

Conference program

June 17th – Young Researchers' Day, Opening and Plenary Session

8.00-9.00 Registration, welcome coffee & set up of the posters (see your poster # in the program and find the appropriate location in the lecture hall 107)

9.00-16.50 Young Researchers' Sessions I-IV

9.00-9.05 Welcome. **Prof. Kaspars Tars**, LaBS president

9.05-10.35 – *Session I. Moderator: Gints Kalniņš*

9.05-9.20 **Mārtiņš Otikovs** (Weizmann Institute of Science, Rehovot, Israel) "Dynamic insight by solution state NMR into the formation of spider silk"

9.20-9.35 **Karin Ernits** (Institute of Molecular and Cell Biology, University of Tartu, Estonia) "First crystal structure of a bacterial endo-levanase"

9.35-9.50 **Irmantas Mogila** (Vilnius University, Life Sciences Center, Lithuania) "Genetic dissection of type III-A CRISPR-Cas effector complex reveals roles of individual subunits"

9.50-10.05 **Natalja Garber** (Institute of Molecular and Cell Biology, University of Tartu, Estonia) "The role of mitochondrial helicase Irc3 on D- and R-loop unwinding"

10.05-10.20 **Elīna Černooka** (Biomedical Research and Study Center, Riga, Latvia) "Structural studies of conserved uncharacterized proteins in the genomes of novel DNA phages"

10.20-10.35 **Martynas Simanavičius** (Vilnius University) "Hepatitis E virus in wild rats from Lithuania"

10.35-10.55 *Coffee break*

10.55-12.15 *Session II. Moderator: Dr. Priit Eek*

10.55-11.10 **Gints Kalniņš** (Biomedical Research and Study Centre, Riga, Latvia) "Encapsulation mechanisms and structural studies of GRM2 bacterial microcompartment particles"

11.10-11.25 **Tarvi Teder** (Institute of Chemistry and Biotechnology, Tallinn University of Technology, Estonia) "Structural-functional insights of catalase-related allene oxide synthase and hydroperoxide lyase"

11.25-11.40 **Kārlis Vilks** (Institute of Organic Synthesis, Riga, Latvia) "Molecular mechanisms of long-chain acylcarnitine-induced insulin resistance"

11.40-11.55 **Jekaterina Aid** (National Institute of Chemical Physics and Biophysics, Tallinn, Estonia) "Characterization of the bioenergetics profile of the skeletal and heart muscle of the Wfs1KO mice"

11.55-12.10 **Anna Kiršteina** (Biomedical Research and Study Center, Riga, Latvia) "Construction of a novel multivalent influenza vaccine based on conserved influenza antigens"

12.10-12.25 **Joana Smirnoviene** (Vilnius University, Lithuania) "Tight-binding inhibitors of human carbonic anhydrase: necessity to combine inhibition and binding assays"

12.25-13.15 - Lunch

13.15-15.00 – Session III. Moderator: *Ilze Elbere*

13.15-13.30 **Jolanta Upīte** (University of Latvia) “Systemic Long-term Drug Administration in Different AD Mice Models”

13.30-13.45 **Aistē Imbrasaitē** (Vilnius University) “Generation and characterization of monoclonal antibodies against Atlantic cod parvalbumin”

13.45-14.00 **Gundega Štelfa** (Institute of Organic Synthesis, Riga, Latvia) “Weight-drop model of traumatic brain injury results in more severe inflammatory response in animals with skull fracture”

14.00-14.15 **Ivan Kisly** (Institute of Molecular and Cell Biology, University of Tartu, Estonia) “Dual role of the ribosomal protein eL24”

14.15-14.30 **Vladimirs Piļipenko** (University of Latvia) “Effects of metformin on sociability, spatial learning, memory and neuroinflammation of Alzheimer's disease model rats”

14.30-14.45 **Jekaterina Kristall** (Tallinn University of Technology, Estonia) “In vitro studying of amyloid beta peptides toxic effects”

14.45-15.05 – Coffee break

15.05-16.40 – Session IV. Moderator *Elīna Černooka*

15.05-15.20 **Kārlis Pleiko** (University of Latvia) “NGS for aptamer selection using differential binding cell-SELEX”

15.20-15.35 **Ilze Elbere** (Biomedical Research and Study Center, Riga, Latvia) "Functional profile of the gut microbiome and its changes during metformin therapy in healthy individuals and newly-diagnosed type 2 diabetes patients".

15.35-15.50 **Monta Ustinova** (Biomedical Research and Study Center, Riga, Latvia) “Metformin-induced alterations of blood cell transcriptome in diabetic patients”

15.50-16.05 **Olga Trofimova** (Biomedical Research and Study Center, Riga, Latvia) “Functional programming of tumour macrophages in 3D cultures and in vivo mouse models”

16.05-16.20 **Merilin Rosenberg** (Laboratory of Environmental Toxicology, National Institute of Chemical Physics and Biophysics, Tallinn, Estonia) “Propidium iodide and extracellular nucleic acids in bacterial viability staining”

16.20-16.35 **Piret Saar-Reismaa** (Tallinn University of Technology, Dep. of Chemistry and Biotechnology, Estonia) “Detection of drugs of abuse in oral fluid by capillary electrophoresis”

16.35-17.00 – Coffee break

Opening & Plenary session (session V)

17.00-17.10 Opening ceremony. **Prof. Kaspars Tars**, LaBS president

17.10-17.20 Welcome from FEBS. **Prof. Jerka Dumic**, FEBS Chair of the Working Group on Integration FEBS3+ activities.

17.20-18.05 – National Lecture. **Prof. Roslyn Bill** (Aston University, UK) “Aquaporin regulation by sub-cellular relocalization – a new route to therapies for traumatic injury of the brain and spinal cord”

18.05-18.30 **Dr. Pavel Plevka** (Central European Institute of Technology, Brno, Czech Republic) (subject about virus structure). “Structure and mechanism of DNA delivery of gene transfer agent”

18.30-18.55 **Prof. Jean-Yves Winum** (Université of Montpellier, France) “Multivalent Inhibitors of Carbonic Anhydrases”

18.55-19.20 **Dr. Alexandre Corthay** (Oslo University Hospital, Norway) “Activation of macrophages to fight cancer: defining the rules”

20.00 – Welcome dinner at restaurant “[Kliversala](#)” in National Library of Latvia, 5 min walk from the conference venue ([Google maps location](#)).

June 18th

10.00-12.00 Session VI. Moderator Dr. Karīna Siliņa

10.00-10.20 **Prof. Maija Dambrova** (Institute of Organic Synthesis, Riga, Latvia) “L-carnitine: role in energy metabolism and cardiometabolic diseases”

10.20-10.40 **Prof. Daumantas Matulis** (Vilnius University, Lithuania) “From thermodynamics of compound binding to biology of anticancer drug development”

10.40-11.00 **Prof. Peep Palumaa** (Tallinn University of Technology, Estonia) “Copper-binding equilibria in blood”

11.00-11.20 **Prof. Kaspars Tārs** (Biomedical Research and Study Center, Riga, Latvia) “RNA phages, their VLPs and applications in vaccine development”

11.20-11.40 **Prof. Jerka Dumic** (University of Zagreb, Croatia) “Molecular Basis of Adaptation Mechanisms of Cardiovascular System in Response to Scuba Diving”

11.40-12.00 **Prof. Kristaps Jaudzems** (Institute of Organic Synthesis, Riga, Latvia) “Biomimicry of Artificial Spider Silk Spinning”

12.00-13.00 Lunch

13.00-15.00 Session VII. Moderator prof. Daumantas Matulis

13.00-13.20 **Dr. Jörg Pieper** (University of Tartu, Estonia) – “Solution structures, complex formation and molecular dynamics studied by neutron scattering techniques”

13.20-13.40 **Dr. Karīna Siliņa** (University of Zurich, Switzerland) “Harnessing Tertiary Lymphoid Structures for Prognosis and Treatment of Solid Tumours”

13.40-14.00 **Prof. Saulius Serva** (Vilnius University, Lithuania) “Systems biology of intrinsic yeast virus”

14.00-14.20 **Dr. Maija Slaidiņa** (New York University School of Medicine, Skirball Institute, USA) "Reconstruction of Drosophila ovary development by single cell RNA sequencing"

14.20-14.40 **Prof. Ago Rinken** (University of Tartu, Estonia) – "Modulation of ligand binding to melanocortin 4 receptors by bivalent cations"

14.40-15.00 **Dr. Petri-Jaan Lahtvee** (University of Tartu, Estonia) – "Engineering efficient yeast-based cell factories"

15.00-17.00 Coffee & Session VIII - poster session & industry exhibition.

From **15.00 to 16.00** owners of **even number** posters should not walk far from their posters. From **16.00 to 17.00** the same applies for **odd number** posters.

17.00-18.30 Evaluation & plans for future collaboration between Biochemical Societies of Latvia, Lithuania and Estonia. From each Baltic country 3 senior representatives (preferably president and 2 board members) and 2 students must be delegated. Participants from other countries may get special invitations to share their experience.

June 19th

10.20-12.00 Session IX. Moderator Dr. Kaspar Valgepea

10.20-10.40 **Prof. Baiba Jansone** (University of Latvia) "Current and novel therapeutic Targets for Alzheimer's Disease"

10.40-11.00 **Prof. Nikolajs Sjakste** (University of Latvia) "Tight DNA-Protein Complexes in Barley Seedlings are Formed by GC-Rich Sequences Forming Guanine Quadruplexes."

11.00-11.20 **Prof. Aurelija Žvirblienė** (Vilnius University, Lithuania) "Construction of virus-like particles displaying functionally active antibody molecules"

11.20-11.40 **Dr. Ann Tiiman** (Karolinska Institutet, Stockholm, Sweden)- "Detection of amyloidogenic nanoplaques in patients with Alzheimer's disease using methods with single-molecule sensitivity"

11.40-12.00 **Prof. Tiina Alamäe** (University of Tartu, Estonia) – "Bacterial endo-levanase as a tool to produce novel prebiotic fructo-oligosaccharides"

12.00-13.00 Lunch

13.00-15.00 Session X. Moderator prof. Aurelija Žvirblienė

13.00-13.20 **Dr. Kaspar Valgepea** (University of Tartu, Estonia) – "Systems biology of acetogen gas fermentation"

13.20-13.40 **Dr. Tiit Lukk** (Tallinn University of Technology, Estonia) "Structural studies of the T1 copper site mutants of a bacterial small laccase"

13.40-14.00 **Dr. Marko Vendelin** (Tallinn University of Technology, Estonia) - Creatine deficiency alters calcium handling in mouse heart

14.00-14.20 **Dr. Joachim Gerhold** (University of Tartu, Estonia) - "CO₂ signalling in stomatal guard cells"

14.20-14.40 **Prof. Vida Miladžiene** (Vytautas Magnus university, Kaunas, Lithuania)
“Exploring potential of seed stress and plant adaptability response for improvement of agricultural plant properties”

14.40-15.00 Best poster award & closing remarks

Posters:

1. Laura Baliulytė (Vilnius University, Lithuania) “In silico of the influence of water on the L-leucine molecule fragmentation”
2. Dr. Ina Baļķe (Biomedical Research and Study Center, Riga, Latvia) “Structural comparison of Ryegrass mottle virus protease in inactive and active state and cleavage site identification in ORF2a”
3. Irena Barkovska (Biomedical Research and Study Center, Riga, Latvia) “Examination of Cucumber mosaic virus coat protein N-terminal domain immunological properties for vaccine development”
4. Andreas Berger (Biomedical Research and Study Center, Riga, Latvia) “Detection of circulating miRNAs: comparative analysis of extracellular vesicle-incorporated miRNAs and cell-free miRNAs in whole plasma of prostate cancer patients”
5. Kristaps Bērziņš (University of Latvia) “Model-based optimisation of phenol consumption by yeast *Rhodotorula glutinis*”
6. Greta Bigelytė (Vilnius University, Lithuania) “Characterization of novel Cas9 proteins”
7. Dr. Kalvis Brangulis (Biomedical Research and Study Center, Riga, Latvia) “Crystal structure of BB0365 from Lyme disease agent *Borrelia burgdorferi*”
8. Ieva Ceslevičienė (Lithuanian University of Health Sciences, Kaunas, Lithuania) “Cytosolic fatty acid synthesis and mitochondrial fatty acid oxidation coexist simultaneously in breast cancer cells”
9. Dr. Laima Degutytė-Fomins (Vytautas Magnus University, Kaunas, Lithuania) “Changes in radish (*Raphanus sativus*) seed germination and phytohormone balance induced by pre-sowing treatment with cold plasma”
10. Elvijs Dvinskis (Biomedical Research and Study Center, Riga, Latvia) “Structural investigations of carbonic anhydrase isoforms XII and Va”
11. Dr. Priit Eek (Tallinn University of Technology, Estonia) “Structure and Regulation of Arachidonate 11R-Lipoxygenase”
12. Jēkabs Fridmanis (Institute of Organic synthesis, Riga, Latvia) “Structural studies of homologue *Borrelia burgdorferi* outer surface lipoproteins BB_P28 and BB_A03”
13. Dr. Inese Gavarāne (Daugavpils University, Latvia) “Novel benzanthrone luminophore AZM for *Trichinella britovi* larvae sex determination”
14. Edvardas Golovinas (Vilnius University, Lithuania) “Specificity of the Argonaute Protein From *Archaeoglobus fulgidus* to the 5'-end of the Guide”
15. Dita Gudrā (Biomedical Research and Study Center, Riga, Latvia) “Long-term impact of amoxicillin, clarithromycin and a proton pump inhibitor-based *H. pylori* eradication therapy on human gastrointestinal tract microbiome in a Latvian population”
16. Anatolii Ivankov (Vytautas Magnus University, Kaunas, Lithuania) “Effects of seed treatment with cold plasma and electromagnetic field on agricultural performance and antioxidative capacity of common buckwheat (*Fagopyrum esculentum*)”

17. Alisa Kazarina (Biomedical Research and Study Center, Riga, Latvia) "Archaeological dental calculus as a record of ancient human pathogens"
18. Dita Kidere (Biomedical Research and Study Center, Riga, Latvia) "Comparison of the cytoplasmic hybrid cell lines grown in glucose and galactose medium"
19. Kristīne Kitoka (Institute of Organic Synthesis, Riga, Latvia) "Incorporation of fluorinated amino acids into Alzheimer's Ab42 peptide for studies of its aggregation mechanism"
20. Ksenija Korotkaja (Biomedical Research and Study Center, Riga, Latvia) "Oncolytic alphaviral RNA delivery to cancer cells by novel amphiphilic 1,4-dihydropyridine-based compounds"
21. Stanislava Korzh (Institute of Organic Synthesis, Riga, Latvia) "The time-dependent changes in energy metabolism pattern in immune response"
22. Viktorija Kurbatska (Biomedical Research and Study Center, Riga, Latvia) "Screening and characterization of new sortase A inhibitors"
23. Dr. Jānis Kurlovičs (University of Latvia) "Personalized parametrization of metformin pharmacokinetics taking into account genetic variance"
24. Katrīna Laks (Tallinn University of Technology, Estonia) "Two approaches for human serum metal analysis using ICP MS"
25. Pola Ļaksa (Biomedical Research and Study Center, Riga, Latvia) "Transcriptome analysis of acromegaly patients with and without medical therapy"
26. Ilva Liekniņa (Biomedical Research and Study Center, Riga, Latvia) "Novel VLPs of ssRNA phages for vaccine development"
27. Dora Likviša (University of Latvia) "Towards development of genome editing protocol in highbush blueberry (*Vaccinium corymbosum*)"
28. Neringa Macijauskaite (Vilnius University) "The Analysis of the Expression of Epstein-Barr Virus Capsid Proteins in Yeast Cells"
29. Kristina Majauskaite (Vilnius University) "Electrophysiological Studies of Primary Cortical Neuron Cultures From the Rat Cerebrum Using the Patch-clamp method"
30. Elīna Makarova (Institute of Organic Synthesis, Riga, Latvia) "Molecular mechanisms of adaptation to hypoxia"
31. Sofija Matisone (Institute of Organic Synthesis, Riga, Latvia) "AGR2: production and structural studies by means of NMR"
32. Gintarė Milašiūtė (Lithuanian University of Health Sciences, Kaunas, Lithuania) "The effect of cranberry and chokeberry extracts on cancer cell viability, clonogenic activity and cell-to-cell coupling"
33. Prof. Aušra Mongirdienė (Lithuanian University of Health Sciences, Kaunas, Lithuania) "The effect of oxidant HOCl on platelet aggregation and dityrosine concentration in CHF patients and healthy controls"
34. Prof. Zita Nauciene (Vytautas Magnus University, Kaunas, Lithuania) "Changes in Norway spruce growth, secondary metabolite concentration and trichome number on needles induced by pre-sowing seed treatment with cold plasma and electromagnetic field"
35. Kristīne Ošiņa (University of Latvia) "Interferon-beta Therapy and Sex Association with Proteasome Gene Expression Levels in Patients with Multiple Sclerosis"
36. Dr. Vadims Parfejevs (University of Latvia) "Label-free characterisation of human MSCs using Imaging Flow Cytometry"

37. Giedre Pauzaite (Vytautas Magnus University, Kaunas, Lithuania) "Characteristics of eustress versus distress by changes in sunflower (*Helianthus annuus*) seed phytohormone balance induced by seed treatment with cold plasma"
38. Dr. Agris Pentjušs (University of Latvia) "Mathematical modeling of *Zymomonas mobilis* novel metabolic engineering strategies"
39. Ilva Pole (Biomedical Research and Study Center, Riga, Latvia) "Whole genome sequencing as a tool for epidemiological studies of local TB outbreaks"
40. Ance Roga (Biomedical Research and Study Center, Riga, Latvia) "Functional characterization of male ruff MC1R"
41. Dr. Evita Rostoka (University of Latvia) "Detection of double strand DNA breaks in lymphocytes of type 1 diabetes mellitus (T1DM) patients"
42. Dr. Ieva Sarapiniene (Lithuanian University of Health Sciences, Kaunas, Lithuania) "Salinomycin and dichloroacetate exert synergistic cytotoxic effect in colorectal cancer cells due to dichloroacetate-dependent inhibition of multidrug resistance proteins"
43. Inga Sile (Institute of Organic Synthesis, Riga, Latvia) "Comparison of anti-inflammatory activities of *Pelargonium sidoides* root extract and isolated proanthocyanidins"
44. Tanel Sõrmus (Tartu University, Estonia) "Photocaged Bisubstrate Inhibitor of cAMP-dependent Protein Kinase"
45. Megija Šede (Institute of Organic Synthesis, Riga, Latvia) "Surface plasmon resonance based fragment screening against plasmepsin V"
46. Dr. Baiba Švalbe (Institute of Organic Synthesis, Riga, Latvia) "Sigma-1 receptor ligands enhance mitochondrial function of spermatozoa"
47. Dr. Zigmantas Toleikis (Institute of Organic Synthesis, Riga, Latvia) "Establishing the mechanism of amyloid cross interaction"
48. Dr. Edijs Vāvers (Institute of Organic Synthesis, Riga, Latvia) "The sigma-1 receptor activity regulation by allosteric modulation"
49. Irina Verhovcova (Biomedical Research and Study Center, Riga, Latvia) "Bacteriophage-derived dsRNA (Larifan) impact on melanoma growth in mouse models of primary and metastatic tumours"
50. Melita Vidēja (Institute of Organic Synthesis, Riga, Latvia) "Metformin decreases gut microbiota-dependent trimethylamine N-oxide production in diabetic animals"
51. Dārta Maija Zaķe (Biomedical Research and Study Center, Riga, Latvia) "Physiologically based metformin pharmacokinetics model for estimation of therapeutic concentrations in various tissues"
52. Diāna Zeļencova (Institute of Organic Synthesis, Riga, Latvia) "Structural Insights of Protein Disulphide Isomerase A1 by Means of NMR and Computer"
53. Prof. Rasa Žūkiene (Vytautas Magnus University, Kaunas, Lithuania) "Cold plasma and electromagnetic field as powerful stimulators of natural sweeteners production in *Stevia rebaudiana* (Bertoni)"
54. Dr. Lina Baranauskiene (Vilnius University, Lithuania) "Thiazide drug specificity for human carbonic anhydrases"
55. Vilmantė Žitkutė (Vilnius University, Lithuania) "The effects of 5-Fluorouracil and Oxaliplatin on Autophagy in Chemoresistant Colorectal Carcinoma Cells HCT116"
56. Eimantas Žitkus (Vilnius University, Lithuania) "Development of fermentation processes for recombinant human BiP production in yeast *Pichia pastoris*"

57. Živilė Strazdaitė-Žielienė (Nature Research Center, Vilnius, Lithuania) "Optimization of Molecular Identification of Sarcocystis Species From Cattle Meat"
58. Deimantė Blažauskaitė (Lithuanian University of Health Sciences, Kaunas, Lithuania) "Exosomes From Poly (I:C)-Affected Airway Cells Suppress Mitochondrial Functionality and Induce ROS Production in Microglia"
59. Dr. Eugenijus Šimoliūnas (Vilnius University, Lithuania) "Pantoea bacteriophage vB_PagM_LIET2 – a broad-temperature representative of a new genus within the family Myoviridae"
60. Aliona Špakova (Vilnius University, Lithuania) "The immunogenicity of yeast-derived vB_EcoS_NBD2 bacteriophage polytubes"
61. Juta Rainytė (Vilnius University, Lithuania) "Pichia Pastoris expression and purification of Canis familiaris allergen Can f 6"
62. Zbigniew Balion (Lithuanian Health Sciences University, Kaunas, Lithuania) "Formation of functional cerebellar cell cultures using tissue mimetic hydrogels"
63. Jovita Umbrasaitė (Vilnius Gediminas Technical University, Lithuania) "Isolation, purification and characterization of Saccharomyces cerevisiae K2 toxin"
64. Dr. Elena Servienė (Nature Research Centre, Vilnius, Lithuania) "Sea buckthorn berry-related yeasts and their volatiles"
65. Monika Šimoliūnienė (Vilnius University, Lithuania) "Investigation of plaque formation of novel siphoviruses infecting Pantoea spp."
66. Hegne Pupart (Tallinn University of Technology, Estonia) "Expression and purification of human superoxide dismutase 1"
67. Dr. Valdis Pirsko (Riga Stradins University, Riga, Latvia) "Chronic mild hypoxia-induced alterations in the proteome of triple negative breast cancer cell lines MDA-MB-231 and MDA-MB-436"
68. Jekaterina Borzova (Vilnius University, Lithuania) "Innovative drug delivery Degradable Starch Microspheres' peculiarity during the hydration studied using Raman Spectroscopy"
69. Dalia Smalakyte (Vilnius University, Lithuania). "Targeted RNA Knockdown by Type III-A CRISPR-CAS Effector Complex in Zebrafish"