



BioNanoElectronics in ICT, Biomedicine & Development, Nov 5-6, 2013, Oulu

Organizers: *FinGerDevNet, Biocenter Oulu Doctoral Programme & Infotech Oulu Doctoral Program*

Venue: University of Oulu, Medical campus, Lecture halls F202 and 101A (Aapistie 5A)

Registration: By November 1st to BCO-DP coordinator Ritva Saastamoinen, ritva.saastamoinen@oulu.fi (for coffee service). The event is open to all.

Credits: 0.5 ECTS for postgraduate training

Information: Professor Seppo Vainio, seppo.vainio@oulu.fi

Day 1: Tuesday, November 5

Time: 09.00-16.00 Place: Lecture hall F202, Dept. of Pharmacology and Toxicology

09.00 Opening of the workshop by Seppo Vainio and Juha Röning

Session I - Strategies to integrate signal processing in cells & electronics

Chair: Juha Röning

09.05-09.45 **Daniel Frankel** (Newcastle Univ., United Kingdom): *“Engineering cells to communicate with machine”*

09.45-10.30 **Kevin Warwick** (Univ. Reading, United Kingdom): *“Cells as programmers and learners of robotic control - bioelectronics applications”*

10.30-11.00 Coffee – Snack Break – Interactions

Session II - Nanomaterials as tools for biomedical applications I

Chair: Valery Tuchin

11.00-11.35 **Tina Gulin** (Åbo Academi, Finland): *“Mesoporous silica nanoparticles for diagnostic and therapeutic Nano medicine”*

11.35-12.20 **Jukka Seppälä** (Aalto Univ., Finland): *“Lactone copolymers for controlled release and bioactive 3D structures”*

12.20-13.00 **Amanda Brun** (French Nat. Centre for Sci. Res., Univ. Paris Diderot, France): *“Magnetic cell – a building block for tissue engineering and a template for microvesicles as drug delivery systems”*

13.00-14.00 Lunch Break – Socializing

Session III - Nanomaterials as tools for biomedical applications II

Chair: Seppo Vainio

14.00-14.30 **Kirsi Rilla** (Univ. Kuopio, Finland): "*Hyaluronan-coated extracellular vesicles as potential biomarkers*"

14.30-15.00 **Valery Tuchin** (Optoelectronics, Oulu Univ., Finland): "*Application of photo catalytic, plasmonic, and upconverting nanoparticles in vitro and in vivo for biomedical imaging and therapy*"

15.00-15.30 **Wouter Driessen** (iThera Medical, Germany): "*Multispectral optoacoustic tomography (MSOT): A versatile novel tool for biomedical imaging*"

15.30-16.00 **Adama Sesay** (Kajaani Univ. Consortium, CEMIS-OULU): "*Biosensor developments for medical diagnostics*"

Closing of the first day lead by Seppo Vainio & Juha Röning

Day 2: Wednesday, November 6

Time: 09.00-16.00 Place: Lecture hall: Leena Palotie Hall (101A), Main building of the medical campus (Aapistie 5A)

Session IV – BioNanomotors, and Biosensors & microfluidistic applications I

Chair: Adama Sesay

09.00-09.40 **Anton Kuzyk** (Max Planck Inst. for Intelligent Systems, Germany): "*DNA nanotechnology enabled plasmonics*"

09.40-10.20 **Anders Wolff** (Technical Univ., Denmark): "*Novel biomaterials for tissue engineering, microfluidistics & nanotech research application development*"

10.20-10.50 **Markku Käsäkoski** (Global Innovation Network Oy): "*Robotic dispensing of reagents on biosensors and microfluidics*"

10.50-11.20 Coffee - Snack Break – Interactions

Session V - Biosensors & microfluidistic applications II

Chair: Markku Juntti

11.20-12.00 **Claus Duschl** (Fraunhofer Inst., Germany): "*High frequency electromagnetic fields and microfluidics for the noninvasive processing and monitoring of cells*"

12.00-12.40 **Lars Folke Olsen** (Univ. Southern Denmark, Denmark): "*Nano biosensors and aptamers*"

12.40-14.00 Lunch Break – Socializing

Session VI - Visions for the personalized medicine and internet health technology

Chair: Ari Pouttu

14.00-14.40 **Marcos Katz** (Centre for Wireless Communication (CWC), Finland) : *“Novel communication technologies for medical ICT scenarios: Mobile clouds and visible light communications”*

14.40-15.20 **Tapio Seppänen** (Department of Computer Science and Engineering (CSE), Finland): *“Computer analysis of heart function, emotion and language”*

15.20-16.00 **Tapani Koivukangas** (Lewel Group Finland Oy, Finland): *“Developing integrated, wireless systems for healthcare”*

Thanks & closing by Seppo Vainio and Juha Röning