



North-Western State Medical University named after I.I. Mechnikov

The university is the largest medical research center in the North-Western region of Russia.

Research is conducted in various modern medical high-tech areas; with it practical appliance in the routine clinical work.

Major scientific fields of interest:

1. Microbiology and mycology.

Research in this field is conducted at the Research Institute of Medical Mycology n.a. P.N. Kashkin.

Current projects: the study of the species of fungal pathogens using conventional and molecular-biological methods; the study of toxigenic properties of micromycetes; monitoring of antifungal agents sensibility; the development of PCR test systems for the identification of fungal pathogens, the study of the role of sensitization in the pathogenesis of allergic diseases.



2. Endocrinology.

Studies in this field are carried out at the Research Institute of Endocrinology.

Ongoing projects: the causes and mechanisms of several endocrine diseases (type 1 and type 2 diabetes, a disease of the hypothalamic-pituitary-thyroid-adrenal glands and gonads, studies of reproductive disorders involving the hypothalamic-pituitary-gonads); the activation of processes of directed differentiation from stem cells to endocrinocytes and studying their role in the process of repair of various endocrine glands. Such diagnostic techniques as reverse-phase high performance liquid chromatography, capillary electrophoresis, capillary electrochromatography and high-performance thin-layer chromatography are in use.

3. Laboratory studies.

The study is focused upon the genetic and phenotypic variability of platelet receptors and assess of the effectiveness of antiagregant therapy, the study of coagulation activation markers and assessment of risk of recurrent thrombosis.

There is conducted laboratory evaluation of the pharmacological action of omega - 3 polyunsaturated fatty acids in various forms of ischemic heart disease.

Also the study of ultrastructure of the mucous membrane of the gastrointestinal tract in various diseases is conducted.

These types of studies are carried out at the Central Research Laboratory using the methods of light and electron microscopy, high-performance liquid chromatography, flow cytometry, methods of genetic diagnosis, and etc.

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4. Cell biology.

Current projects: research in the field of individual DNA therapy; cultivation of stem cells from bone marrow, umbilical cord blood and adipose tissue; diagnosis of genetic diseases using full DNA sequencing, gene and telomere diagnosis; cytogenetic studies.

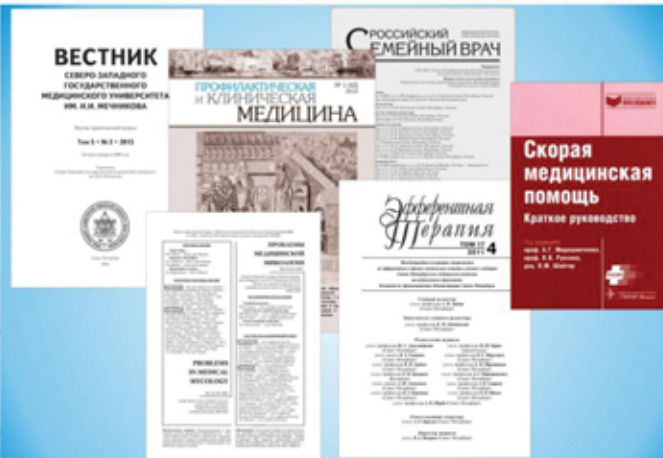
High-tech biological products based on stem umbilical cord blood cells for the treatment of cancer patients and regenerative medicine are under developing.

There is also conducted the therapy approach of the burns using fibroblasts and stem cells. The First Russian Public Register of the cord blood donors is organized at the University. Complete molecular genetic HLA-typing is carried out.



5. Computer aided engineering for medical investigations.

A unique portable medical navigation system "Compass" (computer assistant) is developed by the employees of University. It provides technological telemedicine support for doctor in any conditions of medical care provision. The equipment allows providing minimally invasive neuroimaging, resource-saving minimally invasive neurosurgery which can be used in different areas including neonatology.



6. University publishes six own special medical magazines:

- Russian family doctor
- Vestnik of SZGMU
- Preventive and Clinical Medicine
- First aid
- Efferent therapy
- Medical problems of mycology