

**Kazan State Medical University
Kazan Federal University
Kazan Scientific Center of the Russian Academy of Sciences**

International Symposium

“Gasotransmitters: Physiology and Pathophysiology”

**Kazan Russia
September 21-23, 2014**

Organizing Committee

Chairman of the Organizing Committee - Prof. A.L.Zefirov, Head of Department of Normal Physiology, Kazan Medical University

Executive Secretary - Prof. G.F.Sitdikova, Head of Department of Human and Animal Physiology, Kazan Federal University

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Dr Gainutdinov K.L. - Kazan Federal University

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Scientific committee

R. Wang - MD, PhD, Vice-President Research Lakehead University, Ontario Canada

H. Kimura - PhD, Head of Department of Molecular Pharmacology, National Institute of Neuroscience, National Center of Neurology and Psychiatry, Kodaira, Tokyo, Japan

A. Hermann - o.Univ.-Prof. Dr., Dept. "Cell Biology & Physiology, Head of Div." Cellular & Molecular Neurobiology "University of Salzburg, Austria

Balaban P.M. - Director of the Institute of Higher Nervous Activity and Neurophysiology, Corr. Mem. Russian Academy of Sciences, Head of the Laboratory of cell neurobiology of learning, Professor

Reutov V.P. - Doctor of biological sciences, senior researcher laboratory functional neurocytology Institute of Higher Nervous Activity and Neurophysiology, Professor

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PROGRAM

Address of Symposium:

The Conference Hall, first floor , Main building of Kazan State Medical University,
BUTLEROVA Str., 49, Kazan

Sunday, September 21, 2014

09-00 - 10-00 **Registration**

10-00 **Opening, Welcome addresses**

Dr Sozinov A.S. - Rector of Kazan State Medical University

Dr Kiassov A.P. - Director of the Institute of Basic Medicine and Biology, Kazan
Federal University

Session 1

Chairs: **Rui Wang**, Lakehead University, Canada

Andrey Zefirov, Kazan State Medical University, Russia

Guzel Sitdikova, Kazan Federal University, Russia

10-20 - 10-50 Evolution of the conception of neurotransmitters

Andrey Zefirov, Kazan State Medical University, Russia

10-50 - 11-20 Gasotransmitters NO, CO, H₂S in biology and medicine: last, present an
future

Rui Wang Lakehead University, Canada

11-20 - 11-50 Gaseous messengers: intracellular targets and pharmacological prospects

Svetlana Gusakova, I.V. Kovalev, M.A. Medvedev, S.N. Orlov Siberian
State Medical University, MV Lomonosov Moscow State University, Russia,
University of Montreal, Canada

12-00-13-00 **Coffee-break**

13-00 -19-00 **Tour to the island Sviyajsk and welcome dinner**

Monday, September 22, 2014
Biological role of nitric oxide

Session 2

Chairs: **Anton Hermann**, Salzburg University, Austria

Pavel Balaban Institute of Higher Nervous Activity and Neurophysiology,
Russian Academy of Sciences, Russia

- 9-00 – 9-30 Nitric oxide is necessary for labilization of a consolidated context memory during reconsolidation in terrestrial snails.
Pavel Balaban Institute of Higher Nervous Activity and Neurophysiology, Russian Academy of Sciences, Russia
- 9-30 - 10-00 The nitric oxide cycle in mammals: 20 years history of the new concept.
Valentin Reutov Institute of Higher Nervous Activity and Neurophysiology, Russian Academy of Sciences, Russia
- 10-00 - 10-30 Regulatory and cytotoxic effects of dinitrosyl iron complexes with thiolate ligands on cells and tissues
Anatolii Vanin Semenov Institute of Chemical Physics, Russian Academy of Sciences, Moscow
- 10-30 - 10-50 Effectiveness and safety of gasomediators in clinical practice
Sergei Peretyagin, A.K. Martusevich, A.G. Soloveva, A.A. Struchkov, O.V. Kostina Nizhny Novgorod Research Institute of Traumatology and Orthopaedics, Nizhny Novgorod, Russia

Coffee-brea

10-50 - 11-20 **Coffee-break**

Session 3

Chairs: **Andrey Martusevitch** Nizhny Novgorod Research Institute of Traumatology and Orthopaedics, Russia
Yurii Pogudin, Siberian State Medical University, Russia

- 11-20 - 11-40 Effect of sodium nitroprusside on electrophysiological properties of the large intestine smooth muscles on the background of in intracellular pH changes
Yurii Pogudin, V.B. Studnitsky, A.V. Skvorcov, Antonov O.I., M.A. Medvedev. Siberian State Medical University, Russia
- 11-40 - 12-00 Nitric oxide is an important regulator of arterial tone in early postnatal ontogenesis
Svetlana Sofronova, D.K.Gaynullina, E.V.Lukoshkova, O.S.Tarasova. Lomonosov Moscow State University and State Research Centre of the Russian Federation - Institute for Biomedical Problems, Russia
- 12-00 - 12-20 Functional and metabolic effects of nitric oxide and reactive oxygen species

inhalations

Andrey Martusevitch, S.P. Peretyagin, A.A. Martusevich, A.G. Soloveva, P.V. Peretyagin Nizhny Novgorod Research Institute of Traumatology and Orthopaedics, Nizhny Novgorod, Russia

12-20 - 13-20 **Lunch**

Session 4

Chairs: **Valentin Reutov** Institute of Higher Nervous Activity and Neurophysiology, Russian Academy of Sciences, Russia
Khalil Gainutdinov Kazan Federal University, Zavoisky Physical-Technical Institute, Kazan, *Russia*

13-20 - 13-40 Nitric oxide as a guarantee of stability of muscle fibres. Nitric oxide-dependent processes in active and unloaded muscle
Tatiana Nemirovskaya, B. Shenkman Laboratory of Myology, Russia, Biology and Medicine, Russian Academy of Sciences, Moscow

13-40 - 14-00 Mechanisms of NO-mediated modulation of non-quantal acetylcholine release at the mammalian neuromuscular junction
Artem Malomouzh, E.E.Nikolsky Kazan Institute of Biochemistry and Biophysics RAS, Kazan State Medical University, Russia

14-00 - 14-20 Investigation of nitric oxide production in acute period after damage of spinal cord and brain in rat
Khalil Gainutdinov, G.G.Iafarova, V.V.Andrianov, A.A.Denisov, S.G.Pashkevich, M.O.Khotyanovich, V.A.Kulchitchkii Kazan Federal University, Kazan 420008, *Russia*, Zavoisky Physical-Technical Institute, Kazan 420029, *Russia*, Institute of Physiology of Nat. Acad. of Sci. of Belarus, Minsk, Belarus

14-20 - 14-40 **Coffee-break**

Session 5

Chairs: **Anatolii Vanin** Semenov Institute of Chemical Physics, Russian Academy of Sciences, Moscow
Sergei Peretyagin Nizhny Novgorod Research Institute of Traumatology and Orthopaedics, Nizhny Novgorod, Russia

14-40 - 15-00 Protein metabolism in the organism of rats after nitric oxide donors administration
Rufia Karimova Kazan state academy of veterinary medicine named after N.E. Bauman, Russia

- 15-00 - 15-20 Nitric oxide regulates acetylcholinesterase activity in mammalian neuromuscular junction
Konstantin Petrov, Malomouzh A.I., Kovyazina I.V., Krejci E., Nikitashina A.D., Proskurina S.E., Zobov V.V., Nikolsky E.E. Kazan Institute of Biochemistry and Biophysics, Russian Academy of Sciences A.E. Arbutov Institute of Organic and Physical Chemistry, Russian Academy of Sciences Kazan Medical University, Kazan Federal University, Russia Université Paris Descartes, France
- 15-20 - 15-40 To a Question of Transport of Gas-mediators to Bodies
Boris Komarov, Kazan, Russia
- 15-40 - 17-00 **Poster session**
Excursion tour

Tuesday, September 23, 2014
Carbon monoxide and hydrogen sulfide
as new members of gasotransmitters family

Session 6

- Chairs:** **Hideo Kimura**, National Institute of Neuroscience, Japan
Guzel Sitdikova, Kazan Federal University, Russia
- 9-00 - 9-30 Physiological roles of hydrogen sulfide and polysulfides
Hideo Kimura, National Institute of Neuroscience, Japan
- 9-30 - 10-00 BK channels – hydrogen sulfide (H₂S)
Anton Hermann, Guzel Sitdikova, Salzburg University, Austria, Kazan Federal University, Russia
- 10-00 - 10-30 Hydrogen sulfide and pain: importance of T-type calcium channels as the molecular target
Atsufumi Kawabata Division of Pharmacology and Pathophysiology, Kinki University School of Pharmacy, Japan
- 10-30 - 10-50 Electrophysiological effects of carbon monoxide in murine myocardium
Denis Abramochkin, O.P.Konovalova Lomonosov Moscow State University, Russia
- 10-50 - 11-20 **Coffee-break**

Session 7

- Chairs:** **Atsufumi Kawabata** Division of Pharmacology and Pathophysiology, Kinki University School of Pharmacy, Japan

Aleksey Yakovlev Kazan Federal University, Russia

11-20 – 11-40 Carbon monoxide in the mechanism regulation of contractile of smooth muscle cells

Anastasiya Marchenko, S.V. Gusakova, T.A. Idamzhapova Siberian State Medical University, Russia

10-40 - 11-00 Effects of hydrogen sulfide on contractility of rat jejunum.

Gulia Sabirullina, Shafigullin M., Zefirov R., Sitdikova G. Kazan Federal University, Russia

11-00-11-20 The effects of hydrogen sulfide on transmitter release at mouse neuromuscular junction

Yulia Lebedeva, E.V. Gerasimova, K.A. Gorshkova, G.F.Sitdikova Kazan Federal University, Russia

12-00 - 13-00 **Lunch**

Session 8

Chairs: **Lingyun (Lily) Wu** Lakehead University, Thunder Bay, Ontario, Canada

Igor Kovalev Siberian State Medical University, Russia

13-00 -13-20 Hydrogen sulfide and methylglyoxal formation

Lingyun (Lily) Wu Lakehead University, Thunder Bay, Ontario, Canada

13-20 - 13-40 Sodium-dependent of mechanisms of influence of gasotransmitters on smooth muscle cells

Igor Kovalev, S.V.Gusakova, J.G.Birulina, T.A.Idamzhapova, O.S.Rozhkova, A.S. Marchenko, D.I. Marchik, L.V. Smagliy, A.G. Popov, D.S. Nosov, M.A. Medvedev, S.N. Orlov Siberian State Medical University, Russia Research Center, University of Montreal Hospital, Canada

13-40 -14-00 Inhibition of Ca²⁺-induced mitochondrial permeability transition pore opening is an impotent mechanism of action of hydrogen sulfide in adult and old rat hearts

Elena Semenykhina, N.A. Strutynska, S.V. Budko A.Yu. Kotsuruba A.V. Chorna, V.F. Sagach Bogomoletz Institute of Physiology, Ukraine

14-00 -14-20 Effect of hydrogen sulfide on electrical activity in neonatal rat brain

Aleksey Yakovlev, Khalilov I.A. Sitdikova G.F Kazan Federal University, Russia

14-20-14-40 Cardioprotective effects of endogenous hydrogen sulfide under ishemia-reperfusion

Raisa Dobrovolska, Goshovska Y.V., Shymanska T.V., Sagach V. F.

Bogomolets Institute of Physiology, Ukraine

14-40-15-00 Contribution of gas transmitters (NO, H₂S) to the medullary cardiovascular control

Ludmila Shapoval, O.V. Dmitrenko, A.V. Kotsyuruba, L.G. Stepanenko, L.S. Pobegaylo, V.F. Sagach AA Bogomolets Institute of Physiology, National Academy of Sciences of Ukraine, Ukraine.

15-00 - 15-20 **Closing Remarks**

Web address: <http://kpfu.ru/biology-medicine/struktura-instituta/kafedry/kafedra-fiziologii-cheloveka-i-zhivotnyh/mezhdunarodnyj-simpozium39gazomediatory>

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