

## Pharmacogenomics of peptide drugs

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The application of pharmacogenomics approaches has become an integral part in the drug development. This report will demonstrate the notable examples of using pharmacogenomics to clarify the mechanism of action of compounds based on natural regulatory peptides. Genome-wide transcriptome analysis was employed to search gene expression alterations under Semax and Selank impact. Semax has neuroprotective and nootropic effects without hormone action. Semax used for the treatment of cerebral ischemia, stroke, traumatic brain injuries, Parkinson's, Alzheimer's and other diseases. The study of Semax action on the transcriptome of rat brain cells under experimental ischemia conditions has identified large-scale changes in gene expression, including genes, which provide functioning of immune and vascular systems. Selank has anti-anxiety effect, normalizes the emotional state, and also has antiviral activity. Selank used in neurology, pediatrics and for the treatment of viral diseases. We revealed the change in mRNA level of many genes in the rat hippocampus after Selank administration including genes involved in neurotransmission. The transcriptome analysis of mouse spleen cells after Selank treatment revealed many genes changing their expression including genes of immune system. Thus, the transcriptome analysis showed important influence of regulatory peptide drugs on cellular metabolism that may determine their positive effect on the treatment of the relevant diseases.

### Biography

Svetlana A Limborska completed her Graduation in Biology department at Moscow State University in 1969. She completed her PhD in Molecular Biology and; Doctor of Science in Genetics. She is a Professor of Genetics at Institute of Molecular Genetics, Russian Academy of Sciences. Since 1983, she has been a Chair of Human Molecular Genetics Department of the same institute. She has got Russia State Prize award in 1996. She has published more than 300 papers in reputed journals and has been serving as an Editorial Board Member of *Russian Journal of Genetics; Molecular Genetics, Microbiology and Virology and; Medical Genetics*.

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