Modern Approaches in Pharmacy and Pharmacology

Alexander Petrenko

1. Adhesion G protein-coupled receptors - a novel class of promising drug targets.
2. Toxins as highly precise tools in neurobiology: the Black Widow spider story.
3. Membrane trafficking: The amazing architecture of exocytotic and endocytotic complexes.
4. What we do and do not know about the acid-base balance regulation.
5. Receptor tyrosine kinases: The chemistry of transmembrane signal transduction.
6. Counting molecules: Modern approaches to the cell protein contents analysis.

Alexey Belogurov Jr.

1. The Ubiquitin-Proteasome Proteolytic Pathway: Degrade in Order to Live
2. Proteasome in Action – Destruction for the Sake Of Construction
3. The Predator Becomes the Prey: Regulating the Ubiquitin Turnover
4. Get into the groove! Targeting antigens to Major histocompatibility complex
5. Clone Wars: the Revenge of the Lymphocytes
6. Specific immunotherapy (SIT) of autoimmune neurodegeneration

Alexander Gabibov

1. Combinatorial screening of biodiversity
2. Evolution of immunological response. Interrelation of innate and adaptive immunity
3. The main features of antibody molecules binding vs catalysis. Physiological significance of naturally occurring catalytic antibodies
4. Therapeutic antibodies. Immunoglobulin-based bioscavengers. *In silico* maturation of biocatalysts
5. Chemical modifications for prolonged drugs
6. Ehrlich's Magic Bullet – when dreams come to reality