

## BIOLOGICAL FUNCTIONS AND MECHANISMS OF ACTION OF PEPTIDES AND PROTEINS

October 30, 14:30 – 16:30

Kutuzov Hall

### Session 1. Neurodegeneration and signaling Chairs: Alexey BELOGUROV and Lidia SASHCHENKO

- 25 min **Michael UGRUMOV**, T.S. Pronina *Koltzov Institute of Developmental Biology, Russian Academy of Sciences, Moscow*  
**Hypothalamic neurons fully or partially expressing proteins of the dopaminergic phenotype: functioning and functional significance in norm and pathology**
- 15 min **Igor KASHEVEROV**<sup>1</sup>, E.V. Kryukova<sup>1</sup>, An Luo<sup>2</sup>, Jie He<sup>2</sup>, Sulan Luo<sup>2</sup>, D.S. Kudryavtsev<sup>1</sup>, E.A. Gondarenko<sup>1</sup>, Y.N. Utkin<sup>1</sup>, V.I. Tsetlin<sup>1</sup> *<sup>1</sup>Shemyakin & Ovchinnikov Institute of Bioorganic Chemistry, Russian Academy of Sciences, Moscow, Russia; <sup>2</sup>Guangxi Key Laboratory of Special Biomedicine, School of Medicine, Guangxi University, Nanning, China*  
**Natural peptides and their analogues as research tools for cholinoreceptors and potential drugs**
- 15 min **Eduard BOCHAROV** *Shemyakin & Ovchinnikov Institute of Bioorganic Chemistry, Russian Academy of Sciences, Moscow; Moscow Institute of Physics and Technology (State University), Dolgoprudny*  
**Transmembrane protein - amyloid precursor protein in Alzheimer's disease pathogenesis and more**
- 15 min **Denis YASHIN**, D. Yurkina, E. Romanova, L. Sashchenko *Institute of Gene Biology, Russian Academy of Sciences, Moscow*  
**Mechanisms of TNFR1 and TREM-1 proinflammatory receptors activation in the autoimmune and antitumor immune response**
- 10 min **Natalya SHEBARDINA**<sup>1</sup>, T.K. Bulgakov<sup>2</sup>, A.M. Moisenovich<sup>2</sup>, D.V. Chistyakov<sup>1</sup>, E.Yu. Zernii<sup>1</sup> *<sup>1</sup>Belozersky Research Institute of Physical and Chemical Biology, Lomonosov Moscow State University; <sup>2</sup>Faculty of Biology, Lomonosov Moscow State University, Moscow*  
**Research of zinc-dependent cascades of intercellular signaling in degenerative retinal diseases**
- 10 min **Polina POVARNINA**, D.M. Nikiforov, T.A. Gudasheva *Federal Research Center for Innovator and Emerging Biomedical and Pharmaceutical Technologies, Moscow*  
**Study of the neuropsychotropic activity of a dimeric dipeptide nimetic of the 4th loop of neurotrophin-3**
- 10 min **Anton NIZHNIKOV**<sup>1,2</sup> *<sup>1</sup>St Petersburg State University, St Petersburg; <sup>2</sup>All-Russian Research Institute of Agricultural Microbiology, St Petersburg*  
**Bacterial amyloids: pathogenesis and network of interactions**
- 10 min **Anna KAMYNINA**<sup>1,2</sup>, Y. Seryogina<sup>3</sup>, D. Korojev<sup>2</sup>, O. Volpina<sup>2</sup>, A. Vinokurov<sup>3</sup>, A. Abramov<sup>3,4</sup> *<sup>1</sup>Moscow Institute of Physics and Technology (State University), Dolgoprudny; <sup>2</sup>Shemyakin & Ovchinnikov Institute of Bioorganic Chemistry, Russian Academy of Sciences, Moscow; <sup>3</sup>Orel State University, Ore; <sup>4</sup>UCL Institute of Neurology, London, UK*  
**Impact of RAGE activation on the production of free radicals in neurons and astrocytes**

## BIOLOGICAL FUNCTIONS AND MECHANISMS OF ACTION OF PEPTIDES AND PROTEINS

October 31, 16:20-18:35

Gallery Hall

### Session 2. Genome and translation

Chairs: Alexey BELOGUROV and Daria Matyshkina

- 20 min **Ivan GUSHCHIN**, A. Remeeva, A. Anuchina, S. Osipov, A. Vlasov *Moscow Institute of Physics and Technology (State University), Dolgoprudny*  
**Protein structure-based functional annotation and genome mining**
- 20 min **Dmitry ANDREEV** *Shemyakin & Ovchinnikov Institute of Bioorganic Chemistry, Russian Academy of Sciences, Moscow*  
**Functional roles of short open reading frames in 5' leaders of eukaryotic mRNAs**
- 20 min **Sergey DMITRIEV** *Belozersky Institute of Physico-Chemical Biology, Lomonosov Moscow State University, Moscow, Russia*  
**RNA-binding proteins in the picornavirus life cycle: from CRISPR-screens to functional insights**
- 20 min **I.V. KIROV**  
**Virus-mediated modification of the plant genome for functional research in the postgenomic era**
- 20 min **Alexey MALYGIN**, E.S. Babaylova, K.N. Bulygin, E.A. Zolotenkova, A.V. Gopanenko, A.E. Tupikin, M.R. Kabilov, D.M. Graifer *Institute of Chemical Biology and Fundamental Medicine, Siberian Branch of the Russian Academy of Sciences, Novosibirsk*  
**The role of ribosomal proteins in ribosome activity and maintenance of the translational repertoire of human cells**
- 20 min **Egor SIDORSKII**, A.P. Ilyina, P.A. Elistratov, V.P. Yamskova *Institute of Bioregulation Problems, LLC, Moscow*  
**Protein-peptide bioregulators: composition, structure and biological function**
- 15 min **Nikolay VERLOV**, S.B. Landa, V.S. Burdakov, V.L. Emanuel *NRC «Kurchatov Institute» – PNPI, Gatchina*  
**The effect of uromodulin on biophysical properties of solution determines stability of urine colloid for normal and pathology**

## BIOLOGICAL FUNCTIONS AND MECHANISMS OF ACTION OF PEPTIDES AND PROTEINS

November 1, 14:10 – 16:10

Tent

### Session 3. Membranes and medical preparations

Chairs: Alexey BELOGUROV and Vadim Govorun

30 min **Oleg BATISHCHEV**, M.V. Volovik, V.D. Krasnobaev, Z.G. Denieva, P.K. Gifer, E.V. Bocharov A.N. Frumkin  
*Institute of Physical Chemistry and Electrochemistry, Russian Academy of Sciences, Moscow*

**Switching of activity of transmembrane and juxtamembrane peptides and proteins under the influence of cholesterol**

15 min **Sergey AKIMOV**, O.V. Kondrashov A.N. Frumkin *Institute of Physical Chemistry and Electrochemistry, Russian Academy of Sciences, Moscow*

**Gramicidin A-based sensor for lateral interactions of membrane components**

15 min **Pavel BASHKIROV**<sup>1</sup>, M. Sumarokova<sup>1</sup>, D. Ivchenkov<sup>1</sup>, V. Kramkova<sup>1</sup>, P. Kuzmin<sup>2</sup>, I. Latsis<sup>3</sup>, V. Lazarev<sup>3</sup>  
<sup>1</sup>*Research Institute for Systems Biology and Medicine*; <sup>2</sup>*A.N. Frumkin Institute of Physical Chemistry and Electrochemistry*; <sup>3</sup>*Lopukhin Federal Research and Clinical Center of Physical-Chemical Medicine, Federal Medical Biological Agency, Moscow*

**Membrane remodelling by amphipathic helices: role of non-bilayer lipids**

15 min **Marta VOLOVIK**, O.V. Batishchev A.N. Frumkin *Institute of Physical Chemistry and Electrochemistry, Russian Academy of Sciences, Moscow*

**Membrane activity of antimicrobial peptides: translocation and inhibition of pore formation**

15 min **Zaret DENIEVA**, O.V. Batishchev A.N. Frumkin *Institute of Physical Chemistry and Electrochemistry, Russian Academy of Sciences, Moscow*

**Protein-lipid interactions as a target for new antiviral drugs**

15 min **Olga OSTROUMOVA**<sup>1</sup>, A.I. Malykhina<sup>1</sup>, S.S. Efimova<sup>1</sup>, E.V. Vodopyanova<sup>1</sup>, N.E. Grammatikova<sup>2</sup>, A.N. Tevyashova<sup>2,3</sup>, A.E. Shchekotikhin<sup>2</sup> <sup>1</sup>*Institute of Cytology, Russian Academy of Sciences, St Petersburg*; <sup>2</sup>*Gause Institute of New Antibiotics, Moscow, Russia*; <sup>3</sup>*Constructor University, Bremen, Germany*

**Liposomal formulations of echinocandins: an alternative mode of action and overcoming fungal resistance**

## BIOLOGICAL FUNCTIONS AND MECHANISMS OF ACTION OF PEPTIDES AND PROTEINS

November 1, 16:30 – 18:30

Tent

### Session 4. Viruses and potatoes Chairs: Alexey BELOGUROV and Vadim Govorun

- 30 min **Marina DRUTSKAYA** *Engelhardt Institute of Molecular Biology, Russian Academy of Sciences, Moscow*  
**Spontaneous tumors and systemic inflammation in mice with myeloid cell-specific expression of Nef-1, the enigmatic protein of the human immunodeficiency virus**
- 15 min **Anna KUDRIAeva** *Shemyakin & Ovchinnikov Institute of Bioorganic Chemistry, Russian Academy of Sciences, Moscow*  
**Effect of SARS-CoV-2 Mutational Drift on Receptor-Binding Domain Processing by the Proteasome**
- 15 min **Anastasia SVESHNIKOVA**, I.P. Tesakov, A.E. Boldova, D.V. Fedorova, A.I. Ignatova, V.G. Zgoda *Dmitry Rogachev National Medical Research Center of Pediatric Hematology, Oncology and Immunology, Moscow*  
**Altered platelet proteome in ETV6-related thrombocytopenia is associated with platelet functionality**
- 15 min **Viktoriya KOLESNIKOVA**<sup>1,2</sup>, Yu. Nikonova<sup>1</sup>, V.V. Andreitsev<sup>1</sup>, V.A. Balobanov<sup>1</sup>, N.V. Lekontseva<sup>1</sup>, A.O. Mikhailina<sup>1</sup>, F.T. Do<sup>3</sup>, O.S. Nikonov<sup>1</sup> <sup>1</sup>*Institute of Protein Research, Russian Academy of Sciences, Pushchino*; <sup>2</sup>*All-Russia Research Institute of Agricultural Biotechnology, Russian Academy of Sciences, Moscow, Russia*; <sup>3</sup>*Institute of Biotechnology, Vietnam Academy of Science and Technology, Hanoi, Vietnam*  
**A complex approach to study the interaction of VPg of potato Y virus and eIF4E**
- 15 min **Aleksei MOROZOV**, V.L. Karpov *Engelhardt Institute of Molecular Biology, Russian Academy of Sciences, Moscow*  
**The world of proteasomes: New approaches and detailed study of individual forms of proteasomes in the cell**
- 15 min **Tamara AMSTISLAVSKAYA**, K.V. Smirnova, S.O. Borodina, V.L. Yarnykh, L.P. Smirnova *Research Institute of Neuroscience and Medicine, Novosibirsk*  
**Potential role of BMAL1 protein in the development of hypomyelination and affective disorders**