



Russian Academy of Sciences (RAS)  
Institute of Chemical Biology and Fundamental Medicine,  
Siberian Branch of the RAS  
Centre National de la Recherche Scientifique  
International Research Network “SupraChem”  
ARCUS Alsace-Russia/Ukraine

## **First Symposium Supramolecular Chemistry for Materials and Life Sciences**

**June 29 – July 3, 2010 Akademgorodok (Novosibirsk),  
Russia  
Exhibition Center of the Siberian Branch of the RAS**

## **PROGRAM**



### **International Organizing Committee**

Valentin Vlassov (Russia) – *Chairman*

Galina Karpova (Russia) – *Vice-chairwoman*

Alain Krol (France) – *Vice-chairman*

Vladimir Fedin (Russia)

Richard Giegé (France)

Wais Hosseini (France)

Ivan Huc (France)

Vitaly Kalchenko (Ukraine)

Olga Lavrik (Russia)

Alexandre Varnek (France)

Marina Zenkova (Russia)

### **Local organizing committee**

Galina Karpova - *Chairwoman*

Dmitri Graifer – *Scientific Secretary*

Anton Ivanov

Olga Klimchuk

Ekaterina Kovalenko

Elena Kuligina

Alexey Malygin

Svetlana Mysina

Ekaterina Pinaeva

Vladimir Richter

All scientific events of the Conference will take place at the **Exhibition Center** of the Siberian Branch of the Russian Academy of Sciences located in the central part of Akademgorodok (Novosibirsk Scientific Center) behind the House of Scientists.

## **June 29**

15h00-17h00 ***Registration*** (at the ***Exhibition Center***)

17h00 – ***Opening ceremony***

### **Opening lectures**

*Chair: Valentin Vlassov, Alexandre Varnek*

17h15- 17h55 Wais Hosseini (Strasbourg)

## **Controlling molecular movements: molecular gates and turnstiles**

17h55- 18h35 Valentin Vlassov (Novosibirsk)

**Supramolecular complexes of nucleic acids: new materials, devices and biotherapeutics**

19h30 ***Welcome party*** (in the House of Scientists SB RAS)

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**June 30**

### **Morning session**

*Chair: Galina Karpova, Vladimir Fedin*

#### **Plenary lectures**

9h00 – 9h40 Olga Dontsova (Moscow)

**Telomerase activity regulation**

9h40 – 10h20 Vladimir Fedin (Novosibirsk)

**Homochiral metal-organic coordination polymers and related studies**

#### **Chemistry session**

10h20 - 10h45 Emmanuel Cadot (Versailles)

**From the first structural link between Nanosized molybdenum oxide-based ions and derived Keggin structure to the Giant Sulfurated-Keplerate Anion**

10h45 - 11h00 Vladimir Korenev (Versailles)

**Oxothiomolybdenum derivative of the crown heteropolyanion  $\{P_8W_{48}\}$ : Structures, studies in solution and electrochemical properties**

*Coffee break 11h00 – 11h20*

**Biology session**

11h20 - 11h45 Marina Zenkova (Novosibirsk)

**Non-enzymatic Recombination of RNA**

11h45 - 12h10 Grigory Dianov (Oxford)

**Mechanisms involved in formation and stability of DNA repair complexes**

12h10 - 12h35 Olga Fedorova (Novosibirsk)

**Coordinated conformational changes of enzymes and DNA accompany lesion recognition and catalysis in base excision repair pathway**

12h35 – 12h55 I.A. Popkov (RUSCHEMBIO)

## **Increase of effectiveness of fundamental research and innovations in high technology segment**

*Lunch 13h00 – 15h00*

### **Afternoon session**

*Chair: Vitaly Kalchenko*

#### **Chemistry session**

15h00 – 15h25 Sergey Gromov (Moscow)

**Molecular Design of Light-Sensitive Supramolecular Systems Based on Unsaturated and Macrocyclic Compounds**

15h25 – 15h50 Gediminas Jonusauskas (Bordeaux)

**Photoinduced processes in fluorescent  $\text{Ca}^{2+}$  receptors**

15h50 - 16h15 Gennadyi Kostin (Novosibirsk)

**Complexation and extraction of non-ferrous metals by calixarenes, upper and lower rim functionalized with  $\text{PO}^-$  groups**

*Coffee break 16h15 – 16h45*

#### **Poster session**

***17h00 – 19h00***

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**July 1**

**Morning session**

*Chair: Mir Wais Hosseini, Ivan Huc*

**Plenary lectures**

9h00 – 9h40 Vitaly Kalchenko (Kyiv)

**Calixarene receptors for molecules and ions**

9h40 – 10h20 Richard Giegé (Strasbourg)

**Supramolecular chemistry and biology of tRNA and aminoacyl-tRNA synthetases**

**Mixed session**

10h20 – 10h45 Alexandre Varnek (Strasbourg)

**ISIDA approaches to virtual screening based on fragment and pharmacophoric descriptors**

10h45 – 11h10 Alain Krol (Strasbourg)

**Dramatic conformation differences in a brain-specific RNA between chimpanzee and humans. A link to human brain evolution?**

11h10 - 11h35 Galina Karpova (Novosibirsk)

**RNAs carrying cross-linkers at specific locations as tools for studying cellular protein synthesizing bionanomachinery**

*Coffee break 11h35 – 11h55*

**Chemistry session**

11h55 - 12h20 Isabelle Billard (Strasbourg)

**New calixarenes based on IL platform**

12h20 - 12h45 Elena Bagryanskaya (Novosibirsk)

**EPR study of supramolecular complexes of functional nitroxides and nanocapsules**

12h45 - 13h00 Ekaterina Kovalenko (Novosibirsk)

**New inclusion compounds of molecular container cucurbit[8]uril**

*Lunch 13h00 – 15h00*

**Afternoon**

**15h15-16h00 Excursion to the Geology Museum of the Academy of Sciences (SB RAS)**

*Visit of the Institute of Inorganic Chemistry*

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**July 2**

**Morning session**

*Chair: Richard Giegé, Olga Lavrik*

**Plenary lecture**

9h00 – 9h40 Ivan Huc (Bordeaux)

**Foldamers: expanding the chemical space**

**Chemistry session**

9h40 - 10h05 Nikolai Petrov (Moscow)

**Effect of Cucurbit[7]uril on the Primary Photoprocesses of Thiacarbocyanine Dye**

10h05 - 10h30 Kira Vostrikova (Novosibirsk)

**Supramolecular chemistry of nitronyl and imino nitroxyl radicals and cucurbit[n]urils**

10h30 - 10h55 Valery Gorbachuk (Kazan)

**Biomimetic Molecular Recognition with Cross-Linked Hydrophilic Polymer and Macrocyclic Receptors**

*Coffee break 10h55 – 11h15*

**Biology session**

11h15 - 11h40 Svetlana Khodyreva (Novosibirsk)

**Poly(ADP-ribose) polymerase 1 is a key regulator of damage processing in base excision repair**

11h40 - 12h05 Alexandre Butorine (Paris)

**Sequence-specific recognition of double-stranded DNA and optimization of the twisted intercalating nucleic acids (TINA) forming triple helix with the polypurine tract of the proviral HIV DNA**

12h05 - 12h30 Benoît Masquida (Strasbourg)

**Control of ribozyme folding avoids cell death**

12h30 - 12h45 Ekaterina Ilina (Novosibirsk)

**Interaction of Ku antigen with abasic sites**

12h45 – 13h05 Elena Morozova (Carl Zeiss, Novosibirsk)

**New technologies of Carl Zeiss for cell imaging**

*Lunch 13h05 – 15h00*

## **Afternoon**

**15h00-17h00 Excursion to the Botanic Garden of the Academy of Sciences (SB RAS)**

*Visit of the Institute for Chemical Biology and Fundamental Medicine*

***Conference dinner 19h30***

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**July 3**

**Morning session**

*Chair: Alain Krol, Olga Dontsova*

**Plenary lecture**

9h00 – 9h40 Olga Lavrik (Novosibirsk)

**Study of supramolecular machines of nucleotide excision repair by using chemical approaches**

**Biology session**

9h40 – 10h05 Alexey Malygin (Novosibirsk)

**Key role of human ribosomal protein p40 in the recognition of the hepatitis C virus Internal Ribosome Entry Site**

10h05 – 10h30 Elena Chernolovskaya (Novosibirsk)

**Design and properties of shRNA expressing cassettes**

10h30 – 10h45 Olga Kossinova (Novosibirsk)

**The structure of the SBP2 binding site on the large subunit of the human ribosome**

*Coffee break 10h45 – 11h05*

11h05 – 11h30 Nina Entelis (Strasbourg)

**Mitochondrial diseases: modeling anti-genomic therapy by imported oligonucleotides**

11h30 – 11h55 Dmitri Graifer (Novosibirsk)

**Eukaryote-specific feature of the ribosome site where mRNA codon is decoded**

11h55 – 12h10 Yulia Khairulina (Novosibirsk)

**Conserved motif GTx in positions 31-33 of translation termination factor eRF1 neighbors stop codon of mRNA in the human ribosome**

12h10 – 12h25 Lyubov Kanazhevskaya (Novosibirsk)

**Stopped-flow conformational study of abasic site repair by specific AP endonucleases from human and yeast *S. cerevisiae***

12h25 – 12h40 Natalia Kruglova (Novosibirsk)

**Lipophilic siRNA conjugates: cellular uptake and anti-MDR activity**

*Lunch 13h00 - 15h00*

**Afternoon session**

*Chair: Isabelle Billard, Gennadyi Kostin*

**Chemistry session**

15h00 - 15h25 Andrej Manakov (Novosibirsk)

**Gas hydrates and ionic clathrate hydrates: recent results**

15h25 - 15h50 Sylvie Ferlay (Strasbourg)

**Coordination and Networks based on ThiaCAlix[4]arene**

15h50 – 16h15 Chantal Daniel (Strasbourg)

**Spectroscopy and Photophysics of ruthenium (II) polypyridyl complexes used as DNA intercalators: a theoretical study**

*16h15 **Closing ceremony***