2.39

Scopus rating (2010): SJR 0.685 SNIP 1.299

Scopus rating (2009): SJR 0.614 SNIP 1.551

Scopus rating (2008): SJR 0.741 SNIP 1.478

Scopus rating (2007): SJR 0.683 SNIP 1.308

Scopus rating (2006): SJR 0.687 SNIP 1.09

Scopus rating (2005): SJR 0.452 SNIP 1.216

Scopus rating (2004): SJR 0.553 SNIP 1.177

Scopus rating (2003): SJR 0.499 SNIP 0.832

Scopus rating (2002): SJR 0.374 SNIP 0.718

Scopus rating (2001): SJR 0.426 SNIP 1.042

Scopus rating (2000): SJR 0.333 SNIP 0.651

Scopus rating (1999): SJR 0.341 SNIP 0.716

Original language: English

Electronic versions:

kreutzer_pneumatic_cell_stretching_system.pdf

DOIs:

10.1016/j.medengphy.2013.09.008

Links:

<http://urn.fi/URN:NBN:fi:tyy-201409261453>

Bibliographical note

Contribution: organisation=ase,FACT1=1
Portfolio EDEND: 2014-06-12
Publisher name: Elsevier

Source: researchoutputwizard

Source-ID: 809

Research output: Scientific - peer-review > Article

Polymer translocation: the first two decades and the recent diversification

General information

State: Published

Ministry of Education publication type: A2 Review article in a scientific journal

Organisations: Research area: Computational Physics, Research group: Biological Physics and Soft Matter, Department of Physics

Authors: Palyulin, V. V., Ala-Nissilä, T., Metzler, R.

Pages: 9016-9037

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: Soft Matter

Volume: 10
Issue number: 45
ISSN (Print): 1744-683X
Ratings:

Scopus rating (2016): SJR 1.573 SNIP 1.219 CiteScore 3.7
Scopus rating (2015): SJR 1.67 SNIP 1.33 CiteScore 3.97
Scopus rating (2014): SJR 1.751 SNIP 1.267 CiteScore 4.11
Scopus rating (2013): SJR 1.745 SNIP 1.208 CiteScore 4.2
Scopus rating (2012): SJR 1.898 SNIP 1.155 CiteScore 3.96
Scopus rating (2011): SJR 2.006 SNIP 1.314 CiteScore 4.56
Scopus rating (2010): SJR 2.165 SNIP 1.376
Scopus rating (2009): SJR 2.516 SNIP 1.534
Scopus rating (2008): SJR 2.562 SNIP 1.392
Scopus rating (2007): SJR 2.482 SNIP 1.458
Scopus rating (2006): SJR 1.899 SNIP 0.981

Original language: English

DOIs:

10.1039/c4sm01819b

Bibliographical note

Contribution: organisation=fys,FACT1=1
Portfolio EDEND: 2014-12-17
Publisher name: R S C Publications

Source: researchoutputwizard

Source-ID: 1226

Research output: Scientific - peer-review › Review Article

Possibility to decreasing the 50 Hz electric field exposure with different jackets

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering

Authors: Korpinen, L., Pääkkönen, R.

Number of pages: 4

Pages: 86-89

Publication date: 2014

Host publication information

Title of host publication: 8th International Workshop on Biological Effects of Electromagnetic Fields, 21-26 September, 2014, Golden Sands, Varna, Bulgaria

Links:

<http://www.emf2014.emfbg.com/assets/papers.pdf>

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-11-15

Source: researchoutputwizard

Source-ID: 780

Research output: Scientific - peer-review › Conference contribution

Possible criteria for health surveillance based on the new directive

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering

Authors: Gobba, F., Korpinen, L.

Number of pages: 2

Publication date: 2014

Host publication information

Title of host publication: Seminar of ICOH, Scientific Committee on Radiation & Work. The Occupational Health Professionals and the Exposures to Electromagnetic Fields (EMF): what about the Directive 2013/35/EU, 7th April 2014 - Paris

Place of publication: Paris

Publisher: International Commission on Occupational Health - ICOH, Commission Internationale de la Sante au Travail - CIST

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-05-25
Publisher name: International Commission on Occupational Health - ICOH, Commission Internationale de la Sante au Travail - CIST

Source: researchoutputwizard

Source-ID: 354

Research output: Scientific - peer-review > Conference contribution

Prediction of Passive Drug Permeability Across the Blood-Retinal Barrier

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Computational Biophysics and Imaging Group, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Tervonen, A., Vainio, I., Nymark, S., Hyttinen, J.

Number of pages: 15

Pages: 2297-2311

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: Pharmaceutical Research

Volume: 31

Issue number: 9

ISSN (Print): 0724-8741

Ratings:

Scopus rating (2016): SJR 1.105 SNIP 1.042 CiteScore 3.49

Scopus rating (2015): SJR 1.154 SNIP 1.188 CiteScore 3.6

Scopus rating (2014): SJR 1.332 SNIP 1.306 CiteScore 3.93

Scopus rating (2013): SJR 1.553 SNIP 1.432 CiteScore 4.7

Scopus rating (2012): SJR 1.882 SNIP 1.547 CiteScore 5.07

Scopus rating (2011): SJR 1.662 SNIP 1.551 CiteScore 4.46

Scopus rating (2010): SJR 1.906 SNIP 1.589

Scopus rating (2009): SJR 1.57 SNIP 1.459

Scopus rating (2008): SJR 1.396 SNIP 1.409

Scopus rating (2007): SJR 1.354 SNIP 1.329

Scopus rating (2006): SJR 1.187 SNIP 1.177

Scopus rating (2005): SJR 1.218 SNIP 1.177

Scopus rating (2004): SJR 1.089 SNIP 1.125

Scopus rating (2003): SJR 1.155 SNIP 1.284

Scopus rating (2002): SJR 1.014 SNIP 1.206

Scopus rating (2001): SJR 1.132 SNIP 1.282

Scopus rating (2000): SJR 1.055 SNIP 1.236

Scopus rating (1999): SJR 1.322 SNIP 1.369

Original language: English

DOIs:

10.1007/s11095-014-1325-3

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-04-29
Publisher name: Springer New York

Source: researchoutputwizard

Source-ID: 1617

Research output: Scientific - peer-review > Article

Preliminary measurements of smart meter electromagnetic field (50-100 kHz) emissions in Finland

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering

Authors: Pääkkönen, R., Lundström, M., Mustaparta, J., Korpinen, L.

Number of pages: 4

Pages: 90-93

Publication date: 2014

Host publication information

Title of host publication: 8th International Workshop on Biological Effects of Electromagnetic Fields, 21-26 September, 2014, Golden Sands, Varna, Bulgaria

Links:

<http://www.emf2014.emfbg.com/assets/papers.pdf>

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-11-15

Source: researchoutputwizard

Source-ID: 1210

Research output: Scientific - peer-review > Conference contribution

Prognostic capacity of a clinically indicated exercise test for cardiovascular mortality is enhanced by combined analysis of exercise capacity, heart rate recovery and T-wave alternans

Background Exercise capacity, heart rate recovery and T-wave alternans are independent predictors of cardiovascular mortality. We tested whether these parameters contain supplementary prognostic information. Methods A total of 3609 consecutive patients (2157 men) referred for a routine, clinically indicated bicycle exercise test were enrolled in the Finnish Cardiovascular Study (FINCAVAS). Exercise capacity was measured in metabolic equivalents, heart rate recovery as the decrease in heart rate from maximum to one minute post-exercise, and T-wave alternans by time-domain Modified Moving Average method. Results During 57-month median follow-up (interquartile range 35-78 months), 96 patients died of cardiovascular causes (primary endpoint) and 233 from any cause. All three parameters were independent predictors of cardiovascular mortality when analysed as continuous variables. Adding metabolic equivalents ($p < 0.001$), heart rate recovery ($p = 0.002$) or T-wave alternans ($p = 0.01$) to the linear model improved its predictive power for cardiovascular mortality. The combination of low exercise capacity (< 6 metabolic equivalents), reduced heart rate recovery (≤ 12 beats/min) and elevated T-wave alternans ($\geq 60\mu V$) yielded the highest hazard ratio for cardiovascular mortality of 16.5 (95% confidence interval 4.0-67.7, $p < 0.001$). Harrell's C index was 0.719 (confidence interval 0.665-0.772) for cardiovascular mortality with previously defined cutpoints (< 8 units for metabolic equivalents ≤ 18 beats/min for heart rate recovery and $\geq 60\mu V$ for T-wave alternans). Conclusion The prognostic capacity of the clinical exercise test is enhanced by combined analysis of exercise capacity, heart rate recovery and T-wave alternans.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Augmented Human Activities (AHA)

Authors: Minkinen, M., Nieminen, T., Verrier, R. L., Leino, J., Lehtimäki, T., Viik, J., Lehtinen, R., Nikus, K., Kööbi, T., Turjanmaa, V., Kähönen, M.

Number of pages: 9

Pages: 1162-1170

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: European Journal of Preventive Cardiology

Volume: 22

Issue number: 9

ISSN (Print): 2047-4873

Ratings:

Scopus rating (2016): SJR 1.598 SNIP 1.194 CiteScore 2.94

Scopus rating (2015): SJR 1.651 SNIP 1.428 CiteScore 3.02

Scopus rating (2014): SJR 1.61 SNIP 1.402 CiteScore 2.62

Scopus rating (2013): SJR 1.608 SNIP 1.38 CiteScore 2.54

Scopus rating (2012): SJR 1.773 SNIP 1.695

Scopus rating (2011): SJR 1.415 SNIP 1.305

Scopus rating (2010): SJR 1.835 SNIP 1.493

Scopus rating (2009): SJR 1.518 SNIP 1.213
Scopus rating (2008): SJR 1.287 SNIP 1.089
Scopus rating (2007): SJR 1.078 SNIP 0.886
Scopus rating (2006): SJR 1.115 SNIP 0.96
Scopus rating (2005): SJR 1.038 SNIP 0.8
Scopus rating (2004): SJR 1.022 SNIP 0.693
Scopus rating (2003): SJR 0.654 SNIP 0.468
Scopus rating (2002): SJR 0.472 SNIP 0.334
Scopus rating (2001): SJR 0.491 SNIP 0.332
Scopus rating (2000): SJR 0.546 SNIP 0.343
Scopus rating (1999): SJR 0.614 SNIP 0.627
Original language: English
DOIs:
10.1177/2047487314557190

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-11-30
Publisher name: Sage Publications
Source: researchoutputwizard
Source-ID: 1086
Research output: Scientific - peer-review › Article

Protein-protein interaction and coarse grained simulation study of Glioblastoma Multiforme reveals novel pathways of GPR17

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Research group: Computational Systems Biology, Department of Signal Processing, Research group: Molecular Signaling Lab
Authors: Mutharasu, G., Yli-harja, O., Kandhavelu, M.
Number of pages: 5
Pages: 321-325
Publication date: 2014
Peer-reviewed: Yes

Publication information

Journal: TASK Quarterly
Volume: 18
Issue number: 4
ISSN (Print): 1428-6394
Original language: English
Keywords: coarse-grain, glioblastoma multiforme, pathways, rna -seq, signaling networks
Source: Bibtex
Source-ID: urn:a994bdb12ffeaf5acc8b96d5e39fabd7
Research output: Scientific - peer-review › Article

Quantitative analysis of colony morphology in yeast

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Department of Signal Processing, Research group: Computational Systems Biology, Prostate cancer research center (PCRC)
Authors: Ruusuvuori, P., Lin, J., Scott, A., Tan, Z., Sorsa, S., Kallio, A., Nykter, M., Yli-Harja, O., Shmulevich, I., Dudley, A.
Number of pages: 7
Pages: 18-27
Publication date: 2014
Peer-reviewed: Yes

Publication information

Journal: BioTechniques
Volume: 56

Issue number: 1
ISSN (Print): 0736-6205
Ratings:

Scopus rating (2016): SJR 1.123 SNIP 0.578 CiteScore 1.16
Scopus rating (2015): SJR 1.112 SNIP 0.746 CiteScore 1.22
Scopus rating (2014): SJR 0.84 SNIP 1.125 CiteScore 1.27
Scopus rating (2013): SJR 1.055 SNIP 0.892 CiteScore 1.41
Scopus rating (2012): SJR 0.949 SNIP 1.259 CiteScore 1.5
Scopus rating (2011): SJR 1.014 SNIP 0.87 CiteScore 1.62
Scopus rating (2010): SJR 1.073 SNIP 0.754
Scopus rating (2009): SJR 1.179 SNIP 0.738
Scopus rating (2008): SJR 1.121 SNIP 0.734
Scopus rating (2007): SJR 1.14 SNIP 0.865
Scopus rating (2006): SJR 1.084 SNIP 0.783
Scopus rating (2005): SJR 1.01 SNIP 0.712
Scopus rating (2004): SJR 1.018 SNIP 0.787
Scopus rating (2003): SJR 0.943 SNIP 0.725
Scopus rating (2002): SJR 0.897 SNIP 0.757
Scopus rating (2001): SJR 0.855 SNIP 0.73
Scopus rating (2000): SJR 0.966 SNIP 0.779
Scopus rating (1999): SJR 0.974 SNIP 0.838
Original language: English

DOIs:

10.2144/000114123

Bibliographical note

Contribution: organisation=sgn,FACT1=1
Portfolio EDEND: 2014-11-14
Publisher name: Informa Healthcare

Source: researchoutputwizard

Source-ID: 1411

Research output: Scientific - peer-review > Article

Rapid and Accurate Detection of Urinary Pathogens by Mobile IMS-Based Electronic Nose: A Proof-of-Principle Study

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Automation Science and Engineering, Integrated Technologies for Tissue Engineering Research (ITTE), Prostate cancer research center (PCRC)

Authors: Roine, A., Saviuk, T., Kumpulainen, P., Karjalainen, M., Tuokko, A., Aittoniemi, J., Vuento, R., Lekkala, J., Lehtimäki, T., Tammela, T. L., Oksala, N. K.

Number of pages: 11

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: PLoS One

ISSN (Print): 1932-6203

Ratings:

Scopus rating (2016): CiteScore 3.11 SJR 1.201 SNIP 1.092
Scopus rating (2015): SJR 1.414 SNIP 1.131 CiteScore 3.32
Scopus rating (2014): SJR 1.545 SNIP 1.141 CiteScore 3.54
Scopus rating (2013): SJR 1.74 SNIP 1.147 CiteScore 3.94
Scopus rating (2012): SJR 1.945 SNIP 1.142 CiteScore 4.15
Scopus rating (2011): SJR 2.369 SNIP 1.23 CiteScore 4.58
Scopus rating (2010): SJR 2.631 SNIP 1.161
Scopus rating (2009): SJR 2.473 SNIP 0.985
Scopus rating (2008): SJR 2.323 SNIP 0.96
Scopus rating (2007): SJR 1.289 SNIP 0.525

Original language: English
DOIs:
10.1371/journal.pone.0114279

Bibliographical note

Contribution: organisation=ase,FACT1=1
Portfolio EDEND: 2014-12-30
Publisher name: Public Library of Science
Source: researchoutputwizard
Source-ID: 1394
Research output: Scientific - peer-review > Article

Recurrent LPR1-SNRNP25 and KCNMB α _CCND3 fusion genes promote tumor cell motility in human osteosarcoma

General information

State: Published
Ministry of Education publication type: A2 Review article in a scientific journal
Organisations: Department of Signal Processing, Multi-scaled biodata analysis and modelling (MultiBAM)
Authors: Ynag, J., Annala, M., Ji, P., Wang, G., Zheng, H., Codgell, D., Du, X., Fang, Z., Sun, B., Nykter, M., Chen, K., Zhang, W.
Number of pages: 5
Pages: 1-5
Publication date: 2014
Peer-reviewed: Yes

Publication information

Journal: Journal of Hematology & Oncology
Volume: 7
Issue number: 76
ISSN (Print): 1756-8722
Ratings:
Scopus rating (2016): SJR 2.261 SNIP 1.519 CiteScore 5.6
Scopus rating (2015): SJR 2.206 SNIP 1.642 CiteScore 5.66
Scopus rating (2014): SJR 1.716 SNIP 1.418 CiteScore 4.55
Scopus rating (2013): SJR 1.842 SNIP 1.555 CiteScore 4.74
Scopus rating (2012): SJR 1.569 SNIP 1.442 CiteScore 4.62
Scopus rating (2011): SJR 1.681 SNIP 1.119 CiteScore 4.22
Scopus rating (2010): SJR 0.958 SNIP 0.858
Scopus rating (2009): SJR 0.627 SNIP 0.437
Original language: English
DOIs:
10.1186/s13045-014-0076-2

Bibliographical note

Contribution: organisation=sgn,FACT1=1
Portfolio EDEND: 2014-10-30
Publisher name: BioMed Central
Source: researchoutputwizard
Source-ID: 1824
Research output: Scientific - peer-review > Review Article

Refined OPLS All-Atom Force Field for Saturated Phosphatidylcholine Bilayers at Full Hydration

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Research area: Computational Physics, Research group: Biological Physics and Soft Matter, Department of Physics, Computational Science X (CompX), Multi-scaled biodata analysis and modelling (MultiBAM)
Authors: Maciejewski, A., Pasenkiewicz-Gierula, M., Cramariuc, O., Vattulainen, I., Rog, T.
Number of pages: 11
Pages: 4571-4581
Publication date: 2014
Peer-reviewed: Yes

Publication information

Journal: Journal of Physical Chemistry C

Volume: 118
Issue number: 17
ISSN (Print): 1932-7447
Ratings:

Scopus rating (2016): SJR 1.948 SNIP 1.181 CiteScore 4.48
Scopus rating (2015): SJR 1.917 SNIP 1.268 CiteScore 4.68
Scopus rating (2014): SJR 2.027 SNIP 1.448 CiteScore 5.08
Scopus rating (2013): SJR 2.134 SNIP 1.439 CiteScore 5.14
Scopus rating (2012): SJR 2.514 SNIP 1.46 CiteScore 4.98
Scopus rating (2011): SJR 2.32 SNIP 1.457 CiteScore 4.92
Scopus rating (2010): SJR 2.438 SNIP 1.356
Scopus rating (2009): SJR 2.128 SNIP 1.417
Scopus rating (2008): SJR 1.856 SNIP 1.033

Original language: English

DOIs:

10.1021/jp5016627

Bibliographical note

Contribution: organisation=fys,FACT1=1
Portfolio EDEND: 2014-09-30
Publisher name: American Chemical Society

Source: researchoutputwizard

Source-ID: 983

Research output: Scientific - peer-review › Article

Releasing tool-adhered natural fibrous microscale objects with vacuum system

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Department of Automation Science and Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Lai, Y., Cervinka, T., Kallio, P.

Number of pages: 6

Pages: 378-383

Publication date: 2014

Host publication information

Title of host publication: 2014 IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM), 8-11 July 2014, Besacon

Publisher: Institute of Electrical and Electronics Engineers IEEE

ISBN (Print): 978-1-4799-5736-1

DOIs:

10.1109/AIM.2014.6878108

Bibliographical note

Contribution: organisation=ase,FACT1=0.7
Contribution: organisation=elt,FACT2=0.3
Portfolio EDEND: 2014-09-16
Publisher name: Institute of Electrical and Electronics Engineers IEEE

Source: researchoutputwizard

Source-ID: 869

Research output: Scientific - peer-review › Conference contribution

Requirements for Successful Self-care Technology Products for the Elderly

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Signal Processing

Authors: Värri, A.

Number of pages: 5

Pages: 86-90

Publication date: 2014

Host publication information

Title of host publication: RCITD 2014, Proceedings in research conference in technical disciplines, November 17-21, 2014, Zilina, Slovakia

Publisher: EDIS - Publishing Institution of the University of Zilina

Editors: Mokrys, M., Badura, S.

ISBN (Print): 978-80-554-0948-1

Bibliographical note

Contribution: organisation=sgn,FACT1=1
Portfolio EDEND: 2015-02-02

Source: researchoutputwizard

Source-ID: 1707

Research output: Scientific - peer-review › Conference contribution

Rhythm-based Accuracy Improvement of Heart Beat Detection Algorithms

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Signal Processing

Authors: Gilian, Z., Kovacs, P., Samiee, K.

Number of pages: 3

Pages: 269-272

Publication date: 2014

Host publication information

Title of host publication: Computing in Cardiology - 41st Annual Conference, September 7-10, 2014, Boston, Massachusetts, USA

Place of publication: Boston, Massachusetts

Publisher: Computing in Cardiology

ISBN (Print): 978-1-4799-4346-3

ISBN (Electronic): 978-1-4799-4347-0

Links:

<http://www.cinc.org/archives/2014/pdf/0269.pdf>

Bibliographical note

Contribution: organisation=sgn,FACT1=1
Portfolio EDEND: 2014-12-30

Source: researchoutputwizard

Source-ID: 347

Research output: Scientific - peer-review › Conference contribution

Screen for mitochondrial DNA copy number maintenance genes reveals essential role for ATP synthase

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Research group: Laboratory of Biosystem Dynamics-LBD, Multi-scaled biodata analysis and modelling (MultiBAM)

Authors: Fukuoh, A., Cannino, G., Gerards, M., Buckley, S., Kazancioglu, S., Scialo, F., Lihavainen, E., Ribeiro, A., Dufour, E., Jacobs, H. T.

Number of pages: 21

Pages: 1-21

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: Molecular Systems Biology

Volume: 10

Issue number: 734

ISSN (Print): 1744-4292

Ratings:

Scopus rating (2016): SJR 8.366 SNIP 2.15 CiteScore 8.23

Scopus rating (2015): SJR 8.731 SNIP 2.395 CiteScore 9.76

Scopus rating (2014): SJR 10.072 SNIP 3.505 CiteScore 11.8

Scopus rating (2013): SJR 9.637 SNIP 2.875 CiteScore 11.84

Scopus rating (2012): SJR 7.904 SNIP 2.417 CiteScore 10.13

Scopus rating (2011): SJR 7.481 SNIP 2.306 CiteScore 8.78

Scopus rating (2010): SJR 6.293 SNIP 2.45

Scopus rating (2009): SJR 6.386 SNIP 2.602

Scopus rating (2008): SJR 5.206 SNIP 2.307

Scopus rating (2007): SJR 3.243 SNIP 1.572

Scopus rating (2006): SJR 2.24

Original language: English

DOIs:

10.15252/msb.20145117

Bibliographical note

Contribution: organisation=sgn,FACT1=1
Portfolio EDEND: 2014-09-15
Publisher name: Nature Publishing Group

Source: researchoutputwizard

Source-ID: 324

Research output: Scientific - peer-review > Article

Silane-modified substratum improves cell attachment of human embryonic stem cell-derived retinal pigment epithelial cells

General information

State: Published

Ministry of Education publication type: B3 Non-refereed article in conference proceedings

Organisations: Department of Electronics and Communications Engineering, Research group: Biomaterials and Tissue Engineering Group, Optoelectronics Research Centre, Research group: Surface Science, Univ Tampere, University of Tampere, BioMediTech, BMT FM5, BioMediTech

Authors: Juuti-Uusitalo, K., Sorkio, A. E., Käpylä, E. M. K., Teymouri, S., Lahtonen, K. T., Vuori, A. M., Valden, M. O., Skottman, H., Kellomäki, M. A. E.

Pages: 3996

Publication date: 2014

Host publication information

Title of host publication: Investigative Ophthalmology & Visual Science

Volume: 55

Publisher: Association for Research in Vision and Ophthalmology

Edition: 13

Article number: 3996 - D0055

ISBN (Print): 0146-0404

ISBN (Electronic): 1552-5783

Links:

<http://iovs.arvojournals.org/article.aspx?articleid=2269472&resultClick=1>

Bibliographical note

xabstract

Research output: Scientific > Conference contribution

Simulation of hPSC Derived Neuronal Networks with Short and Long Reaching Axons

General information

State: Published

Ministry of Education publication type: B3 Non-refereed article in conference proceedings

Organisations: Department of Electronics and Communications Engineering

Authors: Lenk, K., Ylä-Outinen, L., Tietz, L., Narkilahti, S., Hyttinen, J.

Pages: 218-219

Publication date: 2014

Host publication information

Title of host publication: MEA Meeting 2014. July 1 - July 4, 2014, Reutlingen, Germany. 9th International Meeting on Substrate-Integrated Microelectrode Arrays

Links:

http://www.nmi.de/fileadmin/PDF/Broschueren/MEA2014_Proceedings_web.pdf

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-10-20
Source: researchoutputwizard
Source-ID: 920
Research output: Scientific > Conference contribution

Single Lipid Extraction: The Anchoring Strength of Cholesterol in Liquid-Ordered and Liquid-Disordered Phases

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Research area: Computational Physics, Research group: Biological Physics and Soft Matter, Department of Physics, Computational Science X (CompX)
Authors: Stetter, F., Cwiklic, L., Jungwirth, P., Hugel, T.
Number of pages: 9
Pages: 1167-1175
Publication date: 2014
Peer-reviewed: Yes

Publication information

Journal: Biophysical Journal
Volume: 107
Issue number: 5
ISSN (Print): 0006-3495
Ratings:

Scopus rating (2016): SJR 1.946 SNIP 1.018 CiteScore 3.06
Scopus rating (2015): SJR 2.145 SNIP 1.173 CiteScore 3.3
Scopus rating (2014): SJR 2.203 SNIP 1.166 CiteScore 3.33
Scopus rating (2013): SJR 2.229 SNIP 1.165 CiteScore 3.64
Scopus rating (2012): SJR 2.343 SNIP 1.154 CiteScore 3.57
Scopus rating (2011): SJR 2.322 SNIP 1.204 CiteScore 3.75
Scopus rating (2010): SJR 2.646 SNIP 1.303
Scopus rating (2009): SJR 2.953 SNIP 1.361
Scopus rating (2008): SJR 3.222 SNIP 1.416
Scopus rating (2007): SJR 3.119 SNIP 1.422
Scopus rating (2006): SJR 2.807 SNIP 1.416
Scopus rating (2005): SJR 2.659 SNIP 1.403
Scopus rating (2004): SJR 2.494 SNIP 1.491
Scopus rating (2003): SJR 2.617 SNIP 1.428
Scopus rating (2002): SJR 2.508 SNIP 1.45
Scopus rating (2001): SJR 2.428 SNIP 1.386
Scopus rating (2000): SJR 2.603 SNIP 1.395
Scopus rating (1999): SJR 2.775 SNIP 1.437

Original language: English

DOIs:

10.1016/j.bpj.2014.07.018

Bibliographical note

Contribution: organisation=fys,FACT1=1
Portfolio EDEND: 2014-12-18
Publisher name: Biophysical Society
Source: researchoutputwizard
Source-ID: 1548
Research output: Scientific - peer-review > Article

Surface Modifications and Analysis Methods at Molecular Level

General information

State: Published
Ministry of Education publication type: A4 Article in a conference publication
Organisations: Optoelectronics Research Centre, Research group: Surface Science, Department of Physics, Research group: Ultrafast and intense lasers, Research group: Nanophotonics
Authors: Lehtonen, E., Vuori, L., Hannula, M., Lahtonen, K., Ali-Löytty, H., Ahonen, M., Hirsimäki, M., Karjalainen, H., Rantamäki, A., Saarinen, E., Lyytikäinen, J., Niemi, K., Okhotnikov, O., Valden, M.

Publication date: 2014

Host publication information

Title of host publication: Abstracts of the 28th International Conference on Surface Modification Technologies, SMT28, Tampere University of Technology, Tampere, Finland, June 16-18, 2014

Place of publication: Tampere

Publisher: Tampere University of Technology

ISBN (Print): 978-952-15-3309-9

Links:

<http://www.juuli.fi/Record/juuli2014-201> (Abstracts)

Bibliographical note

xabstract

Research output: Scientific - peer-review › Conference contribution

Sympathetic activity-associated periodic repolarization dynamics predict mortality following myocardial infarction

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Augmented Human Activities (AHA)

Authors: Rizas, K. D., Nieminen, T., Barthel, P., Zurn, C. S., Kähkönen, M., Viik, J., Lehtimäki, T., Nikus, K., Eick, C., Greiner, T. O., Wendel, H. P., Seizer, P., Schreieck, J., Gawaz, M., Schmidt, G., Bauer, A.

Number of pages: 11

Pages: 1770-1780

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: Journal of Clinical Investigation

Volume: 124

Issue number: 4

ISSN (Print): 0021-9738

Ratings:

Scopus rating (2016): SJR 8.074 SNIP 2.787 CiteScore 10.98

Scopus rating (2015): SJR 8.726 SNIP 3.003 CiteScore 11.1

Scopus rating (2014): SJR 9.485 SNIP 3.161 CiteScore 11.2

Scopus rating (2013): SJR 9.526 SNIP 3.237 CiteScore 11.33

Scopus rating (2012): SJR 8.963 SNIP 3.255 CiteScore 11.5

Scopus rating (2011): SJR 9.187 SNIP 3.373 CiteScore 11.56

Scopus rating (2010): SJR 9.116 SNIP 3.248

Scopus rating (2009): SJR 9.333 SNIP 3.36

Scopus rating (2008): SJR 9.302 SNIP 3.174

Scopus rating (2007): SJR 8.472 SNIP 3.233

Scopus rating (2006): SJR 7.98 SNIP 3.143

Scopus rating (2005): SJR 7.369 SNIP 3.022

Scopus rating (2004): SJR 7.73 SNIP 3.08

Scopus rating (2003): SJR 7.766 SNIP 2.99

Scopus rating (2002): SJR 7.594 SNIP 3.016

Scopus rating (2001): SJR 7.086 SNIP 3.096

Scopus rating (2000): SJR 6.324 SNIP 2.976

Scopus rating (1999): SJR 5.709 SNIP 2.735

Original language: English

DOIs:

10.1172/JCI70085

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-04-29
Publisher name: American Society for Clinical Investigation

Source: researchoutputwizard

Source-ID: 1389

Teknisten tekstiilien tulevaisuus; Osa 1. Kasvunäkymät ja yleiskatsaus

General information

State: Published
Ministry of Education publication type: D1 Article in a trade journal
Organisations: Department of Materials Science
Authors: Nousiainen, P.
Number of pages: 2
Pages: 24-25
Publication date: 2014
Peer-reviewed: Unknown

Publication information

Journal: Tekstiilehti
Issue number: 3
ISSN (Print): 0040-2370
Original language: Finnish

Bibliographical note

Contribution: organisation=mol,FACT1=1
Portfolio EDEND: 2014-06-26
Publisher name: Suomen tekstiiliteknillinen liitto
Source: researchoutputwizard
Source-ID: 1156
Research output: Professional › Article

The challenges of understanding glycolipid functions: An open outlook based on molecular simulations

General information

State: Published
Ministry of Education publication type: A2 Review article in a scientific journal
Organisations: Research area: Computational Physics, Research group: Biological Physics and Soft Matter, Department of Physics, Computational Science X (CompX)
Authors: Manna, M., Rog, T., Vattulainen, I.
Number of pages: 16
Pages: 1130-1145
Publication date: 2014
Peer-reviewed: Yes

Publication information

Journal: Biochimica et Biophysica Acta: Molecular and Cell Biology of Lipids
Volume: 1841
Issue number: 8
ISSN (Print): 1388-1981
Ratings:

Scopus rating (2016): SJR 2.59 SNIP 1.445 CiteScore 5.28
Scopus rating (2015): SJR 2.53 SNIP 1.316 CiteScore 4.77
Scopus rating (2014): SJR 2.408 SNIP 1.282 CiteScore 4.6
Scopus rating (2013): SJR 2.181 SNIP 1.313 CiteScore 4.88
Scopus rating (2012): SJR 2.17 SNIP 1.297 CiteScore 4.89
Scopus rating (2011): SJR 2.51 SNIP 1.315 CiteScore 5.2
Scopus rating (2010): SJR 2.471 SNIP 1.338
Scopus rating (2009): SJR 2.506 SNIP 1.25
Scopus rating (2008): SJR 2.487 SNIP 1.03
Scopus rating (2007): SJR 2.03 SNIP 0.906
Scopus rating (2006): SJR 1.475 SNIP 0.91
Scopus rating (2005): SJR 2.102 SNIP 1.086
Scopus rating (2004): SJR 2.18 SNIP 1.068
Scopus rating (2003): SJR 2.418 SNIP 1.376
Scopus rating (2002): SJR 2.248 SNIP 1.265

Scopus rating (2001): SJR 2.268 SNIP 0.99
Scopus rating (2000): SJR 1.924 SNIP 1.024
Scopus rating (1999): SJR 1.794 SNIP 1.077
Original language: English
DOIs:
10.1016/j.bbaliip.2013.12.016

Bibliographical note

Contribution: organisation=fys,FACT1=1
Portfolio EDEND: 2014-05-20
Publisher name: Elsevier BV
Source: researchoutputwizard
Source-ID: 1021
Research output: Scientific - peer-review › Review Article

The New Directive 2013/15/EU on Occupational Exposure to Electromagnetic Fields and Electrical Workers Exposure at 100kV Substations in Finland

General information

State: Published
Ministry of Education publication type: A4 Article in a conference publication
Organisations: Department of Electronics and Communications Engineering
Authors: Korpinen, L., Pääkkönen, R.
Number of pages: 2
Publication date: 2014

Host publication information

Title of host publication: EHE2014, 5th International Conference on Electromagnetic Fields, Health and Environment, Porto, Portugal, 24th - 26th April, 2014
Publisher: Portuguese Association for the Development of Electrical Engineering
Article number: PS.19
ISBN (Print): 978-972-8822-28-6

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-05-25
Publisher name: Portuguese Association for the Development of Electrical Engineering
Source: researchoutputwizard
Source-ID: 771
Research output: Scientific - peer-review › Conference contribution

The new directive 2013/35/EU on occupational exposure to electric fields and electrical workers' use of implantable cardioverter defibrillators (ICDs)

General information

State: Published
Ministry of Education publication type: A4 Article in a conference publication
Organisations: Department of Electronics and Communications Engineering
Authors: Korpinen, L., Pääkkönen, R., Souques, M., Virtanen, V.
Number of pages: 5
Pages: 45-49
Publication date: 2014

Host publication information

Title of host publication: Proceedings of 2nd International Congress on Cardiovascular Technologies, CARDIOTECHNIX, Rome, Italy, 25-26 October, 2014
Publisher: SCITEPRESS
ISBN (Print): 978-989-758-055-0
DOIs:
10.5220/0005142500450049

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-11-03
Publisher name: SCITEPRESS
Source: researchoutputwizard
Source-ID: 783
Research output: Scientific - peer-review › Conference contribution

The New Directive 2013/35/EU on Occupational Exposure to Electromagnetic Fields and Electrical Workers' Use of Cardiac Pacemakers

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering

Authors: Korpinen, L., Pääkkönen, R., Souques, M., Virtanen, V.

Number of pages: 4

Pages: 249-252

Publication date: 2014

Host publication information

Title of host publication: Proceedings of the International Conference on Biomedical Electronics and Devices, BIODEVICES 2014, 3-6 March 2014, Eseo, France

Publisher: SCITEPRESS

Article number: 66

ISBN (Print): 978-989-758-013-0

DOIs:

10.5220/0004913602490252

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-04-29
Publisher name: SCITEPRESS

Source: researchoutputwizard

Source-ID: 784

Research output: Scientific - peer-review › Conference contribution

Thermal spray coating processes

General information

State: Published

Ministry of Education publication type: A3 Part of a book or another research book

Organisations: Department of Materials Science, Engineering materials science and solutions (EMASS)

Authors: Vuoristo, P.

Number of pages: 47

Pages: 229-276

Publication date: 2014

Host publication information

Title of host publication: Comprehensive materials processing, 1st edition Volume 4: Coatings and films

Publisher: Elsevier

Editor: Cameron, D.

ISBN (Print): 978-0-08-096532-1

Bibliographical note

Contribution: organisation=mol,FACT1=1
Portfolio EDEND: 2014-05-27

Source: researchoutputwizard

Source-ID: 1779

Research output: Scientific - peer-review › Chapter

The Use and Know-how of ICT-technology in Different Age Groups

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering

Authors: Korpinen, L., Pääkkönen, R., Gobba, F.

Number of pages: 4

Pages: 56-60

Publication date: 2014

Host publication information

Title of host publication: Proceedings of 2nd International Congress on Neurotechnology, Electronics and Informatics, NEUROTECHNIX, Rome, Italy, 25-26 October, 2014

Publisher: SCITEPRESS
ISBN (Print): 978-989-758-056-7
DOIs:
10.5220/0005142200560060

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-11-03
Publisher name: SCITEPRESS
Source: researchoutputwizard
Source-ID: 781
Research output: Scientific - peer-review › Conference contribution

The Use of Computers in Different Age Groups and their Self-reported Neck Symptoms

General information

State: Published
Ministry of Education publication type: A4 Article in a conference publication
Organisations: Department of Electronics and Communications Engineering
Authors: Korpinen, L., Pääkkönen, R., Gobba, F.
Number of pages: 4
Pages: 496-499
Publication date: 2014

Host publication information

Title of host publication: Proceedings of the International Conference on Health Informatics, HEALTHINF 2014, 3-6 March 2014, Eseo, France
Publisher: SCITEPRESS
Article number: 112
ISBN (Print): 978-989-758-010-9
DOIs:
10.5220/0004913104960499

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-04-29
Publisher name: SCITEPRESS
Source: researchoutputwizard
Source-ID: 782
Research output: Scientific - peer-review › Conference contribution

Topically applied ZnO nanoparticles suppress allergen induced skin inflammation but induce vigorous IgE production in the atopic dermatitis mouse model

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Department of Materials Science, Engineering materials science and solutions (EMASS)
Authors: Ilves, M., Palomäki, J., Vippola, M., Lehto, M., Savolainen, K., Savinko, T., Alenius, H.
Number of pages: 12
Pages: 1-12
Publication date: 2014
Peer-reviewed: Yes

Publication information

Journal: Particle and Fibre Toxicology
Volume: 11
Issue number: 38
ISSN (Print): 1743-8977
Ratings:

Scopus rating (2016): SJR 2.742 SNIP 2.165 CiteScore 9.4
Scopus rating (2015): SJR 3 SNIP 2.013 CiteScore 8.84
Scopus rating (2014): SJR 2.359 SNIP 1.81 CiteScore 6.94
Scopus rating (2013): SJR 2.713 SNIP 2.388 CiteScore 8.5
Scopus rating (2012): SJR 3.032 SNIP 2.075 CiteScore 8.84
Scopus rating (2011): SJR 2.705 SNIP 1.887 CiteScore 7.51
Scopus rating (2010): SJR 2.102 SNIP 1.385

Scopus rating (2009): SJR 2.138 SNIP 1.743

Scopus rating (2008): SJR 2.152 SNIP 1.82

Scopus rating (2007): SJR 1.781 SNIP 1.734

Scopus rating (2006): SJR 1.47 SNIP 1.707

Scopus rating (2005): SJR 0.499 SNIP 0.298

Original language: English

DOIs:

10.1186/s12989-014-0038-4

Links:

<http://www.particleandfibretoxicology.com/content/11/1/38>

Bibliographical note

Contribution: organisation=mol,FACT1=1
Portfolio EDEND: 2014-12-02
Publisher name: BioMed Central

Source: researchoutputwizard

Source-ID: 536

Research output: Scientific - peer-review > Article

Unconstrained Night-Time Heart Rate Monitoring with Capacitive Electrodes

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Automation Science and Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Vehkaoja, A., Salo, A., Peltokangas, M., Verho, J., Salpavaara, T., Lekkala, J.

Number of pages: 4

Pages: 1511-1514

Publication date: 2014

Host publication information

Title of host publication: XIII Mediterranean Conference on Medical and Biological Engineering and Computing 2013, MEDICON 2013, 25 - 28 September 2013, Seville, Spain. IFMB Proceedings Volume 41

Place of publication: Berlin

Publisher: Springer

Editor: Roa Romero, L. M.

ISBN (Print): 978-3-319-00845-5

ISBN (Electronic): 978-3-319-00846-2

Publication series

Name: IFMBE Proceedings

ISSN (Print): 1680-0737

ASJC Scopus subject areas: Biomedical Engineering

DOIs:

10.1007/978-3-319-00846-2_373

Bibliographical note

siirretään Portfolio14
Contribution: organisation=ase,FACT1=1
Portfolio EDEND: 2014-02-15
Publisher name: Springer

Source: researchoutputwizard

Source-ID: 1716

Research output: Scientific - peer-review > Conference contribution

Universal Method for Embedding Proteins into Complex Lipid Bilayers for Molecular Dynamics Simulations

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Research area: Computational Physics, Research group: Biological Physics and Soft Matter, Department of Physics

Authors: Javanainen, M.

Number of pages: 6

Pages: 2577-2582

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: Journal of Chemical Theory and Computation

Volume: 10

Issue number: 6

ISSN (Print): 1549-9618

Ratings:

Scopus rating (2016): SJR 2.801 SNIP 1.589 CiteScore 5.37

Scopus rating (2015): SJR 2.795 SNIP 1.748 CiteScore 5.65

Scopus rating (2014): SJR 2.777 SNIP 1.603 CiteScore 5.63

Scopus rating (2013): SJR 2.409 SNIP 1.578 CiteScore 5.41

Scopus rating (2012): SJR 2.744 SNIP 1.608 CiteScore 5.34

Scopus rating (2011): SJR 2.742 SNIP 1.815 CiteScore 5.82

Scopus rating (2010): SJR 2.372 SNIP 1.46

Scopus rating (2009): SJR 2.616 SNIP 1.273

Scopus rating (2008): SJR 2.367 SNIP 1.173

Scopus rating (2007): SJR 2.3 SNIP 1.401

Scopus rating (2006): SJR 1.77 SNIP 1.062

Original language: English

DOIs:

10.1021/ct500046e

Bibliographical note

Contribution: organisation=fys,FACT1=1
Portfolio EDEND: 2014-09-30
Publisher name: American Chemical Society

Source: researchoutputwizard

Source-ID: 593

Research output: Scientific - peer-review > Article

Upper limb musculoskeletal disorders in healthcare personnel

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering

Authors: Occhionero, V., Korpinen, L., Gobba, F.

Number of pages: 26

Pages: 1166-1191

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: Ergonomics

Volume: 57

Issue number: 8

ISSN (Print): 0014-0139

Ratings:

Scopus rating (2016): SJR 0.913 SNIP 1.358 CiteScore 1.8

Scopus rating (2015): SJR 0.971 SNIP 1.447 CiteScore 1.83

Scopus rating (2014): SJR 0.921 SNIP 1.455 CiteScore 1.77

Scopus rating (2013): SJR 0.831 SNIP 1.405 CiteScore 1.91

Scopus rating (2012): SJR 0.979 SNIP 1.854 CiteScore 1.98

Scopus rating (2011): SJR 0.692 SNIP 1.253 CiteScore 1.72

Scopus rating (2010): SJR 0.756 SNIP 1.31

Scopus rating (2009): SJR 1.033 SNIP 1.498

Scopus rating (2008): SJR 0.845 SNIP 1.515

Scopus rating (2007): SJR 0.999 SNIP 1.569

Scopus rating (2006): SJR 0.56 SNIP 1.222

Scopus rating (2005): SJR 0.574 SNIP 1.465

Scopus rating (2004): SJR 0.931 SNIP 1.522
Scopus rating (2003): SJR 0.85 SNIP 1.287
Scopus rating (2002): SJR 0.628 SNIP 1.266
Scopus rating (2001): SJR 0.583 SNIP 1.079
Scopus rating (2000): SJR 0.541 SNIP 1.205
Scopus rating (1999): SJR 0.622 SNIP 1.168

Original language: English

DOIs:

10.1080/00140139.2014.917205

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-08-09
Publisher name: Taylor & Francis

Source: researchoutputwizard

Source-ID: 1174

Research output: Scientific - peer-review > Article

Video image-based analysis of single human induced pluripotent stem cell derived cardiomyocyte beating dynamics using digital image correlation

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Ahola, A., Kiviahho, A. L., Larsson, K., Honkanen, M., Aalto-Setälä, K., Hyttinen, J.

Number of pages: 18

Publication date: 2014

Peer-reviewed: Yes

Publication information

Journal: Biomedical Engineering Online

Volume: 13

Issue number: 1

Article number: 39

ISSN (Print): 1475-925X

Ratings:

Scopus rating (2016): CiteScore 2.01 SJR 0.487 SNIP 1.048

Scopus rating (2015): SJR 0.521 SNIP 0.84 CiteScore 1.67

Scopus rating (2014): SJR 0.517 SNIP 1.133 CiteScore 2.02

Scopus rating (2013): SJR 0.577 SNIP 1.007 CiteScore 2.14

Scopus rating (2012): SJR 0.443 SNIP 1.059 CiteScore 1.81

Scopus rating (2011): SJR 0.401 SNIP 1.054 CiteScore 1.73

Scopus rating (2010): SJR 0.428 SNIP 1.102

Scopus rating (2009): SJR 0.521 SNIP 1.408

Scopus rating (2008): SJR 0.537 SNIP 0.97

Scopus rating (2007): SJR 0.453 SNIP 1.205

Scopus rating (2006): SJR 0.622 SNIP 1.282

Scopus rating (2005): SJR 0.502 SNIP 0.947

Scopus rating (2004): SJR 0.404 SNIP 1.181

Scopus rating (2003): SJR 0.151 SNIP 0.313

Original language: English

DOIs:

10.1186/1475-925X-13-39

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-05-13
Publisher name: BioMed Central

Source: researchoutputwizard

Source-ID: 63

Research output: Scientific - peer-review > Article

W2E - Wellness Warehouse Engine for semantic interoperability of consumer health data

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Pervasive Computing, Department of Signal Processing, Research group: Personal Health Informatics-PHI, Research Community on Data-to-Decision (D2D), Managing digital industrial transformation (mDIT)

Authors: Saaranen, M., Parak, J., Honko, H., Aaltonen, T., Korhonen, I.

Number of pages: 5

Pages: 350-354

Publication date: 2014

Host publication information

Title of host publication: 2014 IEEE-EMBS International Conference on Biomedical and Health Informatics (BHI), 1-4 June 2014, Valencia, Spain

Place of publication: Piscataway

Publisher: Institute of Electrical and Electronics Engineers IEEE

ISBN (Print): 978-1-4799-2131-7

DOIs:

10.1109/BHI.2014.6864375

Bibliographical note

Portfolio EDEND: 2014-09-24
Publisher name: Institute of Electrical and Electronics Engineers IEEE

ORG=tie,0.5

ORG=sgn,0.5

Source: researchoutputwizard

Source-ID: 1417

Research output: Scientific - peer-review › Conference contribution

Workers at particular risk: the case of medical implants

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering

Authors: Korpinen, L., Souques, M.

Number of pages: 2

Publication date: 2014

Host publication information

Title of host publication: Seminar of ICOH, Scientific Committee on Radiation & Work. The Occupational Health Professionals and the Exposures to Electromagnetic Fields (EMF): what about the Directive 2013/35/EU, 7th April 2014 - Paris

Place of publication: Paris

Publisher: International Commission on Occupational Health - ICOH, Commission Internationale de la Sante au Travail - CIST

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-05-25
Publisher name: International Commission on Occupational Health - ICOH, Commission Internationale de la Sante au Travail - CIST

Source: researchoutputwizard

Source-ID: 785

Research output: Scientific - peer-review › Conference contribution

Yarn to Fabric: Intelligent Textiles

General information

State: Published

Ministry of Education publication type: A3 Part of a book or another research book

Organisations: Department of Materials Science

Authors: Mattila, H.

Number of pages: 22

Pages: 355-376
Publication date: 2014

Host publication information

Title of host publication: Textiles and Fashion, Materials, Design and Technology
Publisher: Woodhead Publishing
Editor: Sinclair, R.
ISBN (Print): 978-1-84569-931-4
ISBN (Electronic): 978-0-85709-561-9

Publication series

Name: Woodhead Publishing Series in Textiles
Publisher: Woodhead Publishing
DOIs:
10.1016/B978-1-84569-931-4.00015-5

Bibliographical note

Available online 19 November 2014
Contribution: organisation=mol,FACT1=1
Portfolio EDEND: 2014-12-30
Source: researchoutputwizard
Source-ID: 1055
Research output: Scientific - peer-review › Chapter

A comparison of magnetic fields inside and outside high-voltage urban 110-kV power substations with the exposure recommendations of the Ukrainian regulatory authorities

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Department of Electronics and Communications Engineering
Authors: Okun, O., Shevchenko, S., Korpinen, L.
Number of pages: 13
Pages: 417-429
Publication date: 2013
Peer-reviewed: Yes

Publication information

Journal: Radiation Protection Dosimetry
Volume: 154
Issue number: 4
ISSN (Print): 0144-8420
Ratings:

Scopus rating (2016): SJR 0.444 SNIP 0.727 CiteScore 0.86
Scopus rating (2015): SJR 0.466 SNIP 0.832 CiteScore 0.82
Scopus rating (2014): SJR 0.517 SNIP 0.913 CiteScore 0.89
Scopus rating (2013): SJR 0.538 SNIP 0.815 CiteScore 0.9
Scopus rating (2012): SJR 0.556 SNIP 0.801 CiteScore 0.82
Scopus rating (2011): SJR 0.541 SNIP 1.049 CiteScore 0.96
Scopus rating (2010): SJR 0.574 SNIP 0.802
Scopus rating (2009): SJR 0.475 SNIP 0.75
Scopus rating (2008): SJR 0.586 SNIP 1.022
Scopus rating (2007): SJR 0.483 SNIP 1.011
Scopus rating (2006): SJR 0.372 SNIP 0.705
Scopus rating (2005): SJR 0.401 SNIP 0.723
Scopus rating (2004): SJR 0.428 SNIP 0.842
Scopus rating (2003): SJR 0.341 SNIP 0.523
Scopus rating (2002): SJR 0.45 SNIP 0.834
Scopus rating (2001): SJR 0.476 SNIP 0.899
Scopus rating (2000): SJR 0.464 SNIP 0.748
Scopus rating (1999): SJR 0.465 SNIP 0.929
Original language: English
DOIs:

10.1093/rpd/ncs268

Bibliographical note

Ei vielä UT-numeroa 6/13
Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2013-05-29
Publisher name: Oxford University Press
Source: researchoutputwizard
Source-ID: 3053
Research output: Scientific - peer-review › Article

Analysis of nonlinear dynamics of healthy and epileptic EEG signals using recurrence based complex network approach

General information

State: Published
Ministry of Education publication type: A4 Article in a conference publication
Organisations: Department of Electronics and Communications Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)
Authors: Subramaniam, N., Hyttinen, J.
Number of pages: 4
Pages: 605-608
Publication date: 2013

Host publication information

Title of host publication: 2013 6th International IEEE/EMBS Conference on Neural Engineering (NER), San Diego, California, 6 - 8 November, 2013
Publisher: Institute of Electrical and Electronics Engineers

Publication series

Name: International IEEE Engineering-in-Medicine-and-Biology-Society Conference on Neural Engineering
ISSN (Print): 1948-3546
DOIs:
10.1109/NER.2013.6696007

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-03-15
Publisher name: Institute of Electrical and Electronics Engineers
Source: researchoutputwizard
Source-ID: 3475
Research output: Scientific - peer-review › Conference contribution

Analysis of Textural Features for Face Biometric Anti-Spoofing

General information

State: Published
Ministry of Education publication type: A4 Article in a conference publication
Organisations: Department of Signal Processing, Research group: Video, Research Community on Data-to-Decision (D2D)
Authors: Waris, M., Zhang, H., Ahmad, I., Kiranyaz, S., Gabbouj, M.
Number of pages: 5
Pages: 1-5
Publication date: 2013

Host publication information

Title of host publication: 21st European Signal Processing Conference, EUSIPCO 2013, 9 -13 September 2013, Marrakech, Morocco
Publisher: European Association for Signal Processing EURASIP

Publication series

Name: European Signal Processing Conference
ISSN (Print): 2219-5491
Links:
<http://www.urasip.org/Proceedings/Eusipco/Eusipco2013/papers/1569744187.pdf>

Bibliographical note

Contribution: organisation=sgn,FACT1=1
Portfolio EDEND: 2013-12-29
Publisher name: European Association for Signal Processing EURASIP

Source: researchoutputwizard
Source-ID: 3736
Research output: Scientific - peer-review › Conference contribution

Analysis of Wireless Powering of mm-Size Neural Recording Tags in RFID-inspired Wireless Brain-Machine Interface Systems

General information

State: Published
Ministry of Education publication type: A4 Article in a conference publication
Organisations: Department of Electronics and Communications Engineering, Sensing Systems for Wireless Medicine (MediSense)
Authors: Moradi, E., Björninen, T., Sydänheimo, L., Ukkonen, L., Rabaey, J. M.
Number of pages: 8
Pages: 8-15
Publication date: 2013

Host publication information

Title of host publication: 7th Annual IEEE International Conference on RFID, IEEE RFID 2013, Orlando, FL, USA, April 30 - May 2, 2013
Publisher: Institute of Electrical and Electronics Engineers IEEE
ISBN (Print): 978-1-4673-5749-4

Publication series

Name: IEEE International Conference on RFID

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2013-05-29
Publisher name: Institute of Electrical and Electronics Engineers IEEE
Source: researchoutputwizard
Source-ID: 2942
Research output: Scientific - peer-review › Conference contribution

A Novel Adaptive Calibration Scheme for Frequency-Selective I/Q Imbalance in Broadband Direct-Conversion Transmitters

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Department of Electronics and Communications Engineering, Wireless Communications and Positioning (WICO)
Authors: Luo, J., Kortke, A., Keusgen, W., Valkama, M.
Number of pages: 5
Pages: 61-65
Publication date: 2013
Peer-reviewed: Yes

Publication information

Journal: IEEE Transactions on Circuits and Systems, Part 2: Express Briefs
Volume: 60
Issue number: 2
ISSN (Print): 1549-7747
Ratings:

Scopus rating (2016): SJR 0.626 SNIP 1.458
Scopus rating (2015): SJR 0.715 SNIP 1.412
Scopus rating (2014): SJR 0.688 SNIP 1.551
Scopus rating (2013): SJR 0.855 SNIP 1.805
Scopus rating (2012): SJR 0.801 SNIP 1.628
Scopus rating (2011): SJR 0.794 SNIP 1.484
Scopus rating (2010): SJR 0.651 SNIP 1.481
Scopus rating (2009): SJR 0.91 SNIP 1.479
Scopus rating (2008): SJR 1.266 SNIP 1.716

Scopus rating (2007): SJR 1.074 SNIP 1.658
Scopus rating (2006): SJR 0.604 SNIP 1.341
Scopus rating (2005): SJR 0.347 SNIP 1.592
Scopus rating (2004): SJR 0.122 SNIP 0
Original language: English
DOIs:
10.1109/TCSII.2012.2235735

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2013-06-29
Publisher name: Institute of Electrical and Electronics Engineers IEEE
Source: researchoutputwizard
Source-ID: 2832
Research output: Scientific - peer-review › Article

Aquaporin Expression and Function in Human Pluripotent Stem Cell-Derived Retinal Pigmented Epithelial Cells

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Department of Electronics and Communications Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)
Authors: Juuti-Uusitalo, K., Delporte, C., Gregoire, F., Perret, J., Huhtala, H., Savolainen, V., Nymark, S., Hyttinen, J., Uusitalo, H., Willermann, F., Skottman, H.
Number of pages: 10
Pages: 3510-3519
Publication date: 2013
Peer-reviewed: Yes

Publication information

Journal: Investigative Ophthalmology and Visual Science
Volume: 54
Issue number: 5
ISSN (Print): 0146-0404
Ratings:
Scopus rating (2016): SJR 1.836 SNIP 1.283 CiteScore 3.21
Scopus rating (2015): SJR 2.04 SNIP 1.408 CiteScore 3.41
Scopus rating (2014): SJR 2.073 SNIP 1.46 CiteScore 3.49
Scopus rating (2013): SJR 2.133 SNIP 1.497 CiteScore 3.74
Scopus rating (2012): SJR 2.222 SNIP 1.409 CiteScore 3.41
Scopus rating (2011): SJR 1.998 SNIP 1.499 CiteScore 3.36
Scopus rating (2010): SJR 1.99 SNIP 1.363
Scopus rating (2009): SJR 1.861 SNIP 1.4
Scopus rating (2008): SJR 1.939 SNIP 1.424
Scopus rating (2007): SJR 1.916 SNIP 1.441
Scopus rating (2006): SJR 2.077 SNIP 1.49
Scopus rating (2005): SJR 1.943 SNIP 1.536
Scopus rating (2004): SJR 1.916 SNIP 1.514
Scopus rating (2003): SJR 1.854 SNIP 1.607
Scopus rating (2002): SJR 1.974 SNIP 1.478
Scopus rating (2001): SJR 1.719 SNIP 1.322
Scopus rating (2000): SJR 0.545 SNIP 1.47
Scopus rating (1999): SJR 0.345 SNIP 1.469
Original language: English
DOIs:
10.1167/iavs.13-11800

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2013-06-29
Publisher name: Association for Research in Vision and Ophthalmology

Source: researchoutputwizard
Source-ID: 2443
Research output: Scientific - peer-review › Article

Arterial pulse waves measured with EMFi and PPG sensors and comparison of the pulse waveform spectral and decomposition analysis in healthy young and elderly subjects

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Department of Automation Science and Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)
Authors: Huotari, M., Vehkaoja, A., Määttä, K., Röning, J.
Number of pages: 10
Pages: 57-66
Publication date: 2013
Peer-reviewed: Yes

Publication information

Journal: Finnish Journal of eHealth and eWelfare
Volume: 5
Issue number: 2-3
ISSN (Print): 1798-0798
Original language: English
Links:
<http://ojs.tsv.fi/index.php/stty>

Bibliographical note

Contribution: organisation=ase,FACT1=1
Portfolio EDEND: 2013-10-29
Publisher name: Sosiaali- ja Terveystieteiden tutkimuskeskus
Source: researchoutputwizard
Source-ID: 2334
Research output: Scientific - peer-review › Article

Capacitive facial activity measurement

A wide range of applications can benefit from the measurement of facial activity. The current study presents a method that can be used to detect and classify the movements of different parts of the face and the expressions the movements form. The method is based on capacitive measurement of facial movements. It uses principal component analysis on the measured data to identify active areas of the face in offline analysis, and hierarchical clustering as a basis for classifying the movements offline and in real-time. Experiments involving a set of voluntary facial movements were carried out with 10 participants. The results show that the principal component analysis of the measured data could be applied with almost perfect performance to offline mapping of the vertical location of the facial activity of movements such as raising and lowering eyebrows, opening mouth, raising mouth corners, and lowering mouth corners. The presented classification method also performed very well in classifying the same movements both with the offline and the real-time implementations.

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Department of Automation Science and Engineering
Authors: Rantanen, V., Kumpulainen, P., Venesvirta, H., Verho, J., Spakov, O., Lylykangas, J., Vetek, A., Surakka, V., Lekkala, J.
Number of pages: 8
Pages: 78-85
Publication date: 2013
Peer-reviewed: Yes

Publication information

Journal: Acta IMEKO
Volume: 2
Issue number: 2
ISSN (Print): 0237-028X
Ratings:
Scopus rating (2016): SJR 0.205 SNIP 0.564

Scopus rating (2015): SJR 0.124 SNIP 0

Original language: English

Electronic versions:

rantanen_capacitive_facial_measurement_acta_imeko.pdf

DOIs:

10.21014/acta_imeko.v2i2.121

Links:

<http://urn.fi/URN:NBN:fi:tty-201409171432>

<http://acta.imeko.org/index.php/acta-imeko/article/viewFile/IMEKO-ACTA-02%20%282013%29-02-14/178>

Bibliographical note

Contribution: organisation=ase,FACT1=1
Portfolio EDEND: 2014-06-19

Source: researchoutputwizard

Source-ID: 3229

Research output: Scientific - peer-review > Article

Capacitive Measurement of Facial Activity Intensity

The measurement of the intensity of facial muscle activity can be used in several applications such as human–computer interaction and behavioural science. A new method for the intensity measurement is presented. It is based on a contactless, capacitive measurement of the movements that the facial activity produces. The muscles responsible for raising the eyebrows, lowering the eyebrows, raising the mouth corners, and pulling down the mouth corners were measured simultaneously with the capacitive method and electromyography (EMG) during controlled experiments. Each muscle was activated by 10 participants at three different intensity levels (low, medium, and high), 10 repetitions at each level. The capacitive intensity values were in good agreement with the ones registered with the EMG: average mean absolute errors were between 7–12% of the observed intensity range. However, compared to the EMG, the capacitive intensity values were noticed to have offsets that may be partly caused by the measurement itself and partly by the EMG reference. As a result, the measurement may require a calibration for more intensity values than just the maximum. In the case of the capacitive method it is also required to distinguish between the muscle activations originating from the same facial regions to determine which activation is taking place. This was done with an almost perfect performance by using hierarchical clustering to cluster the intensity values.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Automation Science and Engineering, Augmented Human Activities (AHA), Field robotics for efficient work sites (FIRE), Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Rantanen, V., Venesvirta, H., Spakov, O., Verho, J., Vetek, A., Surakka, V., Lekkala, J.

Number of pages: 10

Pages: 4329-4338

Publication date: 2013

Peer-reviewed: Yes

Publication information

Journal: IEEE Sensors Journal

Volume: 13

Issue number: 11

ISSN (Print): 1530-437X

Ratings:

Scopus rating (2016): CiteScore 3.12 SJR 0.706 SNIP 1.689

Scopus rating (2015): SJR 0.684 SNIP 1.908 CiteScore 2.85

Scopus rating (2014): SJR 0.799 SNIP 1.934 CiteScore 2.5

Scopus rating (2013): SJR 0.666 SNIP 1.811 CiteScore 2.6

Scopus rating (2012): SJR 0.602 SNIP 1.445 CiteScore 2.09

Scopus rating (2011): SJR 0.572 SNIP 1.421 CiteScore 2.13

Scopus rating (2010): SJR 0.533 SNIP 1.077

Scopus rating (2009): SJR 0.631 SNIP 1.351

Scopus rating (2008): SJR 0.641 SNIP 1.371

Scopus rating (2007): SJR 0.785 SNIP 1.484

Scopus rating (2006): SJR 0.631 SNIP 1.627

Scopus rating (2005): SJR 0.596 SNIP 1.968

Scopus rating (2004): SJR 0.772 SNIP 1.934

Scopus rating (2003): SJR 0.622 SNIP 2.018
Scopus rating (2002): SJR 0.465 SNIP 2.1
Original language: English
Electronic versions:
rantanen_capacitive_measurement_of_facial_activity_intensity.pdf
DOIs:
10.1109/JSEN.2013.2269864
Links:
<http://www.ieee.org/sensors>
<http://urn.fi/URN:NBN:fi:tyy-201409151429>

Bibliographical note

Contribution: organisation=ase,FACT1=1
Portfolio EDEND: 2013-11-29
Publisher name: Institute of Electrical and Electronics Engineers IEEE
Source: researchoutputwizard
Source-ID: 3230
Research output: Scientific - peer-review > Article

Combining the Information of Unconstrained Electrocardiography and Ballistography in the Detection of Night-Time Heart Rate and Respiration Rate

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Department of Automation Science and Engineering
Authors: Vehkaoja, A., Peltokangas, M., Verho, J., Lekkala, J.
Number of pages: 16
Pages: 52-67
Publication date: 2013
Peer-reviewed: Yes

Publication information

Journal: International Journal of Monitoring and Surveillance Technologies Research
Volume: 1
Issue number: 3
ISSN (Print): 2166-7241
Original language: English
DOIs:
10.4018/ijmstr.2013070104

Bibliographical note

Contribution: organisation=ase,FACT1=1
Portfolio EDEND: 2013-12-29
Publisher name: IGI Global
Source: researchoutputwizard
Source-ID: 3661
Research output: Scientific - peer-review > Article

Comparison of different MRI sequences in lesion detection and early response evaluation of diffuse large B-cell lymphoma - a whole-body MRI and diffusion-Weighted imaging study

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Department of Electronics and Communications Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)
Authors: Wu, X., Nersisyan, S., Dastidar, P., Ryymin, P., Järvenpää, R., Pertovaara, H., Eskola, H., Kellokumpu-Lehtinen, P.
Number of pages: 9
Pages: 1186-1194
Publication date: 2013
Peer-reviewed: Yes

Publication information

Journal: NMR in Biomedicine
Volume: 26

Issue number: 9
ISSN (Print): 0952-3480
Ratings:

Scopus rating (2016): SJR 1.42 SNIP 1.038 CiteScore 3.18
Scopus rating (2015): SJR 1.604 SNIP 1.009 CiteScore 3.23
Scopus rating (2014): SJR 1.602 SNIP 1.165 CiteScore 3.45
Scopus rating (2013): SJR 1.63 SNIP 1.311 CiteScore 3.9
Scopus rating (2012): SJR 1.594 SNIP 1.242 CiteScore 3.47
Scopus rating (2011): SJR 1.347 SNIP 1.351 CiteScore 3.37
Scopus rating (2010): SJR 1.303 SNIP 1.152
Scopus rating (2009): SJR 1.567 SNIP 1.551
Scopus rating (2008): SJR 1.816 SNIP 1.453
Scopus rating (2007): SJR 1.709 SNIP 1.421
Scopus rating (2006): SJR 1.363 SNIP 1.28
Scopus rating (2005): SJR 1.633 SNIP 1.572
Scopus rating (2004): SJR 1.212 SNIP 1.262
Scopus rating (2003): SJR 1.738 SNIP 1.224
Scopus rating (2002): SJR 1.01 SNIP 0.878
Scopus rating (2001): SJR 1.024 SNIP 0.962
Scopus rating (2000): SJR 0.802 SNIP 0.87
Scopus rating (1999): SJR 1.045 SNIP 1.111
Original language: English
DOIs:
10.1002/nbm.2933

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2013-12-29
Publisher name: John Wiley & Sons
Source: researchoutputwizard
Source-ID: 3749
Research output: Scientific - peer-review > Article

Computational Models of Ventricular- and Atrial-Like Human Induced Pluripotent Stem Cell Derived Cardiomyocytes

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Department of Electronics and Communications Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)
Authors: Paci, M., Hyttinen, J., Aalto-Setälä, K., Severi, S.
Pages: 2334-2348
Publication date: 2013
Peer-reviewed: Yes

Publication information

Journal: Annals of Biomedical Engineering
Volume: 41
Issue number: 11
ISSN (Print): 0090-6964
Ratings:
Scopus rating (2016): SJR 1.054 SNIP 1.221 CiteScore 3.13
Scopus rating (2015): SJR 1.179 SNIP 1.355 CiteScore 3.21
Scopus rating (2014): SJR 1.095 SNIP 1.521 CiteScore 3.29
Scopus rating (2013): SJR 1.257 SNIP 1.451 CiteScore 3.38
Scopus rating (2012): SJR 0.926 SNIP 1.242 CiteScore 2.77
Scopus rating (2011): SJR 0.863 SNIP 1.135 CiteScore 2.54
Scopus rating (2010): SJR 0.812 SNIP 1.266
Scopus rating (2009): SJR 0.892 SNIP 1.337
Scopus rating (2008): SJR 1.003 SNIP 1.268

Scopus rating (2007): SJR 1.073 SNIP 1.322
Scopus rating (2006): SJR 1.049 SNIP 1.283
Scopus rating (2005): SJR 0.802 SNIP 1.111
Scopus rating (2004): SJR 0.694 SNIP 1.214
Scopus rating (2003): SJR 0.355 SNIP 1.069
Scopus rating (2002): SJR 0.295 SNIP 0.911
Scopus rating (2001): SJR 0.282 SNIP 1.276
Scopus rating (2000): SJR 0.663 SNIP 0.956
Scopus rating (1999): SJR 0.524 SNIP 0.984
Original language: English
DOIs:
10.1007/s10439-013-0833-3

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2013-06-29
Publisher name: Springer US
Source: researchoutputwizard
Source-ID: 3078
Research output: Scientific - peer-review › Article

Correlation approach for the detection of the heartbeat intervals using force sensors placed under the bed posts

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Department of Automation Science and Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)
Authors: Vehkaoja, A., Rajala, S., Kumpulainen, P., Lekkala, J.
Number of pages: 7
Pages: 327-333
Publication date: 2013
Peer-reviewed: Yes

Publication information

Journal: Journal of Medical Engineering & Technology
Volume: 37
Issue number: 5
ISSN (Print): 0309-1902
Ratings:

Scopus rating (2016): SJR 0.253 SNIP 0.476 CiteScore 0.92
Scopus rating (2015): SJR 0.342 SNIP 0.707 CiteScore 0.99
Scopus rating (2014): SJR 0.313 SNIP 0.796 CiteScore 1.05
Scopus rating (2013): SJR 0.253 SNIP 0.706 CiteScore 0.97
Scopus rating (2012): SJR 0.282 SNIP 0.563 CiteScore 0.95
Scopus rating (2011): SJR 0.27 SNIP 0.75 CiteScore 1.05
Scopus rating (2010): SJR 0.22 SNIP 0.49
Scopus rating (2009): SJR 0.249 SNIP 0.813
Scopus rating (2008): SJR 0.253 SNIP 0.568
Scopus rating (2007): SJR 0.216 SNIP 0.669
Scopus rating (2006): SJR 0.306 SNIP 0.811
Scopus rating (2005): SJR 0.35 SNIP 0.89
Scopus rating (2004): SJR 0.292 SNIP 0.472
Scopus rating (2003): SJR 0.291 SNIP 0.501
Scopus rating (2002): SJR 0.317 SNIP 0.642
Scopus rating (2001): SJR 0.239 SNIP 0.579
Scopus rating (2000): SJR 0.273 SNIP 0.813
Scopus rating (1999): SJR 0.237 SNIP 0.498
Original language: English
DOIs:
10.3109/03091902.2013.807523

Links:

<http://informahealthcare.com/doi/abs/10.3109/03091902.2013.807523>

Bibliographical note

Contribution: organisation=ase,FACT1=1
Portfolio EDEND: 2013-11-29
Publisher name: Informa Healthcare

Source: researchoutputwizard

Source-ID: 3662

Research output: Scientific - peer-review > Article

Current densities and total contact currents associated with 400kV power line tasks

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering

Authors: Korpinen, L., Kuisti, H., Elovaara, J.

Number of pages: 4

Pages: 641-644

Publication date: 2013

Peer-reviewed: Yes

Publication information

Journal: Bioelectromagnetics

Volume: 34

Issue number: 8

ISSN (Print): 0197-8462

Ratings:

Scopus rating (2016): SJR 0.572 SNIP 1.1 CiteScore 1.99

Scopus rating (2015): SJR 0.599 SNIP 1.079 CiteScore 1.86

Scopus rating (2014): SJR 0.624 SNIP 1.259 CiteScore 1.79

Scopus rating (2013): SJR 0.68 SNIP 1.341 CiteScore 2.13

Scopus rating (2012): SJR 0.623 SNIP 1.15 CiteScore 1.98

Scopus rating (2011): SJR 0.515 SNIP 1.225 CiteScore 2.27

Scopus rating (2010): SJR 0.817 SNIP 1.206

Scopus rating (2009): SJR 0.717 SNIP 1.334

Scopus rating (2008): SJR 0.691 SNIP 0.992

Scopus rating (2007): SJR 0.754 SNIP 1.363

Scopus rating (2006): SJR 0.553 SNIP 1.341

Scopus rating (2005): SJR 0.619 SNIP 1.4

Scopus rating (2004): SJR 0.649 SNIP 1.242

Scopus rating (2003): SJR 0.598 SNIP 0.916

Scopus rating (2002): SJR 0.576 SNIP 1.101

Scopus rating (2001): SJR 0.61 SNIP 1.556

Scopus rating (2000): SJR 0.772 SNIP 1.359

Scopus rating (1999): SJR 0.548 SNIP 1.369

Original language: English

DOIs:

10.1002/bem.21806

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2013-11-29
Publisher name: John Wiley & Sons

Source: researchoutputwizard

Source-ID: 2616

Research output: Scientific - peer-review > Article

Dexamethasone-eluting vascular stents

General information

State: Published

Ministry of Education publication type: A2 Review article in a scientific journal

Organisations: Department of Electronics and Communications Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Hämäläinen, M., Nieminen, R., Uurto, I., Salenius, J., Kellomäki, M., Mikkonen, J., Kotsar, A., Isotalo, T., Tammela, T., Talja, M., Moilanen, E.

Number of pages: 6

Pages: 296-301

Publication date: 2013

Peer-reviewed: Yes

Publication information

Journal: Basic and Clinical Pharmacology and Toxicology

Volume: 112

Issue number: 5

ISSN (Print): 1742-7835

Ratings:

Scopus rating (2016): SJR 0.542 SNIP 0.945 CiteScore 2.57

Scopus rating (2015): SJR 0.526 SNIP 0.877 CiteScore 2.64

Scopus rating (2014): SJR 0.731 SNIP 0.746 CiteScore 2.11

Scopus rating (2013): SJR 0.748 SNIP 0.857 CiteScore 2.28

Scopus rating (2012): SJR 0.682 SNIP 0.807 CiteScore 2.12

Scopus rating (2011): SJR 0.787 SNIP 0.907 CiteScore 2.45

Scopus rating (2010): SJR 0.718 SNIP 0.829

Scopus rating (2009): SJR 0.748 SNIP 0.73

Scopus rating (2008): SJR 0.644 SNIP 0.579

Scopus rating (2007): SJR 0.653 SNIP 0.711

Scopus rating (2006): SJR 0.557 SNIP 0.642

Scopus rating (2005): SJR 0.574 SNIP 0.668

Scopus rating (2004): SJR 0.535 SNIP 0.639

Scopus rating (2003): SJR 0.416 SNIP 0.53

Scopus rating (2002): SJR 0.341 SNIP 0.525

Scopus rating (2001): SJR 0.38 SNIP 0.449

Scopus rating (2000): SJR 0.422 SNIP 0.542

Scopus rating (1999): SJR 0.517 SNIP 0.661

Original language: English

DOIs:

10.1111/bcpt.12056

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2013-05-29
Publisher name: Wiley-Blackwell Publishing Ltd.

Source: researchoutputwizard

Source-ID: 2230

Research output: Scientific - peer-review › Review Article

Effect of pressure and padding on motion artifact of textile electrodes

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Department of Materials Science, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Cömert, A., Honkala, M., Hyttinen, J.

Number of pages: 18

Pages: 1-18

Publication date: 2013

Peer-reviewed: Yes

Publication information

Journal: Biomedical Engineering Online

Volume: 12

Issue number: 1

Article number: 26
ISSN (Print): 1475-925X
Ratings:

Scopus rating (2016): CiteScore 2.01 SJR 0.487 SNIP 1.048
Scopus rating (2015): SJR 0.521 SNIP 0.84 CiteScore 1.67
Scopus rating (2014): SJR 0.517 SNIP 1.133 CiteScore 2.02
Scopus rating (2013): SJR 0.577 SNIP 1.007 CiteScore 2.14
Scopus rating (2012): SJR 0.443 SNIP 1.059 CiteScore 1.81
Scopus rating (2011): SJR 0.401 SNIP 1.054 CiteScore 1.73
Scopus rating (2010): SJR 0.428 SNIP 1.102
Scopus rating (2009): SJR 0.521 SNIP 1.408
Scopus rating (2008): SJR 0.537 SNIP 0.97
Scopus rating (2007): SJR 0.453 SNIP 1.205
Scopus rating (2006): SJR 0.622 SNIP 1.282
Scopus rating (2005): SJR 0.502 SNIP 0.947
Scopus rating (2004): SJR 0.404 SNIP 1.181
Scopus rating (2003): SJR 0.151 SNIP 0.313
Original language: English
DOIs:
10.1186/1475-925X-12-26

Bibliographical note

poistettu tupla r=940
Contribution: organisation=elt,FACT1=0.8
Contribution:
organisation=mol,FACT2=0.2
Portfolio EDEND: 2013-05-29
Publisher name: BioMed Central Ltd
Source: researchoutputwizard
Source-ID: 2050
Research output: Scientific - peer-review > Article

Extracting the respiration cycle lengths from ECG signal recorded with bed sheet electrodes

General information

State: Published
Ministry of Education publication type: A4 Article in a conference publication
Organisations: Department of Automation Science and Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)
Authors: Vehkaoja, A., Peltokangas, M., Lekkala, J.
Number of pages: 6
Pages: 1-6
Publication date: 2013

Host publication information

Title of host publication: 2013 Joint Imeko (International Measurement Confederation) Tc1-Tc7-Tc13 Symposium: Measurement Across Physical And Behavioural Sciences
Publisher: IOP Publishing
Article number: 012015

Publication series

Name: Journal of Physics: Conference Series
Volume: 459
ISSN (Print): 1742-6588
ISSN (Electronic): 1742-6596
DOIs:
10.1088/1742-6596/459/1/012015
Links:
<http://dx.doi.org/10.1088/1742-6596/459/1/012015>

Bibliographical note

Contribution: organisation=ase,FACT1=1
Portfolio EDEND: 2013-11-29
Publisher name: IOP Publishing
Source: researchoutputwizard
Source-ID: 3660
Research output: Scientific - peer-review > Conference contribution

Face-hugging device for technology mediated human-human interaction

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Automation Science and Engineering

Authors: Venesvirta, H., Surakka, V., Lylykangas, J., Rantanen, V., Spakov, O., Verho, J., Vetek, A., Lekkala, J.

Number of pages: 6

Pages: 346-351

Publication date: 2013

Host publication information

Title of host publication: Grundlagen und Anwendungen der Mensch-Maschine-Interaktion, Foundations and Applications of Human-Machine Interaction, 10. Berliner Werkstatt, Mensch-Maschine-Systeme, 10. - 12. Oktober 2013

Place of publication: Berlin

Publisher: Technische Universität Berlin

Editors: Dittrich, E., Doria, L., Gross, A., Günzler, T., Smieszke, H.

Publication series

Name: Berlin Workshop on Human-Machine Systems

Links:

http://www.tu-berlin.de/fileadmin/f25/dokumente/10BWMMS/10_BWMMS_1_CfP_en_20130131.pdf

Bibliographical note

Contribution: organisation=ase,FACT1=1
Portfolio EDEND: 2013-11-29
Publisher name: Technische Universität Berlin

Source: researchoutputwizard

Source-ID: 3669

Research output: Scientific - peer-review › Conference contribution

Face Interface: Using voluntary gaze direction and facial muscle activations for human-computer interaction

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Automation Science and Engineering

Authors: Tuisku, O., Surakka, V., Rantanen, V., Lekkala, J.

Number of pages: 5

Pages: 341-345

Publication date: 2013

Host publication information

Title of host publication: Grundlagen und Anwendungen der Mensch-Maschine-Interaktion, Foundations and Applications of Human-Machine Interaction, 10. Berliner Werkstatt, Mensch-Maschine-Systeme, 10. - 12. Oktober 2013

Place of publication: Berlin

Publisher: Technische Universität Berlin

Editors: Dittrich, E., Doria, L., Gross, A., Günzler, T., Smieszke, H.

Publication series

Name: Foundations and Applications of Human-Machine Interaction

Bibliographical note

Contribution: organisation=ase,FACT1=1
Portfolio EDEND: 2013-11-29
Publisher name: Technische Universität Berlin

Source: researchoutputwizard

Source-ID: 3562

Research output: Scientific - peer-review › Conference contribution

Femoral neck cross-sectional geometry and exercise loading

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Augmented Human Activities (AHA), Integrated Technologies for Tissue Engineering Research (ITTE)
Authors: Narra, N., Nikander, R., Viik, J., Hyttinen, J., Sievänen, H.
Number of pages: 9
Pages: 258-266
Publication date: 2013
Peer-reviewed: Yes

Publication information

Journal: Clinical Physiology and Functional Imaging
Volume: 33
Issue number: 4
ISSN (Print): 1475-0961
Ratings:

Scopus rating (2016): SJR 0.635 SNIP 0.778 CiteScore 1.49
Scopus rating (2015): SJR 0.538 SNIP 0.668 CiteScore 1.44
Scopus rating (2014): SJR 0.589 SNIP 0.837 CiteScore 1.53
Scopus rating (2013): SJR 0.595 SNIP 0.684 CiteScore 1.53
Scopus rating (2012): SJR 0.464 SNIP 0.909 CiteScore 1.51
Scopus rating (2011): SJR 0.512 SNIP 0.71 CiteScore 1.52
Scopus rating (2010): SJR 0.587 SNIP 0.825
Scopus rating (2009): SJR 0.444 SNIP 0.707
Scopus rating (2008): SJR 0.468 SNIP 0.841
Scopus rating (2007): SJR 0.435 SNIP 0.703
Scopus rating (2006): SJR 0.446 SNIP 0.776
Scopus rating (2005): SJR 0.505 SNIP 0.715
Scopus rating (2004): SJR 0.424 SNIP 0.69
Scopus rating (2003): SJR 0.519 SNIP 0.791
Scopus rating (2002): SJR 0.427 SNIP 0.592
Scopus rating (2001): SJR 0.393 SNIP 0.796
Scopus rating (2000): SJR 0.378 SNIP 0.78
Scopus rating (1999): SJR 0.264 SNIP 0.634

Original language: English

DOIs:

10.1111/cpf.12022

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2013-06-29
Publisher name: Wiley-Blackwell Publishing Ltd.

Source: researchoutputwizard

Source-ID: 2971

Research output: Scientific - peer-review > Article

Imaging Hydrogels 3D Structure For Tissue Engineering With OPT And SPIM

General information

State: Published

Ministry of Education publication type: B3 Non-refereed article in conference proceedings

Organisations: Department of Electronics and Communications Engineering

Authors: Soto de la Cruz, A. M., Hyttinen, J., Figueiras, E.

Number of pages: 2

Pages: 64-65

Publication date: 2013

Host publication information

Title of host publication: 1st EOS Topical Meeting on Frontiers in Optical Imaging (FOI2013), Murten, Switzerland, 16-18 September 2013

Publisher: European Optical Society

ISBN (Print): 978-1-63266-233-0

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-11-08
Publisher name: European Optical Society
Source: researchoutputwizard
Source-ID: 3453
Research output: Scientific › Conference contribution

Influence of relative humidity on analyzing electric field exposure using ELF electric field measurements

General information

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Department of Electronics and Communications Engineering
Authors: Korpinen, L. H., Kuisti, H. A., Tarao, H., Elovaara, J. A.
Number of pages: 5
Pages: 414-418
Publication date: 2013
Peer-reviewed: Yes

Publication information

Journal: Bioelectromagnetics
Volume: 34
Issue number: 5
ISSN (Print): 0197-8462
Ratings:

Scopus rating (2016): SJR 0.572 SNIP 1.1 CiteScore 1.99
Scopus rating (2015): SJR 0.599 SNIP 1.079 CiteScore 1.86
Scopus rating (2014): SJR 0.624 SNIP 1.259 CiteScore 1.79
Scopus rating (2013): SJR 0.68 SNIP 1.341 CiteScore 2.13
Scopus rating (2012): SJR 0.623 SNIP 1.15 CiteScore 1.98
Scopus rating (2011): SJR 0.515 SNIP 1.225 CiteScore 2.27
Scopus rating (2010): SJR 0.817 SNIP 1.206
Scopus rating (2009): SJR 0.717 SNIP 1.334
Scopus rating (2008): SJR 0.691 SNIP 0.992
Scopus rating (2007): SJR 0.754 SNIP 1.363
Scopus rating (2006): SJR 0.553 SNIP 1.341
Scopus rating (2005): SJR 0.619 SNIP 1.4
Scopus rating (2004): SJR 0.649 SNIP 1.242
Scopus rating (2003): SJR 0.598 SNIP 0.916
Scopus rating (2002): SJR 0.576 SNIP 1.101
Scopus rating (2001): SJR 0.61 SNIP 1.556
Scopus rating (2000): SJR 0.772 SNIP 1.359
Scopus rating (1999): SJR 0.548 SNIP 1.369

Original language: English

DOIs:

10.1002/bem.21776

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2013-06-29
Publisher name: John Wiley & Sons
Source: researchoutputwizard
Source-ID: 2615
Research output: Scientific - peer-review › Article

Integration of Microfluidic System with Silicon Nanowires Biosensor for Multiplexed Detection

General information

State: Published
Ministry of Education publication type: A4 Article in a conference publication
Organisations: Department of Automation Science and Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)
Authors: Gao, A., Dai, P., Lu, N., Li, T., Wang, Y., Hemmilä, S., Kallio, P.

Number of pages: 4
Pages: 348-351
Publication date: 2013

Host publication information

Title of host publication: Proceedings of the Third International Conference on Manipulation, Manufacturing and Measurement on the Nanoscale, 3M-NANO, Suzhou, China, 26-30 August, 2013

Publication series

Name: International Conference on Manipulation, Manufacturing and Measurement on the Nanoscale
ISSN (Print): 1932-4510

Bibliographical note

Contribution: organisation=ase,FACT1=1
Portfolio EDEND: 2013-10-29
Source: researchoutputwizard
Source-ID: 2156
Research output: Scientific - peer-review > Conference contribution

Kohti automaattista yksittäisten paperikuitujen manipulointia

General information

State: Published
Ministry of Education publication type: A4 Article in a conference publication
Organisations: Department of Automation Science and Engineering
Authors: Hirvonen, J., Kallio, P.
Number of pages: 6
Pages: 1-6
Publication date: 2013

Host publication information

Title of host publication: Proceedings of Automaatio XX-seminaari, Automation and systems without borders - beyond future, 21.-22.5.2013, Helsinki
Publisher: Suomen Automaatioseura ry
ISBN (Print): 978-952-5183-44-3

Publication series

Name: SAS julkaisusarja
No.: 42
ISSN (Print): 1455-6502

Bibliographical note

Contribution: organisation=ase,FACT1=1
Portfolio EDEND: 2013-09-29
Publisher name: Suomen Automaatioseura ry
Source: researchoutputwizard
Source-ID: 2309
Research output: Scientific - peer-review > Conference contribution

Kolumni: BioMediTech on intohimoinen järkiliitto

General information

State: Published
Ministry of Education publication type: E1 Popularised article, newspaper article
Organisations: Department of Electronics and Communications Engineering
Authors: Kellomäki, M.
Number of pages: 1
Publication date: 2013
Peer-reviewed: Unknown

Publication information

Journal: Rajapinta
Issue number: 3
ISSN (Print): 1798-0739
Original language: Finnish
Links:
<http://rajapinta.tut.fi/artikkelit/2013/3/6583>

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2014-02-15
Publisher name: Tampereen teknillinen yliopisto

Source: researchoutputwizard

Source-ID: 2540

Research output: General public > Article

Measuring Resistive Characteristics of Silicon Nanowire by Applying Electrostatic Tensile Device and Broadband Test Signal**General information**

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Automation Science and Engineering, Integrated Technologies for Tissue Engineering Research (ITTE), Smart Energy Systems (SES)

Authors: Roinila, T., Zeng, H., Verho, J., Yu, X., Vilkkio, M., Kallio, P., Lekkala, J., Li, T., Wang, Y.

Number of pages: 4

Pages: 23-26

Publication date: 2013

Host publication information

Title of host publication: Nanotechnology 2013: Advanced Materials, CNTs, Particles, Films and Composites Nanotech, Conference & Expo 2013, May 12-16, 2013 Washington, DC

Publisher: Nano Science and Technology Institute

ISBN (Print): 978-1-4822-0581-7

Publication series

Name: Nanotechnology Conference and Expo

Publisher: Nano Science and Technology Institute

Volume: 1

Bibliographical note

Contribution: organisation=ase,FACT1=1
Portfolio EDEND: 2013-10-29

Source: researchoutputwizard

Source-ID: 3280

Research output: Scientific - peer-review > Conference contribution

Method for Investigations of Aged Fibre-Fibre Bonds with Micro and Nanorobotic Tools**General information**

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Automation Science and Engineering

Authors: Saketi, P., Mikczinski, M., Fatikow, S., Kallio, P.

Number of pages: 18

Pages: 125-142

Publication date: 2013

Host publication information

Title of host publication: Advances in Pulp and Paper Research, Cambridge 2013: Transactions of the 15th Fundamental Research Symposium, Cambridge, September 2013

Place of publication: Bury

Publisher: Pulp & Paper Fundamental Research Society

Editor: l'Anson, S.

ISBN (Print): 978-0992616304

Publication series

Name: Pulp and Paper Fundamental Research Symposium

Volume: 1

Bibliographical note

Contribution: organisation=ase,FACT1=1
Portfolio EDEND: 2013-10-29
Publisher name: Pulp & Paper Fundamental Research Society

Source: researchoutputwizard

Source-ID: 3334

Non-Binary Coding for Texture Descriptors in Sub-Cellular and Stem Cell Image Classification

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Paci, M., Nanni, L., Lahti, A., Aalto-Setälä, K., Hyttinen, J., Severi, S.

Number of pages: 12

Pages: 208-219

Publication date: 2013

Peer-reviewed: Yes

Publication information

Journal: Current Bioinformatics

Volume: 8

Issue number: 2

ISSN (Print): 1574-8936

Ratings:

Scopus rating (2016): SJR 0.23 SNIP 0.288 CiteScore 0.6

Scopus rating (2015): SJR 0.32 SNIP 0.428 CiteScore 0.86

Scopus rating (2014): SJR 0.315 SNIP 0.528 CiteScore 0.93

Scopus rating (2013): SJR 0.359 SNIP 0.665 CiteScore 1.9

Scopus rating (2012): SJR 0.236 SNIP 0.594 CiteScore 1.74

Scopus rating (2011): SJR 0.393 SNIP 0.436 CiteScore 1.06

Scopus rating (2010): SJR 0.294 SNIP 0.264

Scopus rating (2009): SJR 0.615 SNIP 0.651

Scopus rating (2008): SJR 0.678 SNIP 0.472

Scopus rating (2007): SJR 0.123 SNIP 0

Scopus rating (2006): SJR 0.122 SNIP 0

Original language: English

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2013-05-29
Publisher name: Bentham Science Publishers Ltd.

Source: researchoutputwizard

Source-ID: 3080

Research output: Scientific - peer-review › Article

Novel method for intensity correction using a simple maskless lithography device

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Automation Science and Engineering, Field robotics for efficient work sites (FIRE), Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Kattiparambil Rajan, D., Raunio, J., Karjalainen, M. T., Ryyänen, T., Lekkala, J.

Number of pages: 7

Pages: 40-46

Publication date: 2013

Peer-reviewed: Yes

Publication information

Journal: Sensors and Actuators A: Physical

Volume: 194

ISSN (Print): 0924-4247

Ratings:

Scopus rating (2016): SJR 0.803 SNIP 1.655

Scopus rating (2015): SJR 0.848 SNIP 1.599

Scopus rating (2014): SJR 0.878 SNIP 1.798
Scopus rating (2013): SJR 0.827 SNIP 1.802
Scopus rating (2012): SJR 0.915 SNIP 2.113
Scopus rating (2011): SJR 0.907 SNIP 2.111
Scopus rating (2010): SJR 1.106 SNIP 1.834
Scopus rating (2009): SJR 1.029 SNIP 1.674
Scopus rating (2008): SJR 0.973 SNIP 1.612
Scopus rating (2007): SJR 0.944 SNIP 1.42
Scopus rating (2006): SJR 0.913 SNIP 1.636
Scopus rating (2005): SJR 0.955 SNIP 1.736
Scopus rating (2004): SJR 0.964 SNIP 1.727
Scopus rating (2003): SJR 1.149 SNIP 1.484
Scopus rating (2002): SJR 1.055 SNIP 1.458
Scopus rating (2001): SJR 0.946 SNIP 1.458
Scopus rating (2000): SJR 0.789 SNIP 1.251
Scopus rating (1999): SJR 0.578 SNIP 0.875

Original language: English

DOIs:

10.1016/j.sna.2013.01.024

Links:

<http://www.sciencedirect.com/science/article/pii/S092442471300037X>

Bibliographical note

Contribution: organisation=ase,FACT1=1
Portfolio EDEND: 2013-11-29
Publisher name: Elsevier S.A.

Source: researchoutputwizard

Source-ID: 2527

Research output: Scientific - peer-review > Article

Novel polypyrrole-coated polylactide scaffolds enhance adipose stem cell proliferation and early osteogenic differentiation

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Pelto, J., Björnininen, M., Pälli, A., Talvitie, E., Hyttinen, J., Mannerström, B., Suuronen-Seppänen, R., Kellomäki, M., Miettinen, S., Haimi, S.

Number of pages: 11

Pages: 882-892

Publication date: 2013

Peer-reviewed: Yes

Publication information

Journal: Tissue Engineering Part A

Volume: 19

Issue number: 7-8

ISSN (Print): 1937-3341

Ratings:

Scopus rating (2016): SJR 1.168 SNIP 0.956 CiteScore 3.43

Scopus rating (2015): SJR 1.492 SNIP 1.085 CiteScore 4.03

Scopus rating (2014): SJR 1.557 SNIP 1.254 CiteScore 4.45

Scopus rating (2013): SJR 1.649 SNIP 1.293 CiteScore 4.4

Scopus rating (2012): SJR 1.984 SNIP 1.187 CiteScore 4.47

Scopus rating (2011): SJR 1.848 SNIP 1.121 CiteScore 4.24

Scopus rating (2010): SJR 1.294 SNIP 1.256

Scopus rating (2009): SJR 0.873 SNIP 0.781

Original language: English

DOIs:

10.1089/ten.tea.2012.0111

Bibliographical note

Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2013-06-29
Publisher name: Mary Ann Liebert, Inc. Publishers

Source: researchoutputwizard

Source-ID: 3127

Research output: Scientific - peer-review > Article

Pulse waveforms are an indicator of the condition of vascular system

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Automation Science and Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Huotari, M., Vehkaoja, A., Määttä, K., Kostamovaara, J.

Pages: 526-529

Publication date: 2013

Host publication information

Title of host publication: World Congress on Medical Physics and Biomedical Engineering, May 26-31, 2012, Beijing, China. IFMBE Proceedings

Publisher: Springer Verlag

Editor: Long, M.

ISBN (Print): 978-3-642-29304-7

Publication series

Name: IFMBE Proceedings

Volume: 39

ISSN (Print): 1680-0737

Links:

<http://www.springerlink.com>

Bibliographical note

Ei UT-numeroa 13.8.2013
Contribution: organisation=ase mit,FACT1=1
Publisher name: Springer Verlag

Source: researchoutputwizard

Source-ID: 2333

Research output: Scientific - peer-review > Conference contribution

Scale and Rotation Invariant Two View Microgripper Detection that Uses a Planar Pattern

In automated grasping of microparts or objects with unknown dimensions and orientations, at least two cameras have to be used to acquire the depth information. In addition to recognition and reconstruction of the real-world coordinates of the target objects, the system has to be able to detect also the real-world coordinates of the microgrippers from the images. This paper presents a scale and rotation invariant microgripper detection method that uses a planar pattern. The method is suitable especially for prototyping systems, whose composition might vary between the experiments. The gripper detection is shown to be accurate enough for challenging micromanipulation tasks of small electronic components and individual paper fibers.

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Automation Science and Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Hirvonen, J., Kallio, P.

Number of pages: 9

Pages: 414-422

Publication date: 2013

Host publication information

Title of host publication: 6th IFAC Symposium on Mechatronic Systems, April 10-12, 2013, Hangzhou, China

Publisher: International Federation of Automatic Control

Editor: Ju, B.

ISBN (Print): 978-3-902823-31-1

Publication series

Name: Elsevier IFAC Publications / IFAC Proceedings series

ISSN (Print): 1474-6670

Electronic versions:

hirvonen_kallio_scale_and_rotation_invariant.pdf

DOIs:

10.3182/20130410-3-CN-2034.00056

Links:

<http://urn.fi/URN:NBN:fi:tty-201410101506>

Bibliographical note

Contribution: organisation=ase,FACT1=1
Portfolio EDEND: 2013-09-29
Publisher name: International Federation of Automatic Control

Source: researchoutputwizard

Source-ID: 2310

Research output: Scientific - peer-review › Conference contribution

Silanoitparametrien vaikutus sähkökemiallisesti passivoidun austeniittisen teräksen pinnalle rakentuvan biofunktionaalisen seossilaanohutkalvon koostumukseen

This thesis examines the chemical composition of a mixed silane thin film synthesized on electrochemically passivated AISI 316L -stainless steel. Silane thin films can be used to enhance the biocompatibility of stainless steel and to create surface functionalities that promote adsorption of biomolecules. Such hybrid materials made of steel and organic coatings can be utilized in e.g. medical implants and tissue engineering.

The goal of this work was to develop deposition equipment needed for the synthesis of silane thin films in order to improve the rate and reproducibility of the sample preparation. The equipment was used to investigate the effect of silanization parameters such as the composition of the silane solution, the hydrolysis time and the silanization time on the structure of the self-assembled thin film. The silane molecules used in this study were amine terminated (3-aminopropyl)trimethoxysilane (APS) and thiol terminated (3-mercaptopropyl)trimethoxysilane (MPS).

The silanization process was conducted as a liquid phase deposition in atmospheric pressure, which enables the method to be easily adapted to commercial applications. On the other hand, the measurements were performed in ultra-high vacuum utilizing both synchrotron radiation induced and conventional X-ray photoelectron spectroscopy (XPS). The acquired spectra enabled conclusions to be made on the chemical composition and thickness of the silane films. They also provided information on the ratio and orientation of the functional groups.

According to the results, the employed silanization process enables the reproducible manufacturing of approximately one monolayer thick silane films. In addition, the amount of surface functionalities can be adjusted by modifying either the silane concentration in the hydrolysis solution or the silanization time. However, changing the hydrolysis time only affects the chemical bonding between the silane molecules and steel surface, not the total amount of functional groups. Based on the measurements with varying surface sensitivities, it was possible to conclude that the majority of functional groups point outwards. This is an important result considering the adsorption of biomolecules on the surface.

This study found that the hydrolysis rate of different silane species shows considerable variation despite the similar basic structure of the molecules. In the future, the hydrolysis behaviour should be investigated more carefully in the liquid phase. This might help to understand the hydrolysis reactions and also enhance the repeatability of the sample preparation.

General information

State: Published

Ministry of Education publication type: G2 Master's thesis, polytechnic Master's thesis

Organisations: Optoelectronics Research Centre, Research group: Surface Science

Authors: Hannula, M.

Number of pages: 105

Publication date: 2013

Publication information

Publisher: Unknown Publisher

Original language: Finnish

ASJC Scopus subject areas: Surfaces and Interfaces

Keywords: Silane, Stainless steel, 316, XPS, PES, Synchrotron, APS, MPS

Links:

<http://dspace.cc.tut.fi/dpub/handle/123456789/21373>

Research output: Scientific › Master's Thesis

Simulation of Microporous Architecture's Effects on Fluid Flow Characteristics in Cell Seeding

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Bonabi, A., Aydogan, D. B., Hyttinen, J.

Number of pages: 6

Pages: 84-89

Publication date: 2013

Host publication information

Title of host publication: 2013 UKSim 15th International Conference on Computer Modelling and Simulation, 10-12 April, 2013, Cambridge, United Kingdom

ISBN (Print): 978-0-7695-4994-1

ISBN (Electronic): 978-1-4673-6421-8

Publication series

Name: UKSim International Conference on Computer Modelling and Simulation

DOIs:

10.1109/UKSim.2013.116

Bibliographical note

Poistettu tupla r=1040
Contribution: organisation=elt,FACT1=1
Portfolio EDEND: 2013-06-29

Source: researchoutputwizard

Source-ID: 2011

Research output: Scientific - peer-review > Conference contribution

Text entry by gazing and smiling

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Automation Science and Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Tuisku, O., Surakka, V., Rantanen, V., Vanhala, T., Lekkala, J.

Number of pages: 13

Pages: 1-13

Publication date: 2013

Peer-reviewed: Yes

Publication information

Journal: Advances in Human Computer Interaction

Volume: 2013

Article number: 218084

ISSN (Print): 1687-5893

Ratings:

Scopus rating (2016): SJR 0.529 SNIP 2.021 CiteScore 2.74

Scopus rating (2015): SJR 0.421 SNIP 1.167 CiteScore 1.86

Scopus rating (2014): SJR 0.183 SNIP 0.718 CiteScore 0.99

Scopus rating (2013): SJR 0.228 SNIP 0.943 CiteScore 1

Scopus rating (2012): SJR 0.272 SNIP 1.582 CiteScore 1.09

Scopus rating (2011): SJR 0.556 SNIP 1.518 CiteScore 1.38

Original language: English

Electronic versions:

Text Entry by Gazing and Smiling

DOIs:

10.1155/2013/218084

Links:

<http://urn.fi/URN:NBN:fi:tty-201603183673>

Bibliographical note

Contribution: organisation=ase,FACT1=1
Portfolio EDEND: 2013-09-29
Publisher name: Hindawi Publishing Corporation

Source: researchoutputwizard

Source-ID: 3563

Research output: Scientific - peer-review › Article

The 2nd Competition on Counter Measures to 2D Face Spoofing Attacks

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Signal Processing, Research group: Video, Research Community on Data-to-Decision (D2D)

Authors: Chingovska, I., Yang, J., Lei, Z., Yi, D., Li, S., Kähm, O., Glaser, C., Darner, N., Kuijper, A., Nouak, A., Komulainen, J., Pereira, T., Gupta, S., Khandelwal, S., Bansal, S., Rai, A., Krishna, T., Goyal, D., Waris, M., Zhang, H., Ahmad, I., Kiranyaz, S., Gabbouj, M., Tronci, R., Pili, M., Sirena, N., Roli, F., Galbally, J., Fierrez, J., Pinto, A., Pedrini, H., Schwartz, W., Rocha, A., Anjos, A., Marcel, S.

Number of pages: 6

Pages: 1-6

Publication date: 2013

Host publication information

Title of host publication: 6th IAPR International Conference on Biometrics (ICB-2013), 4-7 June 2013, Madrid, Spain

Publisher: International Association of Pattern Recognition IAPR; Institute of Electrical and Electronics Engineers IEEE

ISBN (Print): 978-1-4799-0310-8

Publication series

Name: International Conference on Biometrics

ISSN (Print): 2163-4068

Bibliographical note

Contribution: organisation=sgn,FACT1=1
Portfolio EDEND: 2013-12-29
Publisher name: International Association of Pattern Recognition IAPR; Institute of Electrical and Electronics Engineers IEEE

Source: researchoutputwizard

Source-ID: 2042

Research output: Scientific - peer-review › Conference contribution

Three-dimensional calibration of micromanipulators using stereo vision

Calibration is of great significance in the development of automatic micromanipulation systems. This paper presents a novel vision based procedure for three-dimensional (3D) calibration of micromanipulators. Two major issues in the proposed calibration approach - vision system calibration and manipulator kinematic calibration - are discussed in detail in this paper. Verification and evaluation experiments are conducted using a 3D micromanipulator in a microrobotic fiber characterization platform. Experimental results demonstrate that the proposed calibration approach is able to achieve prediction errors below 5 μm . The proposed approach also demonstrates the feasibility of calibrating the decoupled motions, by reducing the undesired movement from 28 μm to 8 μm (for 4800 μm desired movement).

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Department of Automation Science and Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Xiong, Y., Hirvonen, J., Kallio, P.

Number of pages: 12

Pages: 13-24

Publication date: 2013

Peer-reviewed: Yes

Publication information

Journal: Journal of Micro-Bio Robotics

Volume: 8

Issue number: 1

ISSN (Print): 2194-6418

Ratings:

Scopus rating (2016): SJR 0.352 SNIP 0.646

Scopus rating (2015): SJR 0.336 SNIP 1.025

Scopus rating (2014): SJR 0.105 SNIP 0.02

Original language: English

Electronic versions:

xiong_three_dimensional_calibration_of_micromanipulators.pdf

DOIs:

10.1007/s12213-013-0061-9

Links:

<http://urn.fi/URN:NBN:fi:tty-201409291457>

Bibliographical note

Contribution: organisation=ase,FACT1=1
Portfolio EDEND: 2013-10-29
Publisher name: Springer

Source: researchoutputwizard

Source-ID: 3759

Research output: Scientific - peer-review › Article

Towards Fully Automated Pick and Place Operations of Individual Natural Fibers

This paper reports automated image-based pick and place procedures for manipulation of individual natural fibers. The developed procedures are part of an effort to develop a fully automated microrobotic-based platform for fiber characterization. The presented procedures are divided into unit operations, which can be reused in multiple tasks that the platform must perform. Two different demonstrations: pick and place, and coordinated fiber lifting are presented. In addition, a component-based software that promotes reusability of the developed unit operations is presented.

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Automation Science and Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Von Essen, M., Hirvonen, J., Kuikka, S., Kallio, P.

Number of pages: 6

Pages: 21-26

Publication date: 2013

Host publication information

Title of host publication: Proceedings of the Third International Conference on Manipulation, Manufacturing and Measurement on the Nanoscale, 3M-NANO, Suzhou, China, 26-30 August, 2013

ISBN (Print): 978-1-4799-1213-1

Publication series

Name: International Conference on Manipulation, Manufacturing and Measurement on the Nanoscale

Electronic versions:

von_essen_towards_fully_automated_pick_and_place.pdf

DOIs:

10.1109/3M-NANO.2013.6737419

Links:

<http://urn.fi/URN:NBN:fi:tty-201410071486>

Bibliographical note

Contribution: organisation=ase,FACT1=1
Portfolio EDEND: 2013-10-29

Source: researchoutputwizard

Source-ID: 3720

Research output: Scientific - peer-review › Conference contribution

Washing Durability of Embroidered Polymer Coated RFID Tags

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Department of Automation Science and Engineering, Integrated Technologies for Tissue Engineering Research (ITTE), Sensing Systems for Wireless Medicine (MediSense)

Authors: Toivonen, M., Koski, K., Moradi, E., Babar, A. A., Sydänheimo, L., Ukkonen, L., Kallio, P., Rahmat-Samii, Y.

Number of pages: 2

Pages: 1490-1491

Publication date: 2013

Host publication information

Title of host publication: 2013 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting, July 7-13, 2013, Orlando, Florida, USA
ISBN (Print): 978-1-4673-5317-5

Publication series

Name: IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting
ISSN (Print): 1522-3965

Bibliographical note

Contribution: organisation=elt,FACT1=0.8
Contribution: organisation=ase,FACT2=0.2
Portfolio EDEND: 2013-10-29

Source: researchoutputwizard

Source-ID: 3548

Research output: Scientific - peer-review › Conference contribution

Combining unobtrusive electrocardiography and ballistography for more accurate monitoring of sleep

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Automation Science and Engineering, Integrated Technologies for Tissue Engineering Research (ITTE)

Authors: Vehkaoja, A., Peltokangas, M., Verho, J., Lekkala, J.

Pages: 202-207

Publication date: 2012

Host publication information

Title of host publication: Proceedings of the IEEE 12th International Conference on BioInformatics and BioEngineering BIBE, November 11-13, 2012, Larnaca, Cyprus

Place of publication: Piscataway, NJ

Publisher: Institute of Electrical and Electronics Engineers IEEE

ISBN (Print): 978-1-4673-4357-2

ISBN (Electronic): 978-1-4673-4356-5

Publication series

Name: IEEE International Conference on Bioinformatics and Bioengineering

ASJC Scopus subject areas: Biomedical Engineering

Electronic versions:

Combining Unobtrusive Electrocardiography and Ballistography for more Accurate Monitoring of Sleep

DOIs:

10.1109/BIBE.2012.6399674

Links:

<http://urn.fi/URN:NBN:fi:tty-201603183713>

Bibliographical note

Contribution: organisation=ase mit,FACT1=1
Publisher name: Institute of Electrical and Electronics Engineers IEEE

Source: researchoutputwizard

Source-ID: 5528

Research output: Scientific - peer-review › Conference contribution

System for ECG and heart rate monitoring during group training

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Automation Science and Engineering, Department of Biomedical Engineering

Authors: Vehkaoja, A., Verho, J., Cömert, A., Aydogan, B., Perhonen, M., Lekkala, J., Halttunen, J.

Pages: 4832-4835

Publication date: 2008

Host publication information

Title of host publication: 30th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, IEEE EMBS, Personalized Healthcare through Technology, August 20-24, 2008, Vancouver, British Columbia, Canada
ISBN (Print): 978-1-4244-1815-2

Electronic versions:

System for ECG and heart rate monitoring during group training

Links:

<http://urn.fi/URN:NBN:fi:tty-201603183717>

Bibliographical note

IEEE Catalog Number: CFP08EMB-DVD
Contribution: organisation=ase mit,FACT1=0.75
Contribution: organisation=bme,FACT2=0.25

Source: researchoutputwizard

Source-ID: 13745

Research output: Scientific - peer-review › Conference contribution

Cerebral glucose metabolism in survivors of childhood acute lymphoblastic leukemia

BACKGROUND. Cranial radiation therapy (CRT) has been suggested to be a principal factor responsible for long term neurocognitive deficits in survivors of acute lymphoblastic leukemia (ALL). However, neither reduction of the irradiation dose nor the elimination of irradiation entirely appear to have abolished neurocognitive impairment in long term ALL survivors. Positron emission tomography (PET) and [F-18] -fluorodeoxyglucose (FDG) can be used to quantitate cerebral glucose metabolism , a potential indicator of treatment-induced adverse central nervous system (CNS) effects. The purpose of this study was to assess whether CRT is associated with defects in cerebral glucose metabolism in long term ALL survivors. The authors also studied whether chemotherapy and/or the severity of disease have deleterious effects on glucose metabolism.

METHODS. Ferry long-term survivors of childhood ALL were studied using FDG PET. All subjects went through an elaborate neurocognitive assessment. In 20 of these children, the prophylactic treatment of the CNS had been CRT combined with methotrexate (MTX), and it was MTX only in the remaining 20 children.

RESULTS. No major differences were found in the regional cerebral glucose utilization or in neurocognitive performance between the irradiated and nonirradiated groups. A high leukocyte count at the time of diagnosis was found to be associated inversely with cerebral glucose utilization.

CONCLUSIONS. CRT does not appear to affect cerebral glucose metabolism in long term survivors of ALL. By contrast, the association between the leukocyte count and glucose utilization implies that disease severity may be partly responsible for adverse CNS effects in long term survivors of childhood ALL. (C) 2000 American Cancer Society.

General information

State: Published

Ministry of Education publication type: A1 Journal article-refereed

Organisations: Former organisation of the author

Authors: Kahkonen, M., Metsahonkala, L., Minn, H., Utriainen, T., Korhonen, T., Norvasuo-Heila, M., Harila-Saari, A., Aarimaa, T., Suhonen-Polvi, H., Ruotsalainen, U., Solin, O., Salmi, T.

Number of pages: 8

Pages: 693-700

Publication date: 1 Feb 2000

Peer-reviewed: Yes

Publication information

Journal: Cancer

Volume: 88

Issue number: 3

ISSN (Print): 0008-543X

Ratings:

Scopus rating (2016): SJR 2.973 SNIP 2.002 CiteScore 4.51

Scopus rating (2015): SJR 3.175 SNIP 2.037 CiteScore 4.83

Scopus rating (2014): SJR 2.994 SNIP 2.023 CiteScore 4.55

Scopus rating (2013): SJR 2.949 SNIP 2.082 CiteScore 4.98

Scopus rating (2012): SJR 2.944 SNIP 2.112 CiteScore 5.11

Scopus rating (2011): SJR 2.67 SNIP 2.03 CiteScore 5.06

Scopus rating (2010): SJR 2.758 SNIP 2.08

Scopus rating (2009): SJR 2.677 SNIP 1.986

Scopus rating (2008): SJR 2.563 SNIP 1.907

Scopus rating (2007): SJR 2.288 SNIP 1.87

Scopus rating (2006): SJR 2.205 SNIP 1.905

Scopus rating (2005): SJR 2.049 SNIP 1.991

Scopus rating (2004): SJR 1.875 SNIP 1.893

Scopus rating (2003): SJR 1.822 SNIP 1.978

Scopus rating (2002): SJR 1.581 SNIP 1.755

Scopus rating (2001): SJR 1.59 SNIP 1.908

Scopus rating (2000): SJR 1.491 SNIP 1.905

Scopus rating (1999): SJR 1.366 SNIP 2.112

Original language: English

Keywords: leukemia, late effect, [F-18]-fluorodeoxyglucose, positron emission tomography, child, glucose metabolism, brain, ACUTE LYMPHOCYTIC-LEUKEMIA, LONG-TERM SURVIVORS, HIGH-DOSE METHOTREXATE, TOMOGRAPHY BRAIN-SCANS, 5 NORDIC COUNTRIES, CRANIAL IRRADIATION, FOLLOW-UP, CHILDREN, RADIATION, PERFORMANCE

Source: WOS

Source-ID: 000084874900028

Research output: Scientific - peer-review › Article

Iterative reconstruction method based on median root prior in quantification with PET

The aim of this study was to compare reproducibility and accuracy of two reconstruction methods in quantification of regional myocardial blood flow (rMBF) and oxygen metabolism with [O-15] labeled tracers and positron emission tomography (PET). A new iterative Bayesian reconstruction method based on median root prior (MRP) was compared with filtered back-projection (FBP) method.

Methods, rMBF, oxygen extraction fraction (rOEF) and myocardial metabolic rate of oxygen consumption (rMMRO(2)) were quantified from images reconstructed using both MRP and FBP in 27 subjects. For each subject, regions of interest (ROIs) were drawn on the lateral, anterior and septal regions on four planes. To test the reproducibility, the ROI drawing procedure was repeated. Using two sets of ROIs, variability was evaluated with MRP and FBP images.

Results. Correlation coefficients of rMBF rOEF and rMMRO(2) were significantly higher in MRP images than in FBP images. Coefficient of variations for each parameter was significantly lower in MRP images than in FBP.

Conclusion. MRP reconstruction provides higher reproducibility and lower variability in the quantitative myocardial parameters compared with FBP. This study presents that the new MRP reconstruction improves accuracy and stability of clinical quantification of myocardial blood flow and oxygen metabolism with [O-15] and PET.

General information

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Former organisation of the author

Authors: Katoh, C., Alenius, S., Ruotsalainen, U.

Number of pages: 6

Pages: 265-270

Publication date: 2000

Host publication information

Title of host publication: Positron Emission Tomography in the Millennium

Place of publication: Amsterdam

Publisher: Elsevier Science Publishers B.V.

Editors: Tamaki, N., Tsukamoto, E., Kuge, Y., Katoh, C., Morita, K.

ISBN (Print): 0-444-50385-4

Publication series

Name: INTERNATIONAL CONGRESS SERIES

Publisher: ELSEVIER SCIENCE BV

Volume: 1197

ISSN (Print): 0531-5131

Keywords: Bayesian reconstruction, metabolic rate of oxygen consumption, myocardial blood flow, POSITRON-EMISSION TOMOGRAPHY, MYOCARDIAL BLOOD-FLOW, INHALATION

Source: WOS

Source-ID: 000088052500032

Research output: Scientific - peer-review › Conference contribution