"Healthy Future"

Ninth Annual ScanBalt *Forum 2010*

September 22–24, 2010 Tallinn, Estonia

Thursday, September 23	Plenary Hall	Ball Room	Meeting Room Tartu
9.00–10.30	**Session on Estonian Bioeconomy: Status Quo and Future Perspectives** Chair: **Indrek Kask,** Asper Biotech, Estonia **Olavi Otepalu,** Estonian Biotechnology Programme Manager, Estonia *"Estonian Biotechnology Programme as a tool to accelerate and boost the development of Estonian bioeconomy"* **Prof. Andres Metspalu**, Chairman of Estonian Genome Centre, Estonia *"Estonian Biobank as a cornerstone for developing future personal medicine"* **Riin Ehin,** Competence Centre for Cancer Research, Estonia *"The challenges for Estonian biotech firms"*	**Healthy Food and Efficient Food Industry I: Healthy products – evidence based efficacy** Chair: **Prof. Marika Mikelsaar,** University of Tartu, Bio-Competence Centre of Healthy Dairy Products, Estonia **Prof. Christopher Harold Knight**, University of Copenhagen, Denmark *"Healthy milks, from grass to glass"* **Prof. Seppo Salminen**, Director of Functional Food Forum, University of Turku, Finland *„Health claims – use of clinical investi-gations for proving efficacy of functional food"* **Dr. Mari Sandell**, University of Turku, Functional Foods Forum, Finland *"Healthy and pleasant – a fascinating challenge!"*	**Biomaterial Days II** Chair: **Dipl. Ing. Julija Novinkina** Institute of Biomaterials and Biomechanics, Riga Technical University, Latvia **As. Prof. Alexei Katashev,** Faculty of Transport and Mechanical Engineering, Riga Technical University, Latvia *"Possibility on HAP surface charge engineering for bioimplants"* **MSc Biol Olga Brode,** Institute of Biomaterials and Biomechanics, Riga Technical University, Latvia *"Evaluation of textile pads impregnated with amber suspension effects on skin"* **Dr. Lyudmila Amarantova**, National Institute of Health, Russia *"BIOTREM – a new technology for super-adaptation"*
10.30–11.00	**Coffee break**		
11.00–12.30	**ScanBalt Health Region – Innovation in Health and in Life Sciences** Chair: **Daumantas Matulis**, Lithuanian Association of Biotechnology/Institute of Biotechnology **Dr. Wolfgang Blank**, ScanBalt/ BioCon Valley GmbH, Germany *"ScanBalt Health Region – How far are we? "* **Dr. Dennis A. Ostwald**, Technische Universität Darmstadt, Germany *"Healthcare Industry: Growth and employment driver, or rather an automatic stabilizer?"* **Liis Rooväli**, Ministry of Social Affairs, Estonia *"The Northern Dimension in Health leading health priorities in the Baltic Sea Region"* **Dr. Lars Fernvall**, VINNOVA, Sweden *"BSR Star – a Cluster Strategy for the Baltic Sea Region"* **Round Table discussion**: How does the Baltic Sea Region become a globally leading Health Region? *Intro and Moderator: Daumantas Matulis, Lithuanian Association of Biotechnology/Institute of Biotechnology*	**Healthy Food and Efficient Food Industry II** Chair: **Prof. Marika Mikelsaar,** University of Tartu, Bio-Competence Centre of Healthy Dairy Products, Estonia **Prof. Olav Kärt,** University of Life Sciences, Bio-Competence Centre of Healthy Dairy Products, Estonia *"Designing milk fatty acid composition using locally available feeds"* **Dr. Epp Songisepp** begin_of_ the_skype_highlightingend_of_ the_skype_highlighting, Bio-Competence Centre of Healthy Dairy Products, Estonia *"Blood pressure lowering cheese – evidence based research and health claims"* **Prof. Mihkel Zilmer**, University of Tartu, Bio-Competence Centre of Healthy Dairy Products, Estonia *"Integration different technologies to test actual clinical impact of nutrition and foodstuffs"*	**Biomaterial Days III** Chair: **Dr. Inga Lyashenko** Institute of Biomaterials and Biomechanics, Riga Technical University, Latvia **Dr. Inga Lyashenko,** Institute of Biomaterials and Biomechanics, Riga Technical University, Latvia *"The study of technological capabilities of textile threads cross-piercing for the elaboration of biologically active substances"* **As. Prof. Alexei Katashev,** Faculty of Transport and Mechanical Engineering, Riga Technical University, Latvia *"Self-assembling capsides – nanoparticles complex"*
12.30–13.30	**Lunch**		

As Prof. Alexei Katashev

Alexei Katashev (born 1972) has graduated Faculty of Physics of the University of Latvia in 1993; he defended his PhD thesis "Photostimulated exoelectron emission of bone tissue" in 1998. Since 1994, Alexei Katashev is working at the department of Biomedical Engineering and Nanotechnology, Riga Technical University, and performing research in the field of biomaterials, biomedical engineering and medical physics, and participating in a number of international research projects (EC project NMP3-CT-2003-504937 "PERCERAMICS, INTAS project 03-51-3967 "Ferroelectricity on molecular level" etc). A. Katashev has 36 publications, more then 40 conference reports. Since 2002, he is an associated professor of the Riga Technical University, his teaching activities include courses in Medical Instrumentation, Measurements for Medicine, Medical Statistics, Nanotechnology Physics etc. Since 2005, he acts as a Vice – Dean for Research in the Faculty of Transport and Mechanical Engineering, and he is currently also the President of the Latvian Society of Medical Engineering and Physics.

Self-assembling capsides – nanoparticles complex

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Virus-like particles – capsides – are under intensive studies nowadays due to broad perspective for its applications as intracellular drug delivery agents. To ensure the effective treatment the concentration of capsides in cell vicinity and inside the cell has to be high. One way to increase the local capsides concentration is groupping them all together, for instance, by attaching them to adjuvants – nanoparticles. This nanoparticles serve as "nano-lorry" which would deliver capsides inside the cell and reduce their residual concentration in the intracellular liquid.

The present work explores possibility to use silicon dioxide nanoparticles as adjuvant to Hepatitis B capsides to create complexes "capsides – nanoparticles". Spectrophotometric measurements, electron and fluorescent microscopy demonstrated formation of the above complexes. In addition, vaccination of animals with the complexes-based vaccine resulted in twelve-time increase in antibody synthesis.

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