International Workshop "Targeting RNA World"

2 – 7 September 2018

Saint-Petersburg, Russia

PROGRAMM

Sunday, 2th September 2018

	Arrival
19:00 – 21:00	**Welcome reception**

Monday, 3rd September 2018

9:00 – 13:30	**Excursion to Strelna**
13:30 – 14:30	**Lunch**
	Opening Ceremony
14:30 – 14:45	*Introduction to the Scientific Project: past and future* **Prof. Marina A. Zenkova**, Institute of Chemical Biology and Fundamental Medicine SB RAS, Novosibirsk, Russia **Dr. Elena V. Bichenkova**, University of Manchester, UK
Session 1.	**Chemistry and Design of Functionality**
Chair:	**Prof. Marina A. Zenkova**, Institute of Chemical Biology and Fundamental Medicine SB RAS, Novosibirsk, Russia
14:45 – 15:15	*Structural and functional features of the phosphoryl guanidine oligonucleotides* **Prof. Dmitrii Pyshnyi,** Institute of Chemical Biology and Fundamental Medicine SB RAS, Novosibirsk, Russia
15:15 – 15:35	*Description of structural aspects and dynamic behaviour of ribonuclease mimetics: high-field NMR and molecular modeling* **Linda Trivoluzzi,** University of Manchester, Manchester, UK

15:35 – 16:05	*Insight into binding modes and molecular interactions between peptidyl-oligonucleotide conjugates and RNA: role of different structural elements in recognition and catalysis* **Dr. Elena Bichenkova**, University of Manchester, Manchester, UK
16:05 – 16:25	*Towards enhancement of catalytic turnover: Design and synthesis of peptidyl-oligonucleotide conjugates for irreversible cleavage of disease-relevant RNA* **Bahareh Amirloo,** University of Manchester, Manchester, UK
16:25 – 16:45	*Sequence-specific cleavage of $tRNA^{Phe}$ with bulge-forming peptidyl-oligonucleotide conjugates* **Yaroslav Staroseletz**, Institute of Chemical Biology and Fundamental Medicine SB RAS, Novosibirsk, Russia
16:45 – 17:10	**Coffee Break**
Session 1.	**Chemistry and Design of Functionality**
Chair:	**Prof. Marina A. Zenkova**, Institute of Chemical Biology and Fundamental Medicine SB RAS, Novosibirsk, Russia
17:10 – 17:30	*Sequence specific detection of target nucleic acids: complementary self-assembling peptides as building blocks for hydrogel biosensor* **Sameen Yousaf,** University of Manchester, Manchester, UK
17:30 – 17:50	*Study of the cleavage mechanism and association stability of oligonucleotide conjugates using conventional and advanced molecular modelling techniques* **Dr. Kepa Koldo Burusco-Goni,** University of Manchester, UK
17:50 – 18:10	*Molecular dynamics analysis of the bulged complexes of RNA with DNA-peptide conjugates* **Dr. Alexander A. Lomzov**, Institute of Chemical Biology and Fundamental Medicine SB RAS, Novosibirsk, Russia
18:10 – 18:25	*Computational tools for drug design: modelling biomolecular conformation using molecular dynamics simulations* **Dr. Richard Bryce,** University of Manchester, UK
Session 2	**Molecular Targets: Targeting of Disease-Associated RNAs**
Chair:	**Dr. Elena Bichenkova**, University of Manchester, Manchester, UK

18:25 – 18:55	*Antiviral and antibacterial antisense agents: where is a magic bullet?* **Prof. Valentin Vlassov,** Institute of Chemical Biology and Fundamental Medicine SB RAS, Novosibirsk, Russia
18:55 – 19:15	*Role of tumor-associated RNAs in tumor progression* **Dr. Nadezhda Mironova**, Institute of Chemical Biology and Fundamental Medicine SB RAS, Novosibirsk, Russia
19:15 – 19:35	*Inhibition of oncogenic miRNAs in tumour cells by synergistic cleavage with peptide-oligonucleotide conjugates and RNase H acting in multi-turnover mode* **Dr. Olga Patutina**, Institute of Chemical Biology and Fundamental Medicine SB RAS, Novosibirsk, Russia
19:35 – 20:35	**Dinner**
Session 2	**Molecular Targets: Targeting of Disease-Associated RNAs**
Chair:	**Dr. Elena Bichenkova**, University of Manchester, Manchester, UK
20:35 – 20:55	*New oligonucleotide derivatives containing N-(1-butanesulfonyl)-phosphoramidate and N-(1-hexanesulfonyl)-phosphoramidate groups* **Dr. Boris Chelobanov,** Institute of Chemical Biology and Fundamental Medicine SB RAS, Novosibirsk, Russia
20:55 – 21:15	*Novel N-mesyl-phosphoramidate oligonucleotides targeted to oncogenic miRNA as a worthy alternative to phosphorothioate oligonucleotides* **Svetlana Miroshnichenko,** Institute of Chemical Biology and Fundamental Medicine SB RAS, Novosibirsk, Russia
21:15 – 21:35	*The prospective antibacterial conjugates of modified oligonucleotides with peptides* **Dr. Darya Novopashina,** Institute of Chemical Biology and Fundamental Medicine SB RAS, Novosibirsk, Russia
	The end of the day

Tuesday, 4th September 2018

Session 3	**Delivery of therapeutic nucleic acids**
Chair	**Dr. Elena Chernolovskaya,** Institute of Chemical Biology and Fundamental Medicine SB RAS, Novosibirsk, Russia
9:30 – 10:00	*Lipid transport pathways targeting the RNA domain* **Prof. David Clarke,** University of Manchester, UK
10:00 – 10:20	*Targeted delivery of nucleic acids into tumors mediated by folate-equipped liposomes* **Daniil Gladkikh,** Institute of Chemical Biology and Fundamental Medicine, SB RAS, Novosibirsk, Russia
10:20 – 10:40	*Antitumor non-cellular vaccines on the base of dendritic cell-targeted mannosylated liposomes or dendritic cells-derived extracellular vesicles efficiently activate cytotoxic T cells against murine melanoma* **Dr. Oleg Markov**, Institute of Chemical Biology and Fundamental Medicine, SB RAS, Novosibirsk, Russia
10:40 – 11:00	*Extracellular vesicles and their analogues as vectors for the delivery of therapeutic nucleic acids* **Anastasiya Alekseeva,** Institute of Chemical Biology and Fundamental Medicine SB RAS, Russia
11:00 – 11:20	*A novel approach to high effective delivery of modified oligonucleotides* **Anton Filatov,** Institute of Chemical Biology and Fundamental Medicine, SB RAS, Novosibirsk, Russia
11:20 – 11:50	**Coffee Break**
Session 3	**Delivery of therapeutic nucleic acids**
Chair:	**Prof. Olga Ilinskaya,** Kazan (Volga region) University, Kazan, Russia
11:50 – 12:20	*To be announced*
12:20 – 12:50	*Biosimilar systems for therapeutic nucleic acids delivery* **Dr. Elena Chernolovskaya,** Institute of Chemical Biology and Fundamental Medicine SB RAS, Novosibirsk, Russia

12:50 – 13:10	*Cholesterol-modified siRNAs: gene silencing abilities and structure-function relationships* **Ivan Chernikov,** Institute of Chemical Biology and Fundamental Medicine SB RAS, Novosibirsk, Russia
13:10 – 13:30	*Non-covalent associates of siRNAs and AuNPs enveloped with lipid layer and doped with amphiphilic peptide for efficient siRNA delivery* **Dr. Inna Pyshnaya**, Institute of Chemical Biology and Fundamental Medicine, SB RAS, Novosibirsk, Russia
13:30 – 13:50	*Novel polycationic amphiphiles for improved nucleic acid delivery* **Pavel Puchkov,** Lomonosov Moscow State Academy of Fine Chemical Technology, Moscow, Russia
13:50 – 14:10	*Polycationic lipids with disulfide bonds for nucleic acids delivery* **Dr. Elena Shmendel,** Lomonosov Moscow State Academy of Fine Chemical Technology, Moscow, Russia
14:10 – 15:00	**Lunch**
Session 4	**Non-coding RNAs**
Chair:	**Prof. Dmitrii Pyshnyi,** Institute of Chemical Biology and Fundamental Medicine SB RAS, Novosibirsk, Russia
15:00 – 15:30	*Mycobacterium tuberculosis small noncoding RNAs in adaptation to host immune response* **Dr. Tatiana Azikina,** Shemyakin-Ovchinnikov Institute of bioorganic chemistry RAS, Moscow, Russia
15:30 – 15:50	*Early gene expression alterations in human cells induced by splice isoforms of long non-coding RNA GAS5* **Dr. Dmytryi Semenov**, Institute of Chemical Biology and Fundamental Medicine SB RAS, Novosibirsk, Russia
15:50 – 16:10	*Regulation of snoRNA activities: from RNA modification to CRISPR-knockout* **Dr. Grygorii Stepanov**, Institute of Chemical Biology and Fundamental Medicine SB RAS, Novosibirsk, Russia
	Sponsor lectures
16:10 – 16:30	*Methodological and computational pitfalls, limits, and sources of errors of RNA-Seq experiments* **Dr. Evgenyi Brenner**, AO "Vector-Best", Novosibirsk, Russia
16:30 – 16:50	*MicroRNA-biomarkers for screening and early diagnosis of slow-growing tumours: thyroid and cervical cancer examples*

	Dr. Mikhail Ivanov, AO "Vector-Best", Novosibirsk, Russia
16:50 – 17:20	**Coffee Break**
Session 5	**Translational medicine**
Chair:	**Dr. Nadezhda Mironova**, Institute of Chemical Biology and Fundamental Medicine SB RAS, Novosibirsk, Russia
17:20 – 17:50	*Degradation of cancer cells RNA by ribonuclease binase as a basis for antitumor therapy* **Dr. Vladimir Mitkevich**, Engelhardt Institute of Molecular Biology RAS, Moscow, Russia
17:50 – 18:10	*Bacterial RNase binase as antiviral agent* **Dr. Vera Ulyanova**, Kazan (Volga region) University, Kazan, Russia
18:10 – 18:30	*Oligomerization is a natural property of eukaryotic and procaryotic RNases* **Surchenko Yulia,** Kazan (Volga region) University, Kazan, Russia
18:30 – 18:50	*Inhibition of Ras-signaling by Bacillus pumilus RNase binase* **Pavel Zelenikhin**, Kazan (Volga region) University, Kazan, Russia
18:50 – 19:40	**Dinner**
20:00 – 24:00	**Boat trip, the bridges drawn**

Wednesday, 5th September 2018

9:00 – 13:30	**Excursion to Menshikov Palace**
13:30 – 14:30	**Lunch**
Session 5	**Translational medicine**
Chair:	**Dr. Dmytryi Semenov**, Institute of Chemical Biology and Fundamental Medicine SB RAS, Novosibirsk, Russia
15:00 – 15:20	*Multidrug resistance mediated by MDR1/P-glycoprotein expression has a crucial role for survival and prognosis in leukemia patients* **Dr. Alexandra Sen'kova,** Institute of Chemical Biology and Fundamental Medicine, SB RAS, Novosibirsk, Russia
15:20 – 15:40	*Anti-inflammatory potential of Soloxolone methyl in LPS stimulated macrophages and mice models* **Dr. Evgenya Logashenko**, Institute of Chemical Biology and Fundamental Medicine, SB RAS, Novosibirsk, Russia
15:40 – 16:00	*Transcriptomic insight into the response of human cervical carcinoma cells to SM, a new promising antitumor agent* **Dr. Andrey Markov**, Institute of Chemical Biology and Fundamental Medicine, SB RAS, Novosibirsk, Russia
16:00 – 16:20	*Immunostimulating dsRNA enhance the resistance of C57Bl mice to influenza virus* **Dr. Elena Goncharova**, Institute of Chemical Biology and Fundamental Medicine SB RAS, Novosibirsk, Russia
16:20 – 16:40	*The antimetastatic effect of DNase I is associated with a decrease in the number of tandem repeats in the blood of mice with different metastatic tumors* **Ludmila Alexeeva**, Institute of Chemical Biology and Fundamental Medicine SB RAS, Novosibirsk, Russia
	Sponsor lecture
16:40 – 17:00	*Successful miniaturization of molecular biology reaction volumes for cloning, library generation and single cell analysis* **Dr. Tamara Malygina**, Optec LLC, ZEISS Group, Novosibirsk, Russia

17:00 – 17:30	**Coffee Break**
Session 6	**Young scientists**
Chair	**Dr. Alexander Lomzov,** Institute of Chemical Biology and Fundamental Medicine SB RAS, Novosibirsk, Russia
17:30 – 17:45	*Optimization of non-covalent associates of RNA duplexes and gold nanoparticles preparation* **Anna Epanchintseva**, Institute of Chemical Biology and Fundamental Medicine, SB RAS, Novosibirsk, Russia
17:45 – 18:00	*Gene expression alterations in lung adenocarcinoma cells A549 induced by circulating exosomes and macrovesicles of healthy human blood* **Yulia Savinovskaya,** Institute of Chemical Biology and Fundamental Medicine SB RAS, Novosibirsk, Russia
18:00 – 18:15	*Using ribosomal RNA genes in phylogenetic analysis* **Islam Saber Ead Mohamed**, Al-Azhar University, Egypt; Novosibirsk State University, Novosibirsk, Russia
	Closing ceremony
18:15 – 18:30	**Summary** **Prof. Valentin V. Vlassov,** Institute of Chemical Biology and Fundamental Medicine SB RAS, Novosibirsk, Russia **Prof. Marina A. Zenkova**, Institute of Chemical Biology and Fundamental Medicine SB RAS, Novosibirsk, Russia **Dr. Elena V. Bichenkova**, University of Manchester, UK
18:30 – 19:00	*N-(Sulfonyl)-phosphoramidate oligonucleotides as potential antisense therapeutics* **Dr. Dmytryi Stetsenko,** Institute of Chemical Biology and Fundamental Medicine SB RAS, Novosibirsk, Russia
19:00 – 22:00	**Farewell party**

Thursday, 6th September 2018

9:00 – 16:00	**Excursion to Peterhof**
19:00 – 21:00	**Dinner**

Friday, 7th September 2018

	Departure