

## **EMBL-ESTONIA - Workshop, 18 February 2021**

Virtual (Zoom)

### ESTONIA SPEAKERS

#### **Indrek Reimand, Ministry of Education and Research, Deputy Secretary General**



Indrek Reimand, PhD, is the Deputy Secretary General for Higher Education and Research, Estonian Ministry of Education and Research. He is responsible for formulating and implementing R&D and higher education policies in Estonia. He is also the Chairman of Board of Estonian Research Council, the main research grants financing body in Estonia. He started at the ministry in 2004 as Head of Research Policy Division. During the career, he has been a member of several domestic and international bodies, including ERAC, ESFRI, eIRG.

Before joining the ministry, Indrek Reimand has been a researcher in the field of optics and spectroscopy of solid state at the Institute of Physics, Tartu University, Estonia. He was also active as a computer programmer and a founder of a spin-off company in the field of scanning probe microscopes. Since 2000 he has been working as a member of board of the Estonian Information Technology Foundation, responsible for development issues of the foundation. He was the initiator and founder of the Estonian e-University, a consortium of all major Estonian universities for joint activities in e-learning.

#### **Jaak Vilo, University of Tartu, Head of Institute of Computer Science**



Prof. Jaak Vilo (bioinformatics) heads the Institute of Computer Science and the Chair of Data Science at University of Tartu, Estonia. He earned his PhD in Computer Science at University of Helsinki, Finland. In 1999-2002 he worked at the European Bioinformatics Institute (EMBL), UK as one of the pioneers in early gene expression microarray data analytics. His group applies data analysis, machine learning and algorithmic techniques to a broad range of biological and health data and applications. The Institute of Computer Science is the leading IT research unit in Estonia, with two ERC grants and numerous joint research projects with industry. The Chair of Data Science is responsible more

broadly for machine learning, big data and various applications. Among other projects he is leading the development of IT infrastructure for Estonian Personalised Medicine implementation programme GenMed.

Jaak Vilo is representing Estonia in the international biological data infrastructure activities as Head of ELIXIR Estonia, and is also a scientific representative of Estonia to the EMBL Council. He is a member of Estonian Academy of Sciences and ACM Senior Member, member of the Informatics Europe Board, and a member of International Society for Computational Biology ISCB.

### **Lili Milani, Estonian Genome Centre, Vice Director**



Lili Milani has a PhD degree in molecular medicine from Uppsala University, Sweden (2009). Her main areas of research have been epigenetics and pharmacogenetics, particularly studying DNA methylation and its associations with gene expression levels, disease progression and drug response. She is now the vice director of the Institute of Genomics, University of Tartu, where her main responsibilities are directing the research and scientific collaboration of the Estonian Genome Centre. She is also a professor of pharmacogenomics and head of the personalized medicine initiative at the Estonian Genome Centre. Her team focuses on using electronic health records, including drug prescriptions, of participants of the Estonian biobank to find associations between genetic variants and adverse drug reactions among individuals who have been prescribed specific drugs. She is actively participating in preparing and implementing the national strategy for personalized medicine in Estonia in close collaboration with the Ministry of Social Affairs and Institute for Health Development.

### **Maarja Öpik, University of Tartu, Professor of molecular ecology and director of Institute of Ecology and Earth Sciences**



Maarja completed her PhD in 2004 at the University of Tartu, was a Marie Curie Fellow at Scottish Crop Research Institute (2006-2008) and returned to Tartu University to lead DNA-based explorations of arbuscular mycorrhizal fungi (AMF), their diversity and ecology from local to global scales and in natural and human impacted ecosystems. She led development of a database of AMF collating DNA-based occurrence data and ecological meta-data (the MaarjAM database). In 2020 she became director of the Institute of Ecology and Earth Sciences, a home of a remarkable number of world leading scientists in ecology and environmental science. Her current research addresses a range of

basic and applied questions related to fungi, AMF, plant-fungal interactions, ecosystem restoration, soil health and fungal applications in agriculture, to name a few.

**Ülo Niinemets, Estonian University of Life Sciences, Head of the Department of Crop Science and Plant Biology**



Professor Ülo Niinemets is Head of the Department of Crop Science and Plant Biology at the Estonian University of Life Sciences (EMU) and member of the Estonian Academy of Sciences. He got PhD from the University of Tartu in 1996, and has worked as postdoc in Germany (Univ. of Bayreuth), Belgium (Univ. of Antwerp) and Italy (Centro di Ecologia Alpina). Since 2006 he has been working as a full professor at EMU. Prof. Niinemets has specific expertise in quantification and predictive modelling of plant carbon gain and trace gas exchange in crops and wild plants at scales ranging from molecules to leaves, ecosystems, landscapes and biomes. His current work specifically targets plant stress tolerance and adaptability to globally changing climates with emphasis both on the role of species stress resistance in vegetation resilience under more frequent drought and heat spells and on novel crops for future climates. He has co-authored more than 350 peer-reviewed articles in leading scientific journals, and currently serves the community as an editor or editorial board member of several international journals. He has participated in numerous international projects including networks of Excellence from the European Commission, National Academy of Sciences of USA, Human Frontiers of Science Program, and European Science Foundation and was the PI of the ERC advanced grant SIP-VOL+ (2013-2018) that studied the role of plant-released trace gases on Earth climate. He currently leads the Estonian Center of Global Change Ecology (2016-2023) and is Estonian PI of a European-wide project on improvement of crop photosynthesis under global change.

**Peep Palumaa, Tallinn University of Technology, Professor of proteomics and Head of metalloproteomics**



Peep Palumaa is a professor of proteomics and a head of Metalloproteomics lab at Tallinn University of Technology. Since 2011 he has been a member of EMBO. He completed his PhD in bioorganic chemistry in 1986 at the University of Tartu, Estonia and worked in 1989 - 1992 as a postdoc at the University of Zürich. From 1993 to 1999 he worked as

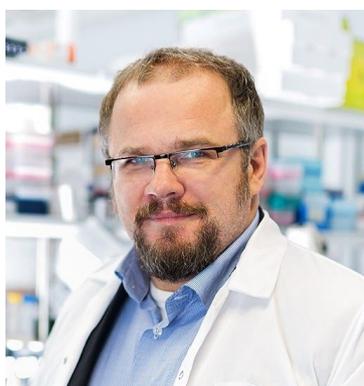
professor of biochemistry at the University of Tartu and since 2002 he is a professor of proteomics at the Tallinn University of Technology. His major work strives towards understanding the metabolism of copper in the human organism in a normal state as well as in case of Wilson's and Alzheimer's disease. His research is focused on structural and functional studies of copper proteins and peptides by including mass-spectrometric techniques like ESI TOF MS and ICP MS. His current study focus is on copper proteome in blood and CSF, which is needed for understanding the copper homeostasis at the organismal level. In parallel, his team tries to find low-molecular copper-binding ligands, suitable for normalization of copper metabolism occurring in the case of Wilson's and Alzheimer's disease.

### **Maia Kivisaar, University of Tartu, Director of Institute of Molecular and Cell Biology**



Maia Kivisaar is a professor at the University of Tartu, Institute of Molecular and Cell Biology (IMCB). In January 2021 she also started as a director of IMCB. Since 2015 she is the Estonian delegate to the European Molecular Biology Conference (EMBC). She completed her PhD in molecular biology in 1992 at the University of Tartu, Estonia. From 1992 to 1993 she worked as Senior Researcher. In 1994 she worked as EMBO short-term postdoc at the Biomedical Centre (BMC), Uppsala University, Sweden. From 1993 to 2007 she worked as Associate Professor, and since 2008 she holds a position as Professor of Microbial Genetics at IMCB. She has been working on the molecular, genetics and physiological aspects of phenolic compounds degrading soil bacterium *Pseudomonas putida*. The ongoing research is mostly centred on studies of molecular mechanisms of genetic adaptation of *Pseudomonas* under conditions of environmental stress such as cell starvation and oxidative stress caused by various toxic chemicals. A role of various DNA polymerases and DNA repair pathways in DNA damage tolerance and mutagenesis mechanisms is investigated. Also, a part of the research is focused on identification of a network underlying the mutagenesis and evolvability of microbial populations under environmental stress.

### **Mart Loog, University of Tartu, Professor of molecular systems biology**



Mart Loog is a professor of molecular systems biology at the Institute of Technology, University of Tartu. Mart received his Ph.D. in medicinal biochemistry from Uppsala University, Sweden, in 2002, followed by postdoctoral training at the University of California, San Francisco (UCSF). In 2006, Mart established his independent laboratory at the newly established Institute of Technology. He has received several international fellowships and awards including The Wellcome Trust Senior International Fellowship, and a startup research grant from European Molecular Biology Organization (EMBO) and Howard Hughes Medical Institute (HHMI). In 2012 he received Estonian National Science Prize in chemistry and molecular biology. In 2015 he was awarded the European Research Council (ERC)

Consolidator Grant and became a principal coordinator of H2020 ERA Chair projects SynBioTEC and GasFermTEC to establish the multidisciplinary Estonian Centre for Biosustainability (ECB). Mart's research directions include phospho-regulation of the eukaryotic cell cycle, synthetic circuit design based on multi-site phosphorylation systems, and systems biology of regulatory networks in general. He is leading a laboratory of more than 20 people ([www.looglab.com](http://www.looglab.com)). Mart is a founder and a leader of international undergraduate curricula "Science & Technology" and Master's program "Bioengineering". Recently, he established a Core Laboratory for Wood Chemistry and Bioprocessing that aims to provide services for industry and also forms a consortium of research labs focusing on the chemical and biotechnological valorization of wood industry waste streams ([www.woodbiotech.com](http://www.woodbiotech.com)).

**Toivo Maimets, University of Tartu, Professor of cell biology**



Toivo Maimets is a Professor of Cell Biology at the University of Tartu and former President of the European Molecular Biology Conference (EMBC, 2010-2015). He received his kandidat nauk degree from the University of Moscow (1984) and PhD degree from the University of Tartu (1991). His research is on molecular signalling pathways of human tumour and embryonic stem cells, he is an author of three books and about 80 research papers. Member of different international professional organizations (European Medicines Agency Committee of Advanced Therapies, Academia Europea, US and European Cancer Research Associations). He has been actively involved in UNESCO International Bioethics Committee (member and vice-chair) and been a member and a leader of several European Commission and other international panels and working groups.