

Federal State Budget Educational Institution of Higher Education Saint-Petersburg State Pediatric Medical University The Ministry of Health of the Russian Federation

Saint-Petersburg State Pediatric Medical University (SPbSPMU) has been established in 1925 as Academic and Research Institute of Maternal health and babyhood protection. We are the oldest and world's only Pediatric University.

Nowadays, SPbSPMU is exists as a Clinical Hospital for 113 years and as the University for 93 years. There are 5 faculties, including 500 specialists, 80% of PhD degrees, more then 4000 students in SPbPMU.

SPbSPMU is an international center for higher medical education. Graduates are several thousand foreign students from 70 countries. We are provides a high level of education, which guarantees a high demand in the labor market. Our students and professors are laureates of international and Russian competitions. Every year our students successfully participate in competitions of scientific works for grants of the Government of St. Petersburg.

Our hospital is a federal medical organization with one of the largest scientific bases and traditions of the Leningrad pediatric school.



- Dmitriy O. Ivanov
 - Rector

MD, Chief Neonatologist of the Ministry of Health of the Russian Federation

Saint-Petersburg State Pediatric Medical University (SPbSPMU)



Hirsch index = 96

TOP-3 among all medical organizations in Russian Federation

TOP-25 among all scientific organizations in Russian Federation

- The oldest and world's only Pediatric University
- The largest Pediatric clinic in Russia



Main Goals

- Professional development of specialists in the field of medical education
- Development of the network of international education in the field of medicine
- Development of academic mobility and networking of students and medical professors from all over the world
- Organization of international network education programs in bachelor degree, master degree and postgraduate degree
- Promoting and development of knowledge level in the field of medicine through the organization of research in the field of medical education
- Organization and promotion development in the field of Health Economics and Environmental Health







International educational Programs

Saint-Petersburg State Pediatric Medical University provides educational programs in English for students and graduates in the following areas:

- Pediatric Vascular Surgery
- Pediatric urology
- Operative surgery on animals
- Genetics

- Pediatric oncology
- Molecular Medicine
- Predictive Medicine
- Topographic Anatomy





Research and Development

Scientific researches in Pediatric University traditionally are a one of the main types of work, include all main directions of

the medicine and go in 3 leading directions:

- 1. Perinatal problems of children, teenager and adult deseases
- 2. Anatomical and functional, psychosomatic and medico-social factors influence on the mother and child health.
- 3. Creating of individual organs.

According to Hirsch Index Pediatric University is in TOP-3 (3d place) among medical universities in Russian Federation! 185 research works are performed at university. Particular mention should be made on the development of bioengineering organs (aorta, liver, trachea, etc.), conducted at the SIC

of the University. We actively apply the methods of 3d technologies in operations on the heart and spine.

New developments:

- ✓ 3D-modeling
- \checkmark The creation of individual biodegradable implants for replacing bone defects
- \checkmark The Plasma medicine
- ✓ The Cell technologies in the treatment of Hirschsprung's disease and spinal cord injuries
- The Creation of bioengineering organs artificial aorta and trachea
- ✓ The Dyslexia treatment with using the innovative simulator
- \checkmark The Wound coatings based on the biocompatible nanofibers
- \checkmark The Tissue reconstruction in case of thermal burns III-b degree
- \checkmark The Method of personal selection of chemotherapy protocol





- At the Faculty of Pediatrics, Endocrinology and Abilitology, SPbSPMU conducts a study of genetic markers of multifactorial diseases such as bronchial asthma, diabetes mellitus, adrenogenital syndrome, sexual development disorder in children, hypothyroidism, cystic fibrosis, blood diseases.
- At the Faculty of Pediatrics of the name of I.M. Vorontsov scientists explore efficiency predictors of target therapy taking into account the pheno- and endotypes of disease.
- At the Faculty of Hospital Pediatric members are explore the research in identification of genetic determinants of autoimmune and ethnically associated diseases of children.
- University is actively developing in research of Prenatal diagnosis. That is let us to identification diseases and predisposition to it in the mother womb.
- Scientific research is supported by grants from both Russian and international sude. That is why it is necessary to develop international network scientific projects.
- The Russian-Greek conference was held in SPbSPMU in June 2016. We have international agreements with universities from Boston and Houston (USA). We have a cooperation with children hospitals from USA, Canada, Italy and others.
- Scientific work in University actively develops, using innovative developments for the compliting of the our main mission: «Protection of motherhood and childhood».



International Cooperation

Research of microbiota in inflammatory bowel diseases of children (Finland) Genome sequencing in children with primary immunodeficiencies (Israel) Evolution of the genome and the dynamics of the prevalence of hereditary diseases in children's populations of the Far North of Russia (Copenhagen, Denmark)









International Cooperation

Research of the pathomorphology of pulmonary tuberculosis (Huston, USA) The prevalence of nonclassical forms of congenital adrenal hyperplasia in the children's population of Yakutia (New York, USA)

University of Maryland, College Park, MD, USA. Description of lifethreatening conditions in terms of reliability theory (Maryland, США)

Proteomic profile of tears in the diagnosis of uveitis associated with juvenile idiopathic arthritis (Washington, USA)











New developments



3D-MODELING - DEVELOPMENT AND USING OF THREE-DIMENSIONAL MODELS FOR THE RECONSTRUCTION OF ORGANS AND TISSUES, PREPARATION FOR SURGICAL INTERVENTIONS:

Three-dimensional models of hurt, spine, lower jaw and

other organs are produced on a 3D printer based on MRI and CT studies;

SD-models allow you to accurately pre-work the course of the operation, reduce trauma, exclude the need for repeated interventions.





Creation of bioengineering organs – artificial aorta and trachea

 Tissue engineering of trachea and aorta let to create individual immunologically neutral organ, which does not cause complications in transplantation
Tests successfully passed on rats and rabbits. Clinical approbation is planed.

 \geq No analogues in the world.





ELECTRICAL READING TRAINER FOR CHILDREN WITH DYSLEXIA AND OTHER READING DISABILITIES:

- Correction of reading disabilities in children according to the author's method of treating dyslexia;
 - You can train in any convenient for the user conditions due to mobile technologies;



- Allows you to collect data on brain activity during the children training through mobile neurointerfaces;
- Increases children motivation to study due to game form;
- Increases the effectiveness and simplifies the way of conducting classes, makes it accessible for more children.

CELL TECHNOLOGY



Fence of a sample of hypodermic fatty tissue

PLASMA MEDICINE



Allocation of culture of stem cells



Mesenchymal stem cells



Introduction in the damage area





Scheme of the plasma generator of the low pressure

Plasma generation



Processing

of a wound surface



Work with the device

WOUND COVERINGS ON THE BASE OF BIOCOMPATIBLE NANO-FIBERS



Electropermanent wound coverings



Nonwoven material



Two-layer wound covering



Coating

CELL TECHNOLOGIES IN THE TREATMENT OF HIRSCHSPRUNG'S DISEASE (experiment)









Specimen collection subcutaneous adipose tissue

Mesenchymal stem cells

Neuroblastoma cells

The introduction of cells into the wall of the colon

CELL TECHNOLOGIES IN THE TREATMENT OF SPINAL CORD INJURIES (experiment)



MRI study



MRI after spinal cord injury without treatment





Mesenchymal stem cells adm

MRI after systemic administration of stem cells

A METHOD OF PERSONALIZED SELECTION OF CHEMOTHERAPY PROTOCOL



The fence of a fragment of tumor tissue



Cultivation of tumor cells on the plane





Cultivation of tumor cells in 3D matrix Evaluation of culture after the introduction of chemotherapy



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University Clinic

About University clinic:

- The largest Pediatric clinic in Russia
- The leading multidisciplinary medical institution
- With huge scientific knowledge and age-old traditions of the Leningrad school of children's doctors
- The University clinic consists of
- Consultative-diagnostic center (CDC);
- Perinatal center
- More than twenty are specialized departments with 815 beds



Surgery

- Children's General surgery
- Children's Vascular surgery
- Children's Maxillofacial
- Coloproctology
- Pediatric Dentistry
- Children's Orthopaedics traumatology
- Pediatric Cardiac Surgery
- Pediatric Neurosurgery
- Pediatric Urology
- Unique operations, newborns, children

under 1 year of age or older



All modern methods of diagnosis:

- Laboratory diagnostics (more than 3500 types of research)
- Radiology (the qualitative investigations with minimal radiation exposure and computer processing of images on digital equipment; the safe use of x-ray contrast preparations);
- MRI and CT scan diagnostics (Closed and open devices, for children of any age, perhaps with general anesthesia and low radiation load)
- Endoscopic diagnosis of any complexity
- Functional diagnostics (ECG, EEG, spirometry, daily monitoring (BP, ECG), treadmill)





Pediatrics

- All the areas of Pediatric
- Leading and chief specialists of the country
- The work is conducted in close cooperation with foreign colleagues:
- Children's hospital of Cincinnati, USA (Professor A. A. Grom).
- Children's hospital of Alberta, calgary, Canada.
- Howard University, Washington, USA (Professor S. Nekhay).
- The University Of George. Washington, USA (A. Hines)
- Children's hospital of Colombos at the Ohio state University, USA.
- Gaslini Institute, Genoa, Italy.



Pediatric department of angiology and vascular surgery

- Using the new angio -micro surgical techniques of operation to perform complex reconstructive operations.
- Using of the new surgical technology- auto and all transplantation of organs and tissues.
- Training for the practical networks; the development and promotion of new methods of treatment.

Ophthalmology department

- Surgical treatment of cataracts in children with implantation of flexible intraocular lenses
- Surgical treatment of vitreoretinal pathology (both planned and emergency)
- Surgical treatment of all stages of retinopathy
- Surgical treatment of diseases and injuries of the lacrimal drainage system with the use of modern silicone strands, conductors.
- Leukoprostetics when informed of the fatal pathology of the lacrimal drainage system with the use of silicone Eco prosthesis
- And surgical treatment hardware strabismus, including using computer programs

Pediatric uroandrological department

- □ Is the leader in its field not only in Russia.
- The largest amount of reconstructive-plastic operations on the urinary tract's organs in the country
- The Department is the leader in using of the minimally invasive high-tech endoscopic surgery (about 500 interventions per year).
- The examination and treatment of patients with metabolic disorders has received Wide development as an unusual direction in the work of the Department





Perinatal center of the University



Telemedicine center



The Center for Telemedicine SPbSPMU began operating in 2016.

The Telemedicine Center of the University conducts tele-consultations of newborns, pediatric and pediatric surgeons, consultations on morphological telemedicine, consultations on MRI and CT.



- ✓ Scheduled video consultations
- ✓ Emergency video consultations
- Primary and secondary video consultations
- ✓ Tele-education of doctors
- ✓ Video conferencing

- ✓ Reducing the timing of decision-making.
- ✓ Expert opinion
- $\checkmark\,$ Reduces the cost of travel of employees
- The working time release of highly qualified specialists

Contacts

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Thank you!

