

Professor Ivan I. Dedov was elected President of the  
Russian Academy of Medical Sciences 01 March 2011

Professor Ivan I. Dedov , full member of the Russian Academy of Sciences and of the Russian Academy of Medical Sciences, President of the Russian Academy of Medical Sciences, Director of Endocrinology Research Center of the Russian Ministry of Health and Social Development, Head of the Chair of Endocrinology of the I. Setchenov First Moscow State Medical University, President of the Russian Association of Endocrinologists-Diabetologists.

Professor Ivan I. Dedov is one of eminent organizers in medical science in Russia, initiated creation of educational centers on the basis of leading institutions of the Russian Academy of Medical Sciences, research is devoted to fundamental and applied problems of endocrinology, namely: study of the neuro-endocrine system in evolution and phylogenesis, genomic and postgenomic technologies, proteomic markers of endocrine system disease pathogenesis, development and implementation in clinical practice of up-to-date highly technological diagnostic methods, treatment, prevention and rehabilitation of patients with endocrinopathy, development of gene, cell and nano technologies for the treatment of hormone active tumors of endocrine glands, diseases of the hypothalamic-hypophysial and reproductive systems, hereditary endocrinopathies in children, problems of male and female reproductive health from birth up to menopause or andropause, as well as development of principles in the planning of specialized diabetologic service in Russia and carrying out pharmaco-economic research.

Professor Dedov is the author of over 700 scientific papers, among them more than 50 monographs, manuals and atlases.

## How it all started



In 1725 the first large-scale research center, St.-Petersburg Academy of Sciences was set up in Russia. Medicine was represented in the Academy by the chairs of anatomy, physiology and chemistry, headed by the world famous scientists. In the XIX century university medical schools, where educational activity was closely connected with scientific research, became genuine centers for the development of medical sciences in Russia.

The leading role at that belonged to the medical faculty of Moscow University. Later, medical faculties were opened at Kharkov University (1805) and Kazan University (1814).

The Imperial Institute of Experimental Medicine (1890) became the first in Russia independent scientific research institution in the sphere of medicine and biology. The task of the Institute was to carry out all-round study of what causes the disease, development out and practical application of methods of its treatment. Prominent national and foreign scientists were invited to head the scientific departments of the Institute that promoted the development of new directions in medicine. In 1907 the clinic of the Institute started functioning.

The first 25th anniversary of the Institute was marked with outstanding achievements in the development of medical science. In 1904 Ivan P. Pavlov got the Nobel Prize for his works in digestion physiology, which he fulfilled at the Institute. A special laboratory was set up at the Institute to produce an-



tiplague preparations. Later on the laboratory was engaged in the production of sera and vaccines against extremely hazardous infections.

After 1917 state health system was created in the country. Medical science became a component part of this system and was included into the sphere of the state health protection policy.

Prominent scientists joined in their efforts to organize large-scale scientific centers for fundamental studies in all spheres of medicine. The Ail-Union Institute of Experimental Medicine, organized on the basis of the Imperial Institute of Experimental Medicine became one of them. Leading scientists were invited to work at the Institute, affiliated institutions were created to develop new scientific ideas, scientific schools came into being, and, in the result, priority scientific studies, primarily in theoretical medicine, were accomplished.

By the beginning of the 40-s of the XX century it became vitally important to establish a special organization to provide guidance to medical thought, to synthesize new achievements in different spheres of medicine, develop fundamental medical sciences and carry out planning and coordination of scientific research. Taking into consideration the experience of the Ail-Union Institute of Experimental Medicine and being based on the scientific potential and the network of scientific research institutes created in the country, the USSR Academy of Medical Sciences was established on June 30, 1944, by the decision of the USSR Council of People's Commissars. The Academy was created at the USSR Narkomzdrav (later USSR Ministry of Health) and the task of the Academy was to develop theoretical and practical aspects of medical science. To cope with these problems the Academy got the right to found within the Academy new scientific research institutions, laboratories, clinics, medical libraries, experimental industrial enterprises, etc.

With the establishment of the USSR Academy of Medical Sciences a very important historic period in the development of Russian medical science was over, the period of its formation. Possessing a considerable personnel potential and satisfactory technical and material basis the USSR Academy of Medical Sciences was from the very first days of its existence not only the main science organizing body but also the leading theoretical center. On January 4, 1992, by the decree of the President of Russia, the USSR Academy of Medical Sciences was transformed into the Russian

Academy of Medical Sciences (RAMS) and got the status of an independent state organization.

During almost 70 years of the RAMS creative activity a powerful scientific research complex was developed that comprises clinic, theoretic and preventive medical institutions, among which there are large-scale medical centers specializing in oncology, mental health, general surgery, microsurgery and cardio-vascular surgery, medical genetics, etc. The RAMS activity contributed to the general rise of research work in the country that resulted in the creation of highly specialized qualified personnel in various spheres of medicine - neurosurgery, ophthalmology, infectious diseases, medical radiology, labor hygiene, etc., as well as to the development of regional institutions, studying pathology typical for the given area.

The Russian Academy of Medical Sciences has solved a lot of priority public health problems in the country.

The RAMS research institutions successfully cooperate with academies of sciences and medical institutions in a number of countries of the world and the World Health Organization. The Academy also participates in the work of international organizations, such as IARC, UNEP, ILO, IAEA, UNISEF, UNESCO, etc. At present, the Russian Academy of Medical Sciences is a major scientific center, that unites endowed researchers and highly qualified personnel. The Academy successfully implements into life important scientific and social programs of the Government, the aim of which is to lower the level of disease, decrease morbidity and mortality among the population of the Russian Federation.

## **Structure of the Russian Academy of Medical Sciences**

The Russian Academy of Medical Sciences (RAMS) is a state scientific institution, which acts in accordance with its own Charter and the legislation of the Russian Federation, and is financed from the federal budget.

The Russian Academy of Medical Sciences comprises outstanding scientists and specialists in the field of health and medicine. The membership of the Academy amounts to 380 full and corresponding Members and more than 100 foreign members. The Russian Academy of Medical Sciences implements scientific management of medical sciences in the

country. The RAMS identifies general directions and makes prognosis of the medical science development, coordinates activities of medical institutions, as well as controls the implementation and quality of research at the RAMS institutions.

Among priority medical research are now maternal and child health, cardio-vascular disease prevention and control, prevention and control of oncological, neuro-psychical, endocrinological, infectious and other socially significant diseases, nanotechnologies.

The development of fundamental medico-biological investigations are of particular care of the RAMS. These investigations are devoted to molecular-, cells-, and system's mechanisms of pathological processes.

The General Meeting of the Academy is the highest governing organ of the RAMS. At its sessions the actual problems of medicine are discussed and decisions taken upon, general directions in the development of medical investigations are determined, main organizational questions are settled, as well as RAMS full, corresponding and foreign members are elected.

To implement the organizational activity the General meeting elects the Presidium for the period of 5 years.

In its organizational activity the Presidium pays particular attention to research extension in different regions of Russia.

The Presidium comprises the President, five Vice-Presidents, Chief Scientific Secretary, Academicians-Secretaries, Members of the Presidium.

To organize and coordinate research activities at the RAMS institutions the Presidium provides 5 departments, formed in accordance with areas of research and regional principles:

- ◆ Department of Clinical Medicine;
- ◆ Department of Biological and Medical Sciences;
- ◆ Department of Preventive Medicine;
- ◆ Siberian Department;
- ◆ North-West Regional Department.

The governing body of the Department is its Bureau, elected by the general meeting of this Department, comprising Academician-Secretary, his assistants and members of the Bureau.

The RAMS Departments perform scientific and organizational management of supervised institutions, as well as scientific activities of members of

the Academy, working at the institutions, which are not under the RAMS. Besides, the Departments perform management of the branch scientific councils and their problems commissions.

In 1994-2007 over 10 regional sub-departments were organized to coordinate and control over the regional problems.

More than 15 specialized departments and sections work at the Presidium to perform every day activity: Organizing Analytic Department, Department of Foreign Relations, Personnel Department, Economic Financial Department and others.

Under the Academy work about 60 independent research institutes and centers. Their staff comprises more than 7200 researchers including over 2000 PhDs.

At present the institutes and centers of the Academy carry out research within the priority national project «Zdorovje» («Health»), participate in the development of 30 special purpose programmes, i.e. «Prevention and combating of social character diseases», which includes problems of oncology, vaccinal prevention, HIV/AIDS, viral hepatitis, TB, psychiatry, arterial hypertension; «Children of Russia», «Genome and Postgenome Technologies in Creation of Medical Drugs», «Industry of Nanosystems and Nanomaterials», «Bioengineering Technologies», «Proteomics», «Cell Technologies», etc.

## **Presidents of the Academy of Medical Sciences**

N.N. Burdenko	– 1944-1946
N.N. Anichkov	– 1946-1953
AN. Bakulev	– 1953-1960
N.N. Blokhin	– 1960-1968
V.D. Timakov	– 1968-1977
N.N. Blokhin	– 1977-1987
V.I. Pokrovsky	– 1987-2006
M.I. Davydov	– 2006- 2011
I.I. Dedov	– 2011- next time

## **Manpower Development**

The Presidium of the RAMS pays much attention to development of scientific medical manpower.

On the initiative of the Academy a faculty for education of researchers and scientific and pedagogical specialists was created in the infrastructure of the Moscow Medical Academy, named after I.M. Sechenov. After graduation from the faculty some groups of specialists undertake a 6 month course in the scientific institutions of the USA, France, Germany, etc. At present the faculties like this are created in other medical high schools of the country.

The development of scientific manpower is implemented also by motivation of youth specialists of medical institutions to undertake training in the international scientific school and seminars, which are organized annually by leading scientific RAMS institutions.

A very important role in the development of manpower play the WHO collaborating centers functioning on the base of some RAMS institutions where specialists are trained in modern methods, technologies, etc. The education of specialized scientific manpower is of high priority for the RAMS institutions themselves and they create on their base chairs for postgraduate training as well as educational methodological centers to improve the qualification of specialists and, if necessary, to train them for a new profession.

For regular education of scientific manpower at the research institutions of the Academy, under supervision of the RAMS Presidium, were created the scientific aspirantura and clinical ordinatura, which give the possibility to extend specialized knowledge.

To optimize the educational process of the scientific personnel a number of chairs are functioning at the Academy, namely: the Chair of philosophy, the Chair of West-European languages, the Chair of medical informatics and management. Medical nurses and paramedical personnel for clinical and experimental institutions are trained at the Medical college. The RAMS medical library, founded in 1944 is functioning as an international infrastructure.

Publishing activity is also of high priority for the RAMS. The Editorial Board of «Bolshaya Meditsinskaya Encyclopedia» is an integral part of the RAMS.



The Academy publishes 11 scientific journals: «Vestnik Rossiiskoy Akademii Meditsinskih Nauk», «Byulleten Eksperimental'noy Biologii i Meditsiny», «Voprosy Meditsinskooy Khimii», «Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya», «Eksperimental'naya i Klinicheskaya Farmakologiya», «Morfologiya», «Arkhiv Patologii», «Meditsinskaya Radiologiya i Bezopasnost», «Voprosy Virusologii», «Immunologiya», «Kletochnie Technologii v Biologii i Meditsine».

### **International Scientific Activity**

International scientific cooperation is one of the main activities of the Russian Academy of Medical Sciences and its institutions. International contacts make it possible to exchange the most fresh information and technology unite scientific and technical potential of partner-countries for new accomplishments, to speed up and optimize the process of scientific development.

International cooperation of the Russian Academy of Medical Sciences varies both in form and in content and envelops practically all aspects of medical science. The Russian Academy of Medical Sciences maintains scientific contacts with over 30 countries of the world.

Research institutes and centers of the RAMS actively participate in the realization of agreements in the sphere of health and medicine, signed by the Government of the Russian Federation with the governments of other countries, as well as of the agreements, signed by the Ministry of Health and Social Development of the Russian Federation with corresponding ministries and institutions in partner-countries. Over 75% of scientific work on joint projects within these agreements is carried out by the RAMS institutes and centers. The Russian Academy of Medical Sciences and its institutes participate in the development of intergovernmental agreements signed with the governments of more than 15 countries.

Being the major scientific organization and coordinator of medical science in Russia, the Academy traditionally supports close scientific contacts with the academies of sciences in a number of countries. Over forty years the Russian Academy of Medical Sciences has been actively

cooperating in such spheres of medicine as cardio-vascular diseases, oncology, physiology, epidemiology and medical microbiology, virology, biotechnology, medical genetics, neurology.

The Russian Academy of Medical Sciences has such agreements on scientific cooperation with a number of foreign academies and other scientific institutions.

RAMS research institutes and centers often establish and develop direct interinstitute contacts with their counterparts abroad, determine subjects, partners, and terms of international cooperation. The whole spectrum of different activities is used by Russian institutes in their scientific integration. Among them are joint research within certain joint projects, seminars, conferences, symposia, «round table» discussions, etc. Mutually adopted methods and protocols for joint research are widely used especially in clinical medicine. As new methods of cooperation, we organize joint international laboratories, groups, research collectives.

Institutes of the RAMS are now more and more frequently invited by foreign companies to participate in scientific research on contractual basis.

## **Collaboration with the World Health Organization**

The RAMS has been widely engaged in collaboration with the World Health Organization (WHO) for many years. Specific feature of the RAMS collaboration with WHO is determined by the fact that the WHO is acting as the directing and coordinating authority of international collaboration on health and medical sciences as well as by historical conditions of the foundation of this international intergovernmental organization. Now the WHO is one of the largest specialized agencies of the United Nations system.

The RAMS activity in collaboration with the WHO at its different stages certainly depended on such general factors as social and political situation in the world, the WHO financial stability and its general programs orientation, as well as social economic and political conditions in the country. The RAMS collaboration with the WHO plays an important role in the whole infrastructure of its international collaboration.

The Russian Federation is the successor of the Soviet Union that was one of the partners in the foundation of the WHO. The scientists of the Academy actively participated in the foundation and establishment of the WHO as an international organization. For example, Professor F.G. Krotkov was the vice-president of the International Conference on Health (1946) where the Constitution of the WHO has been elaborated. Professor B. Petrov was a member of the URSS delegation at the First session of the World Health Assembly (1948) which is the supreme organ of the WHO defining its program of work.

And subsequently other scientists of the RAMS like Professors D.D. Venediktov, O.P. Schepin, Yu.P. Lisitsin and S.G. Drozdov participated and are participating in the work of the constitutional sessions of the World Health Organization as members of national delegations. Professor V.M. Zhdanov at the Eleventh session of the World Health Assembly in 1958 suggested the Program of the Worldwide Smallpox Eradication. Thanks to the activity of the scientists and health workers of many states, including active participation of Russian specialists, this Program was successfully implemented and at the Thirty-third session of the Assembly in 1980 the eradication of this most devastating infection in the world was declared.

The specialists of the RAMS also actively participate in the implementation of the Program of Poliomyelitis Eradication that was accepted at the Forty-first session of the World Health Organization in 1988 and now is approaching its successful completion.

Professor B.V. Petrovsky was the President of the International Alma-Ata Conference on Primary Health Care in 1978, where historically famous Alma-Ata Declaration was accepted. And on the basis of it primary health care has become and is now the key for achieving the goal of Health for All. This is only a number of examples of RAMS scientists participation in the WHO program activities aimed at resolving some acute problems of health and medical care.

Scientific workers of RAMS research institutions have been taking part in different WHO programs as expert-consultants and temporary advisers. They are often invited for active participation in WHO conferences and meetings on urgent problems of health and medical sciences.

The most important areas of the WHO activities were headed by the RAMS members N.N. Grashchenkov, O.V. Baroyan, N.F. Izmerov, A.S. Pavlov, N.P. Napalkov (died in 2008) as Assistants of the WHO Director-General. Many Russian specialists were or are staff members of the WHO Headquarters and European Regional Office.

Some of the scientists of the RAMS were or are the members of different consulting committees in the WHO Headquarters. Former Vice-President of the Academy A.M. Chernukh greatly contributed to the activity of the Consultative Committee on Medical Research. And the other Vice-President of the RAMS Professor Yu.F. Issakov has taken part in the Consulting Committee on Health Research. The previous President of the Academy Professor V.I. Pokrovsky for some years was the member of the WHO Advisory Council on HIV/AIDS.

The important place in the collaboration between WHO and RAMS was given to the activity of the WHO collaborating centers established at RAMS research institutions. They work in different areas of the WHO program activity and are headed by prominent Russian scientists. The activities of WHO collaborating center at the RAMS institutions are making a valuable contribution to the Russian and world medical science.

For outstanding services in the promotion of international health some of the Russian scientists were awarded WHO prizes. In 1966 the Darling Foundation Prize was awarded to Professor P.G. Sergiyev.

In 1975 the Leon Bernard Foundation Prize was awarded to Professors B.V. Petrovsky and E.I. Chazov.

Participation of Russian scientists in the activity of the International Agency for Research on Cancer (IARC) is also worth to be mentioned. The URSS was one of the founders of this Organization that is an affiliated institution of the WHO. Professors N.N. Trapeznikov and N.P. Napalkov were members of the Governing Council of this Agency. Some of the RAMS specialists contributed much to IARC development and functioning. After a temporary intermission the Russian Federation resumed its active participation in the work of the Agency in 2007.

As a whole, the long-lasting and active collaboration between the RAMS and the WHO is very useful for both organizations. It has a rich history and good prospects.

## **Foreign Members of the Russian Academy of Medical Sciences**

In conformity with the Charter of the Russian Academy of Medical Sciences foreign members of the Academy are elected by the general session of the Academy from foreign scientists recommended by one of the Academy departments (depending upon their medical specialty).

Academy research institutions or members of the Academy present a list of candidates to be considered at the meeting of the corresponding department. As a rule these are scientists who greatly contributed to the cause of health and medical science and earned wide renown of Russian scientific public by their active participation in cooperation with Russian research centers or certain scientists as well as by their humanitarian activity.

At present over 100 scientists from different countries of the world are foreign members of the Russian Academy of Medical Sciences.

RAMS foreign members promote training of Russian specialists abroad, exchange of scientific information, participate in the activities organized by the RAMS and its institutions and facilitate participation of Russian scientists in scientific meetings abroad.

Besides over ten foreign scientists and specialists were awarded «Doctor Honoris causa of the Russian Academy of Medical Sciences» for their impact into the development of biomedical sciences, human health and promotion of international scientific cooperation, friendship and mutual understanding among people.

## **DEPARTMENT OF CLINICAL MEDICINE OF THE RUSSIAN ACADEMY OF MEDICAL SCIENCES**

The Department of Clinical Medicine of the RAMS is a scientific-organizational center, which comprises scientists from different areas of clinical medicine. Main targets of the Department are the following: identification of the general directions of investigations in the field of clinical medicine in the country, planning and coordination of research, including fundamental investigations, performed by the Department's institutions and academic groups, development of scientific manpower, monitoring of therapeutic work in the clinics of the institutes.

The Department supervises the activities of 27 interinstitutional scientific councils on complex problems of clinical medicine. An institutional scientific council is a permanent acting social scientific-methodological organ, which implements coordination, planning and long-term forecasting research development in the country, determines research priorities, develops research programs, performs monitoring of the research progress, efficiency of the obtained results and their utilization in health practice, as well as comparative analysis of final results of investigations made in Russia and abroad.

There are eight Scientific centers in the Department and six independent institutes with one affiliation.

Within the framework of priority scientific research developed by the institutes and centers of the Department much attention is given to the problems of biological safety, cell technologies for medicine and biology, genomics, development and creation of new diagnostic means for emergency diagnostics of cardio-vascular, oncology, infectious and other socially significant diseases on the basis of nanotechnologies and nanomaterials.

## N.N. Blokhin Cancer Research Center

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N.N. Blokhin Russian Cancer Research Center is the largest scientific and practical federal center in the Russian Federation where fundamental research of tumor origin and its mechanisms is carried out and treatment of the most difficult oncological patients with tumors of all localizations is performed.

### Scope of activities:

- ◆ tumor biology, tumor biochemistry, tumor biophysics, tumor morphology, virology studies;
- ◆ influence of endogenic and exogenic factors on different tumors;
- ◆ scientific methods of diagnostics of malignant tumors;
- ◆ experimental and clinical studies of new surgical methods of tumor treatment;
- ◆ research on new methods and ways of chemotherapy, radiotherapy and combinative therapy;
- ◆ implementation of new technologies into treatment and diagnostic process;
- ◆ study of special features of diagnostics, treatment and prophylaxis of tumors in children;
- ◆ tumor epidemiology studies, research in prophylactic methods, perfection of oncological statistics;
- ◆ organization and conduction of theoretical, experimental and clinical research and development of method for combating

cancer on the basis of scientific achievements in various spheres of science and technology as well as in conformity with practical requirements of health care.

N.N. Blokhin Russian Cancer Research Center represents an advanced scientific and practical school of national health care, with 56 years of experience. The Center's medical archive contains more than 750 000 case histories. The clinic capacity is 1000 beds. Treatment of pathologies in oncology is at the highest professional level: surgeons do most complicated operations, chemotherapy and radiotherapy methods are applied, scientists actively conduct tumor biotherapy research.

Important steps in perfection oncological assistance to the population and in lowering cancer mortality rate are development and implementation into practice of recent scientific achievements in diagnostics and treatment of malignant tumors. In order to improve access to highly professional services of specialists of the Center for patients from far-away regions group consultation using telemedicine are organized.

N.N. Blokhin Russian Cancer Research Center is the largest educational center in oncology in Russia. Advanced medical training is given on a post-graduate basis. More than 500 medical doctors take specialization courses every year.

The Center is engaged in active collaboration with major foreign research centers, international and national medical organizations on a wide scope of problems: biologic and molecular aspects of cancerogenesis, development of methods and preparations for combined treatment of tumors, tumor immunology, pediatric oncology, cancer epidemiology, etc. Many departments of the Center develop scientific cooperation with the IACR in Lyon, the European Organization for Research and Treatment of Cancer (EORTC) in Bruxelles. In 1991 an office of the European School of Oncology (ESO) was opened at the Russian Cancer Research Center. The ESO is a well-known international organization which develops a programme of continued medical education in oncology for medical specialists in different fields.

**Institute of Clinical Oncology**  
**Director: Prof. Mikhail I. Davydov**



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The Institute is the biggest comprehensive cancer institution in Russia which provides patients with the best care available today. Physicians of the Institute have extraordinary experience in diagnosis and treatment of all types of cancer. Much attention is paid to psychological, social and functional rehabilitation of patients. The Institute develops dynamic programs of clinical cancer research, the aim of which is to understand better biology of cancer, to identify more effective cancer therapy and diagnostic tools. The Institute is very actively involved in education and training of medical students and postgraduate physicians.

**Institute of Pediatric Oncology and Hematology**

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That is the oldest and biggest pediatric cancer institute in Russia with 120 patient beds which provides all types of cancer treatment: chemotherapy, surgery, radiotherapy, stem cell transplantation, etc. Priorities in surgery are given to sparing procedures, plastic surgery and development of endoscopy surgery. At the chemotherapy compartment new drugs are investigated and intensive chemotherapeutic schedules are used for therapy of heavy patients. Combination of standard approaches and high dose chemotherapy with stem cells transplantation resulted in 85% of cured patients with ALL, 65% with Ewing Sarcomas (high risk patients), 60% with Brain tumors (less the 3 years of age). Immune therapy (dendritic vaccines, and evaluation of GVT effect), application of target therapy aimed at improvement of treatment results and at decrease of sometimes toxic effects of therapy are under serious investigation.

**Research Institute of Carcinogenesis**

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The main areas of research carried out at the Institute are studies of molecular and cellular mechanisms of carcinogenesis, of biological, morphological, biochemical, genetic and immunological features of tumors, epidemiology and ways of purposeful and efficient cancer prevention.

The Institute is engaged in multidiscipline studies of carcinogenesis, elaborates means for prevention and inhibition of carcinogenesis by affecting the events that are responsible for the control of cell proliferation, differentiation and tumor progression.

**Institute of Experimental Diagnostics and Therapy of Tumors Director: Prof.**

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The Institute of Experimental Diagnostics and Therapy of Tumor works in the field of development of new diagnostic and therapeutic methods for cancer treatment. New synthetic, semisynthetic and natural anticancer drugs are being searched for and their anticancer activity, toxicity and spectrum of tumors sensitive to them are being studied. The Institute develops new drug formulations, drug delivery, anticancer vaccines, biother- apies, cell technologies, nanotechnologies, physical methods of treatment (radiation, ultrasound, laser therapy) and new methods of photodynamic therapy.

**A.N. Bakoulev**  
**Scientific Center of Cardiovascular Surgery**

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A.N. Bakoulev Scientific Center of Cardiovascular Surgery is the world biggest scientific, diagnostic, medical and production complex for surgical treatment of cardiovascular diseases.

The Center is the leading institution in the field of cardiac surgery in our country. It is composed of V.I. Bourakovsky Research Institute of Cardiac Surgery, Research Institute of Coronary and Vascular surgery, Research Institute of Experimental Cardiovascular Surgery and an affiliation, Perm «Institute of Heart». These institutions comprise clinical, diagnostic and production departments, 3 chairs of cardiovascular surgery, a Center of surgical and interventional arrhythmology, a Center of perinatal cardiology and other services. There are over 2500 medical workers of different qualifications on staff at the Center, among them 37 professors and more than 120 PhDs.

Each year over 50 000 people from all regions of Russia and abroad seek medical advice at the Center. They are provided with the whole spectrum of modern methods of cardiovascular diagnostics.

The Center provides medical care to patients of all ages with congenital and acquired heart diseases, heart rhythm and conduction disturbances, ischemic heart disease, the diseases of aorta and great vessels, severe heart failure.

Annually over, 3000 operations on the heart and vessels are performed in the Center's operating rooms.

The Center performs over 1000 operations a year in patients with acquired heart diseases, including reconstructive operations on heart valves and their structures, as well as combined operations for valvular and coronary pathology.

The Center is the biggest world institution in the field of diagnostics and surgical treatment of life threatening arrhythmias. Successful results are obtained with the correction of ventricular pre-excitation syndrome, ectopic atrial tachycardia and ventricular tachyarrhythmias. «Hybrid» open-heart surgery including transcatheter and bioengineering technologies is performed in complicated situations.

The Center actively develops modern methods of diagnostics and treatment of ischemic heart disease. For this purpose systemic-coronary autoarterial, autovenous and combined bypass grafting, transmural laser revascularization, percutaneous coronary angioplasty and stenting, angiogenic factors and the combinations of these methods are used. Over one third of all interventions are performed on the beating heart.

The Center is one of the pioneers of vascular surgery in our country, and at present its staff performs a lot of operations on aorta, arterial, venous and lymphatic vessels, including surgery under extracorporeal circulation, reconstructive and micro-surgical interventions on small vessels and venous valves.

The staff of two cathlabs functioning in the Center performs interventions not only on the aorta and its branches, coronary and peripheral vessels, including pulmonary vessels, but also for congenital and acquired heart diseases, including emergency procedures.

The Center has telemedical connections with over 80 Russian and 30 similar foreign centers.

The Center is active in post-graduate and advanced medical training of medical specialists in cardiology, cardiac surgery, vascular surgery, anesthesiology, intensive care, hematology, etc.

The Aid Fund for Children under 3 years of age with congenital heart diseases is functioning at the Center; Russian charity actions aimed to help children with congenital heart diseases are carried out under the motto «Touch a Child's Heart!».

The largest national scientific forums on current problems of surgical cardiology, cardiovascular surgery, arrhythmology, etc. are held in the Center on an annual basis.

The Center publishes 9 peer-reviewed scientific journals annually.

The Center produces mechanical and biological valvular prostheses, including cryo-preserved allografts and valve-containing conduits, fibrous rings prostheses, synthetic linear and bifurcational drug-eluting prostheses of the aorta and great arteries, implantable and external pacemakers, radiopaque catheters for diagnostic and therapeutic endovascular procedures, salt solutions for infusions, etc.

The Center has all the facilities for reception and accommodation of national and foreign specialists.

## Scientific Center of Children's Health

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### Scope of activities:

- ◆ study of risk factors of children health failures;
- ◆ elaboration of methods for prophylaxis, diagnostics, treatment, rehabilitation, medical observation, hospital replacing technologies, medical help provisions to children with spread disabling diseases;
- ◆ perfection of organ preserving operations, methods of emergency surgery;
- ◆ application of cellular technologies;
- ◆ study of age physiology features of different systems of child growing organism;
- ◆ detection of children adaptation mechanisms under changing conditions of life activity and school education reformation.

The Scientific Center of Children's Health includes Scientific Research Institute of Pediatrics, Scientific Research Institute of Preventive Pediatrics and Rehabilitation Treatment, Scientific Research Institute of Hygiene and Health Protection of Children and Teenagers.

Diagnostic base of the Center has been completely renovated by 2008, that allowed considerable increase in the list of consultative and laboratory instrumental medical services at both out-patient and hospital stage of treatment for children up to 18 years of age.

At the Scientific Research Institute of Pediatrics hospital treatment of children is carried out in the following departments: allergology, pulmonology, cardiology, gastroenterology with hepatological group, nephrology, urology, uroandrology, surgery, psychoneurology, rheumatology, diagnostics and

rehabilitation, otolaryngology, pathology of infants and at the departments for premature infants and anesthesiology-reanimation.

The Scientific Research Institute of Preventive Pediatrics and Rehabilitation Treatment and its consultation-diagnostic center provide medical assistance in 28 specialties (i.e. allergology-immunology, pulmonology, cardiology, neonatology, gastroenterology, nephrology, urology, gynecology, surgery, psychoneurology, dietotherapy, otorhinolaryngology, ophthalmology, endocrinology, dermatology, logopedics, genetics, etc). A multifunctional out-patient clinic with a Center of Family Vaccination functions on the basis of the Institute.

Specialists of the Scientific Research Institute of Hygiene and Health Protection of Children and Teenagers together with the Institute of Preventive Pediatrics and Rehabilitation Treatment conduct complex assessment of the health state of children population, work out regional standards of physical development of children and measures for children health protection and strengthening in all regions of the country, including regions with poor ecology, and recommendations for students of various educational establishments.

Scientific Center of Children's Health possesses equipment of the latest generation to conduct ultrasound investigation, endoscopy with the use of unique videocapsule technique, highspeed magnetoresonance tomography, computer tomography, doublepower absorbing osteodensitometry, radionuclide investigation, electroencephalogram with video monitoring and computer processing of the patient data when sleeping, it is also possible to conduct these investigations in out-patient setting.

A wide range of analysis is carried out by laboratories: clinicodiagnostic, biochemical, immunological, clinical virology and serology, microbiological, pathophysiological, membranological and genetic investigations, cytochemistry.

Advanced post-graduate training is possible at the Center in pediatrics, pediatric surgery, rehabilitation medicine, functional diagnostics, clinical laboratory diagnostics, and public health.

## Mental Health Research Center

**Director: Prof. Alexandr S. Tiganov**

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The Mental Health Research Center is one of the leading psychiatric centers in Russia. The Centre supports research and treatment of a wide range of mental illnesses, including:

- ◆ endogenous mental disorders (schizophrenia, schizoaffective psychosis, affective disorders);
- ◆ borderline personality disorders, obsessive-compulsive disorders, panic disorders;
- ◆ mental illnesses in elderly people (including Alzheimer's disease);
- ◆ different forms of mental pathology in children and adolescents (including childhood schizophrenia, autism).

The Center develops and applies new principles of mental care and services.

The scientific activity also comprises intensive studies in biological psychiatry. Laboratories of the Center provide research in different areas of neuroscience – genetics, neurochemistry, neuroimmunology, neuromorphology, neurophysiology.

The Center has a clinical department (400 beds) with modern equipment including CT, MRI-tomography. Along with individually developed psychopharmacological treatment psychotherapy is used, as well.

The Center is engaged in post-graduate advanced training.

Since 2003 the Center has been publishing a peer-reviewed journal «Psychiatry».



## Research Center of Neurology

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The Research Center of Neurology founded in 1945 is the leading clinic for neurological disorders in Russia. The main research trends of the Center are cerebrovascular disorders, degenerative and hereditary diseases, demyelinating disorders, critical care in neurology, rehabilitation, epidemiology, and mechanisms of brain plasticity. For over 30 years the Center has been functioning as the WHO Collaborating Center for Neurosciences.

Coming first in the list of modern and well-equipped neurological clinics of Russia the Research Center of Neurology provides comprehensive consultative, diagnostic, neurological, neurosurgical, vascular surgical, and rehabilitation care. Annually the Research Center of Neurology treats about 2 000 patients from different regions of Russia with the most severe forms of neurological disorders.

Diagnostic basis of more than 25 different departments and laboratories is supplied with MRI tomography, multisliced spiral CT, digital subtraction angiography, ultrasound facilities, electrophysiological equipment, stereotaxic biopsy system, electronic microscope, DNA-diagnostics, echocardiography and Holter monitoring system and other equipment. Surgical care includes stereotaxic and open methods of neurosurgical treatment of intracerebral hemorrhage, cranio-cerebral microarterial shunting in ischemic stroke, carotid endarterectomy, operations on vertebral and peripheral arteries. Thrombolytic therapy, extracorporeal manipulations such as plasmapheresis, prolonged mechanical ventilation and multimodal monitoring systems of neurointensive care department ensure effective treatment of the most severe forms of neurological disorders.

In addition, the Center offers a patient-focused neurorehabilitation service with modern rehabilitation facilities such as a Lokomat systems, a tilt table Erigo.

More than three hundred experienced clinicians and certified researchers of the Center annually perform nearly 20 multicentral clinical studies, half of that are international. The affiliated Department of Fundamental Brain Research with laboratories of neurocybernetics, experimental neurocytology, age-specific physiology, and others carry out complex experimental investigations.

With its concentration of clinical and applied scientific activity the Center constitutes a unique national resource for postgraduate advanced training and research in neurology, associated disciplines and basic neurosciences. The Center provides trainings for neurologists, scientists and allied health professionals from different regions of Russia, other countries, as well as WHO fellows.

The Center is publishing a peer-reviewed journal «Annals of Clinical and Experimental Neurology»



## **B.V. Petrovsky Russian Research Center of Surgery**

**Director: Prof. Sergei L. Dzemishkevitch**

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B. V. Petrovskiy Russian Surgery Research Center is the largest multifield state surgical institution in Russia.

Principal trends of research activities of the Center are fundamental research and practical developments in the field of cardiovascular surgery, thoracic and abdominal surgery, transplantation of organs, plastic and reconstructive microsurgery, vertebral surgery, neurosurgery, anesthesiology and reanimatology, clinical physiology and functional diagnostics.

There are about 250 researchers and more than 200 physicians, working in the Center. It incorporates as well a clinic for 400 beds. Specialists of the Center perform most complicated reconstructive and restorative operations, heart, trachea, liver, kidneys and pancreas transplantations, among them – relative to relative transplantations and transplantations in children, roentgen- oendovascular interventions, develop most contemporary means of intensive care and rehabilitation, methods for laboratory and instrumental diagnostics.

The Center is engaged in postgraduate research training of medical specialists in surgery, cardiovascular surgery, anesthesiology and reanimatology, organs and tissues transplantation, radiation diagnostics and radiation therapy.

The Center regularly carries out congresses, conferences, seminars – workshops and interactive sessions with participation of foreign specialists.

## State Research Institute of Eye Diseases

**Director: Prof. Sergey E. Avetisov**

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Scope of activities:

- ◆ experimental and clinical basis of use of cell technologies in ophthalmology;
- ◆ development and perfection of methods of diagnostics and treatment of orbit and periocular tissues diseases;
- ◆ study of anatomy and physiology of the organ of vision by ultrasound space visualization methods;
- ◆ phacosurgery and intraocular correction in non-standard situations refractive aspects of cataract surgery;
- ◆ reconstructive surgery of anterior segment on the basis of keratoplasty;
- ◆ development of methods for diagnostics, prophylactics and treatment of infectious eye diseases;
- ◆ diagnostics and treatment of eye lesions under diabetes, including conservative, laser and surgical methods;
- ◆ perfection of diagnostics and treatment of involutinal retina diseases;
- ◆ modern methods for evaluation of the state of neuroreceptor eye apparatus;
- ◆ objectivity of criteria of glaucoma diagnostics, treatment and monitoring;
- ◆ modern pathogenetically based approaches to glaucoma treatment;
- ◆ optimization of methods of diagnostics and correction of initial and induced ametropias.

The Institute is active in post-graduate advanced training in ophthalmology.

The Institute is publishing «Vestnik oftalmologii» and «Glaucoma» journals.

## N.N. Burdenko Scientific Research Institute of

### Neurosurgery

**Director: Prof. Alexander N. Konovalov**

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The Scientific Research Institute of Neurosurgery was founded in 1932, and now it is one of the largest in the world.

Scope of activities:

- ◆ morpho-genetic study of CNS tumors;
- ◆ surgical treatment of brain and spine tumors;
- ◆ acute traumatic brain injury and its complications;
- ◆ vascular surgical diseases – direct and endovascular surgery of arterial aneurisms, AVM's, reconstruction of brachicephal arteries;
- ◆ endoscopic surgery of the sella region and skull base, ventricular relationships and spine diseases;
- ◆ pediatric neurosurgery;
- ◆ reconstructive vertebral surgery in case of degenerative and on- co-pathology;
- ◆ functional neurosurgery – chronic brain and spine stimulation;
- ◆ radiosurgery and radiotherapy in neurosurgery.

The Institute has gained a unique clinical experience in treating more than 40 000 patients with brain tumors. Today special emphasis is placed on

development of new techniques for treating brain and spinal cord tumors which are difficult to approach.

Nowadays, direct neurosurgical interventions, endovascular and reconstructive surgery for the main vessels are widely used for the management of vascular cerebral pathology. Patients with stenoses are now treated both by direct surgery aimed at cerebral blood flow normalization and endovascular techniques like angioplasty and stenting.

One of the main aspects in pediatric neurosurgery is complex treatment of brain and spine tumors including deep-seated ones. Congenital malformations including syndromes of Cruson, Apert and hypertelorism are also handled in the institute. Microsurgical technique is used for treating spinal cord herniations, fixed spinal cord syndrome, lypomyelocele, etc.

Disturbances of the muscle tone, involuntary motor function and pose, severe pain syndromes, trigeminal neuralgia, different types of neuralgia and other pathology are treated at the institute. Chronic stimulation of deep-seated brain tumors is widely used.

The prime objective of the Spinal Unit is to improve outcome for patients with degenerative spinal diseases, spinal injuries, vascular malformations, spine and spinal cord tumors including metastatic tumors.

Recently developed precise stereotactic technique called «radiosurgical» due to its high efficiency permits to handle radically inoperable benign and malignant tumors, arterio-venous malformations, pain syndromes and epilepsy.

Coordination of diagnostic and clinical units of the Institute of Neurosurgery allows annual hospitalization of 4000-5000 patients. Almost 90% of patients are operated in the Institute. Over 7000 patients undergo examination at the ambulance department of the Institute.

The basic achievements of scientists of the Institute were collected in 175 monographs, textbooks and manuals which were first published in the Soviet Union then in Russia and abroad (USA, Germany, Italy, China, etc). The first edition of a peer-reviewed journal «Voprosy Neurochirurgii» refers to 1937. It is one of the oldest journal in the world on the subject.

## Institute of Rheumatology



**Director: Prof. Eugeny L. Nasonov**

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### Scope of activities:

- ◆ etiology and pathogenesis of rheumatic inflammatory and degenerative joint and spine diseases;
- ◆ clinical and immunogenetic heterogeneity of rheumatic diseases, their early detection and creation of diagnostic test-systems;
- ◆ development of new and improvement of existing methods for therapy of rheumatic diseases (basic therapy, immunomodulation, extracorporeal and orthopedic surgery, crio and laser therapy);
- ◆ innovation methods of therapy with biological agents, intraarticular administration of medical agents;
- ◆ development of epidemiological problems and creation of a regional register of rheumatic diseases;
- ◆ development of pharmacological-economic aspects of assessment of therapy efficacy and life standards of patients by using validated international questionnaires.

The Institute is engaged in scientific cooperation with scientists from a number of countries and the WHO. Joint research is organized on such problems as Lyme disease, osteoporosis, spinal pains, etiology and pathogenesis of rheumatic arthritis and systemic lupus erythematosus, efficacy evaluation of some methods of medicinal therapy, development of rational surgical methods for the treatment of arthritis.

The Institute of Rheumatology is engaged in post-graduate advanced training of medical specialists in rheumatology.

The Institute jointly with the Association of Rheumatologists of Russia publishes the journal «Scientific and practical rheumatology», 6 issues a year.

The Institute of Rheumatology regularly holds scientific congresses, conferences, workshops with foreign participation.

## Research Institute of Clinical and Experimental Rheumatology

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Scope of scientific activity:

- ◆ research of basic immune mechanisms and metabolic disturbance of connective tissue in the main rheumatic diseases (rheumatic fever, rheumatoid arthritis, osteoarthritis, reactive arthritis, gout arthritis, systemic lupus erythematosus, systemic sclerosis, dermatomyositis, nodous periarteritis, diseases of nonarticular soft tissues, etc).
- ◆ development of methods for clinical, immunological, biochemical and instrumental diagnosis of main rheumatic diseases.
- ◆ development of therapy methods for patients suffering from main rheumatic diseases and methods of therapy efficiency verification.
- ◆ research of psychological status of rheumatic patients and elaboration of rehabilitation methods.
- ◆ analysis of morbidity and prevalence of main rheumatic diseases.
- ◆ development of scientific recommendations to decrease physical disability and temporary incapability to work due to main rheumatic diseases.
- ◆ application of scientific achievements in rheumatology in practice of public health services.

The Institute is actively carrying out clinical postgraduate training in rheumatology of Russian and foreign medical specialists.



## Central Tuberculosis Research Institute

**Director: Prof. Vladislav V. Erokhin**

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### Scope of activities:

- ◆ etiology, pathogenesis, diagnosis, clinical course and treatment of tuberculosis and granulomatous lung diseases (sarcoidosis, exogenous allergic and idiopathic alveolitis), their differentiation from respiratory tuberculosis;
- ◆ changeability of tuberculosis infections;
- ◆ inflammation mechanisms;
- ◆ genetics, immunogenetics and immunopathogenesis of tuberculosis infection;
- ◆ bronchial obstruction;
- ◆ chemotherapy of tuberculosis, surgical treatment of adults and children.

For more than 30 years the Institute has been carrying out joint research with the institutes of the same profile and individual scientists from France, Great Britain, Germany, Canada, the USA. In cooperation with the World Health Organization the Institute has carried out several fundamental research projects in immunology and immunogenetics of tuberculosis.

A WHO collaborating center for tuberculosis has been working on the basis of the Institute since 1998.

The Institute takes part in international conferences organized by the International Union Against Tuberculosis and Lung Diseases, European Respiratory Society.

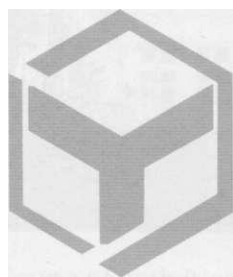
The Institute is engaged in post-graduate advanced training of medical specialists. The editorial board of the journal «Problems of Tuberculosis and Pulmonary Diseases» works on the basis of the Institute.

## **DEPARTMENT OF BIOMEDICAL SCIENCES OF THE RUSSIAN ACADEMY OF MEDICAL SCIENCES**

The Department of Biomedical Sciences of the RAMS comprises scientists performing fundamental research in the areas of medical biology: physiology; general pathology and pathophysiology; biomedical chemistry; molecular biology; medical biology and genetics; immunology; morphology; biophysics; pharmacology; toxicology; medical biotechnology; genomics, proteomics, cell and nanotechnologies for medicine and biology; space medicine; medical engineering, etc.

The Office of the Department of Biomedical Sciences implements scientific and organizational management of the activities of the two scientific centers (including 2 regional centers), nine scientific institutes.

## Research Center of Biomedical Technologies



**Director: Prof. Nikolay N. Karkischenko**

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The Research Center of Biomedical Technologies was organized in 2002. The main aim of the Center is development of biomedicine, experimental and biomodeling, counteraction for bioterrorism and creation of new bioprotection means.

Scope of activities:

- ◆ creation of scientific and methodological basis and biomodels, and perspective biotest systems for fundamental medical and biological treatments, certification, quality control and estimation of pharmacology safety of different means of treatment for humans; preservation of genetic resources of laboratory animals; reproduction of tissues and bioprosthetic appliance;
- ◆ development of biomedical technologies, nanobiotechnologies in the field of bioprotection and safety against terrorism;
- ◆ working out of fundamental aspects of biomedical technologies of cell, tissues and molecular medicine with stem and progenitor cells;
- ◆ creation of new medical technologies, methods of pharmacogenomics and bioequivalence to improve the efficiency and safety of pharmacotherapy.

The structure of the Center. The main part of scientific personnel and laboratory animals collections are in Svetlye Gory settlement. The Center

also comprises four affiliations: «Andreevka», «Stolbovaya», «Bely Moh» and «Clinical pharmacology».

The Center closely works with different organizations and institutes of the Russian Academy of Science, Russian Academy of Medical Science and other authorities. The Center also cooperates with the WHO in the field of control of laboratory animals.

Collection of laboratory animals has more than 100 lines and stocks of mice, rats, guinea-pigs, Syrian hamsters, rabbits, svetlogorsky mini-pigs and other animals. There is a special technology of breeding SPF- and gnotobiotic animals in the Center.

The Center publishes «Biomedicine» and «Drug Safety and Pharmacosupervision» journals.

## Research Center of Medical Genetics



**Director: Prof. Evgeny K. Ginter**

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Scope of activities:

- ◆ fundamental studies in human and medical genetics, including such problems as structure and function of human genome at molecular, biochemical, cellular and population levels;
- ◆ prevalence, etiology and pathogenesis of human hereditary disorders;
- ◆ morbid gene mapping and other problems.

The Center comprises 15 laboratories (among them laboratories of DNA-diagnostics, epigenetics, population genetics, genetical epidemiology, inherited metabolic diseases) and a Clinical Department numbering 241 persons; of these 146 have scientific degrees.

The Center is regularly engaged in Russian federal research programs of high priority. Every year several projects of the Center are supported by different grants. Some research projects are carried out in collaboration with the WHO and foreign partners in the USA, Germany, Denmark, France, Sweden and other countries.

A WHO Collaborating Center for Prevention of Hereditary Diseases was established at the Research Center of Medical Genetics in October 1987. Its main directions are:

- ◆ to investigate proper management for patients with cystic fibrosis;
- ◆ to develop non-invasive methods of prenatal diagnosis;

- ◆ to perfect DNA-diagnostics for inherited diseases;
- ◆ to develop new methods of inherited metabolic diseases diagnostics.

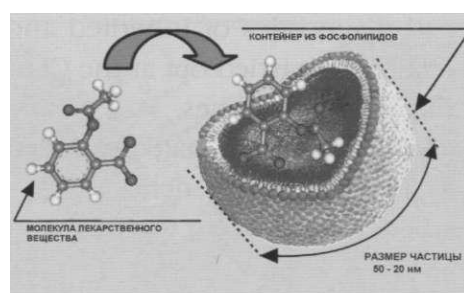
A big volume of genetic counseling and diagnostics of inherited and chromosomal diseases and inborn malformations is carried out at the Center departments applying modern high technology approaches.

The scientific staff of the Center carries out postgraduate advanced training of physicians and biologists in medical and general genetics.

Monthly scientific clinical journal «Medical Genetics» (in Russian with English summaries) is published.



## V.N. Orekhovitch Institute of Biomedical Chemistry



**Director: Prof. Alexander I. Archakov**

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Scope of activities:

- ◆ biomedical investigations using postgenomic technologies, such as genetic polymorphism analysis, transcriptomics, proteomics, bioinformatics, nanobiotechnology and systems biology, both in fundamental and applied aspects, that include study of structural-functional organization of biological macromolecules;
- ◆ protein-protein interactions;
- ◆ development of methods for diagnostics of cancer, viral and other socio-significant diseases;
- ◆ search, design and target delivery of drugs, vaccine design, etc.

The Institute is also involved in the development of new nanodrugs, supplied with transport system based on phospholipid nanoparticles, and in the development of healthy food additives from plants as well.

The total staff of the Institute consists of 226 people including 143 researchers (among them 14 professors and over 30 PhD MD).

The Institute comprises 2 scientific departments which include 11 laboratories and 8 separate scientific laboratories.

Scientific projects are accomplished within the frameworks of the Interdepartmental Program «Proteomics in Medicine and Biotechnology for 2001-2011», the Federal Aim Program «Studies and Development of Priority Directions of Russian Science-Technology Complex Progress for 2007-2012» and Russian Foundation for Basic Research. International



projects are supported by grants from ISTC, INTAS, CRDF, Wellcome Trust and others.

The Institute is equipped with modern and original devices, such as optical biosensors, various mass-spectrometers, atomic force microscopes etc. Since 2003, a Center of Joint Use called «The Center of Postgenomic Technologies» is functioning at the Institute.

A Russian branch of the Human Proteome Organization (RHUPO) and a Russian Section of the QSAR and Modelling Society are based at the Institute.

The Institute is an educational and research center for students and post-graduates of the Russian State Medical University, I. M. Sechenov Moscow Medical Academy, Moscow Engineering Physics Institute (State University) and is actively engaged in post-graduate advanced training in biochemistry and bioinformatics.

The Institute publishes a scientific journal «Biomedical Chemistry». Since 2007, the journal has been published also in English as a Supplement to Biochemistry (Moscow) – Supplement Series B: Biomedical Chemistry.

The Institute frequently invites foreign specialists to deliver lectures and for consultations.





## Scientific Research Institute of Human Morphology

Director: Prof. Lev V. Kaktursky

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The Scientific Research Institute of Human Morphology was organized on November, 28, 1960. The founder of the Institute and the first director of it was Prof. Alexander P. Avtsyn, who was a great scientist in pathology. Prof. Avtsyn headed the Institute for 27 years till 1988.

There are 16 scientific research laboratories, 2 scientific groups and an experimental biological clinic for test animals at the Institute.

Scope of activities:

- ◆ basic and applied research in general pathologic process, pathogenesis, morbid anatomy of the main human diseases and their morphological diagnosis and prediction;
- ◆ preclinical morphological estimation of drugs efficacy and other approaches of treatment;
- ◆ investigation of the morphological basis of immunity, inflammation and regeneration, regularities of morphogenesis and embryogenesis.

The Institute carries out postgraduate advanced training for medical specialists in: pathologic anatomy; histology, cytology, cell biology; biology of development, embryology; allergology and immunology.

A Clinical Diagnostic Center was organized at the Institute. The activity of it is aimed to clinical-morphological and laboratory diagnostics of main human diseases.

A specialized department of pathologic anatomy of the faculty of the postgraduated education of I.M.Sechenov Moscow Medical Academy functions on the base of the Institute of Human Morphology.

Scientists of the Institute actively participate in the work of editorial boards of «Archive of Pathology» and «Morphology» magazines.

## P. K. Anokhin Institute of Normal Physiology

**Director: Prof. Sergey K. Sudakov**

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The main task of the Institute is to develop the theory of functional systems formulated by the outstanding Russian scientist P.K. Anokhin, and to apply it for fundamental problems in biology, medicine and medical teaching.

Scope of activities:

- ◆ molecular and genetic mechanisms of system organization of physiological functions;
- ◆ system physiology of psycho-emotional stress.

Based on the functional system theory, new principles of integrative physiology were worked out and developed at the Institute: quantum organization of biological processes; holographic and information principles of organization of functional systems; systemogenesis of behavioral acts, hierarchic multi-parametric interaction of functional systems; ideas of pacemaker mechanism and plasticity of motivations etc.

The Institute of Normal Physiology is indulged in post-graduate advanced training in experimental and applied physiology.

Seminars on the development of the general theory of functional systems, I. M. Sechenov and PK. Anokhin Readings as well as various symposia, conferences and working meetings are organized at the Institute on a regular basis. The International Stress Management Center, the Center of «Diagnosis of Health and Rehabilitation» as well as I. M. Sechenov Museum are successfully functioning on the basis of the Institute. The Institute annually issues «Annals of the scientific council of RAMS on experimental and applied physiology» edited by Prof. K.V. Sudakov.

The Institute works in active partnership with the International Council for Scientific Development and the International Academy of Science (ICSA/IAS), within the frames of the Russian section founded in 1993. With the support of the Russian section of the International Academy of Science, the International Institute of Social Physiology was founded at the Institute of Normal Physiology. The Institute of Social Physiology carries out international research projects employing novel approaches in ecological and age- dependent physiology.

The Institute has wide international links, performing basic physiological studies in collaboration with laboratories in Austria, Germany, Iceland, Japan, Poland, Serbia, Switzerland, Sweden, France, the United Kingdom, the USA.

## Scientific Research Institute of General Pathology and Pathophysiology

**Director: Prof. Asian A. Kubatiev**

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The Institute of General Pathology and Pathological Physiology is a large center of up-to-date medical science that elaborates basic medical and biological issues and participates in solving urgent problems of applied medicine.

Scope of activities:

- ◆ basic mechanisms of typical pathological processes;
- ◆ general pathology and the nervous system;
- ◆ pathophysiology of adaptive processes;
- ◆ clinical pathophysiology of the neuromuscular system;
- ◆ construction of models of the most essential pathologies of organs and systems;
- ◆ elaboration of principles and techniques for correction of pathological processes;
- ◆ study of the effects of novel pharmacological agents and non-medicamentous methods of treatment;
- ◆ molecular and cellular pathophysiology;
- ◆ nanobiology and nanopathology.

The Institute gives much consideration to clinico-pathophysiological studies. The only Russian Center for Myasthenia with an outpatient department for consulting and medical care functions at the Institute.

The Institute organizes and holds international and national congresses, conferences, symposia, workshops, and competitions of young scientists.

The Institute has initiated creation of two international scientific societies, the International Society for Pathophysiology (1991) and the International Society for Adaptive Medicine (1990). The founder and first President of the International Society for Pathophysiology, Professor Georgy N. Kryzhanovsky is presently the Honorary President of the International Society for Pathophysiology and Chairman of the Russian Scientific Society of Pathophysiologists, and the first President of the International Society for Adaptive Medicine.

The staff of the Institute counts more than 300 people and over 100 of them have PhD degrees.

The Institute has an extensive experience of international collaboration with scientists and specialists from Bulgaria, Czech Republic, Croatia, Denmark, Germany, Hungary, Poland, Slovakia, France, the USA, Canada, Sweden and Switzerland.

The Institute carries out postgraduate advanced training in pathological physiology and neurology.

The Institute issues its own journal «Pathogenesis».

The Institute serves as a basis for the Chair of General Pathology and Pathophysiology of the Russian Medical Academy for Postgraduate Education.

## V.V. Zakuov State Institute of Pharmacology

**Director: Professor Sergey B. Seredenin**

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Research activities of the Institute are concentrated in the field of search and development of novel pharmacological substances active upon: nervous and psychic functions in normal state and pathology; blood circulation, metabolism and heart activity; human organism resistance to adverse environment exposure.

The scope of activities:

- ◆ identification of new targets for pharmacological action;
- ◆ design and synthesis of novel chemical compounds pharmacologically superior to commonly available agents;
- ◆ search for endogenous regulators of cellular functions;
- ◆ examination of «structure – effect» relationship;
- ◆ screening and preclinical testing of novel substances that seem promising as potentially valuable therapeutic agents;
- ◆ clinical trials.

The Institute comprises laboratories which provide design of novel drugs (antidepressants, anxiolytics, nootropes, analgetics, antialcohol agents, antipsychotics; antianginal, antiarrhythmics and cerebrovascular agents; agents reducing withdrawal syndrome, alcohol dependence and drug abuse



predisposition; agents increasing adaptation to unfavorable environment) starting from chemical synthesis, pharmacological screening and decoding of the mechanism of action to toxicological and pharmacokinetics studies and production of ready-to-use formulations for further testing in clinical trials.

The Institute is a leading organization in the field, coordinator of pharmacological investigations carried out within the country. The Institute is organizing and holding congresses, conferences and regular symposia, actively cooperates with research centers in different foreign countries.

The Institute provides educational and experimental research facilities for post-graduate advanced training in pharmacology and clinical pharmacology.

The Institute takes an active part in edition of «Experimental and Clinical Pharmacology», the leading journal of the National Society of Pharmacology in Russia.

## Scientific Research Institute of Medical Primatology

**Director: Prof. Boris A. Lapin**

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*Sochi – Adler, Russia*

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The Institute of Medical Primatology is the successor of the Institute of Experimental Pathology and Therapy of the USSR Academy of Medical Sciences that was known also as the Sukhum monkey colony. It was founded in Sukhum in 1927 and, having undergone a number of changes in 1992 during the Georgian-Abkhazian military conflict, after the split of the USSR was partially relocated in Sochi-Adler where it was given the name of the Research Institute of Medical Primatology.

The Institute peculiarity is presence of a monkey colony numbering about 4000 monkeys – mainly macaques, baboons and African green monkeys – animals, most often used in medical and biological experiments.

Scope of activities:

- ◆ modeling of human infectious and noninfectious diseases on primates with the purpose of studying their etiology, patho- and morphogenesis, development of methods of preventive care and therapy,
- ◆ study of the possible role of latent viruses of primates in pathology of people (including oncopathology), stem cells (establishment of primate stem cell lines, creation of a stem cell lines bank), space biology and medicine (modeling on primates of the pathological factors of interplanetary flights),
- ◆ study of hypothalamic-pituitary-adrenal system function in ageing and a picture of age disorders,
- ◆ development and testing of vaccines against viral and bacterial socially-significant infections.

Due to sharp reduction of opportunities of purchasing monkeys from the countries of their natural habitat, the Institute carries out a program of large-scale breeding of macaques and baboons to maintain its own scientific programs and programs of other research centers irrespectively of their departmental submission, providing visiting scientists with workplaces.

The Institute includes a variety of laboratories: laboratory of stem cells and immunology with a team of molecular biology researchers, laboratory of infectious pathology (microbiology), laboratory of infectious viruses, laboratory of morbid anatomy of monkeys, endocrinology, veterinary care laboratory with a nursery for monkeys, scientific library and a network of technical engineering services which are ensuring the functioning of the Institute and its monkey colony (water supply, electricity, heating, transport service (truck and car transport, etc.)

The Institute collaborates with leading national and foreign research institutions.

The Institute is engaged in postgraduate training in microbiology, virology, morbid anatomy, immunology, endocrinology and primatology.

The Institute has a department where monkeys of different species are exhibited. A lot of excursions of tourists, holiday-makers and pupils visit the department every day.

## Scientific Research Institute of General Reanimatology

**Director: Professor Viktor V. Moroz**

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Moscow, Russia*

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### Scope of activities:

- ◆ study of the mechanisms and main laws of onset of critical, terminal and post-resuscitation states, non-specific reactions of the organism and principles of their correction;
- ◆ study of etiology and pathogenesis of hypoxia of critical states, posthypoxic (post-resuscitation) pathology of organs and systems, including the central nervous system, principles of their prevention and therapy;
- ◆ study and working out of resuscitation techniques and life support systems;
- ◆ study of post-resuscitation disease (pathogenesis, clinics, prevention and therapy);
- ◆ study of specifics of onset and development of critical, terminal and post-resuscitation states in people working underground (miners), and working out of methods of effective anesthetic and resuscitative aid which are pathogenetically grounded;
- ◆ working out of new methods for diagnostics and treatment of critical states on the basis of nanotechnologies.

The Institute actively works in post-graduate advanced training in pathological physiology and anesthesiology and reanimatology.

The Institute publishes «General Reanimatology» journal.

For many years the Institute has been engaged in scientific cooperation with institutions and scientists from the USA, Great Britain, Belgium, Germany, Italy, Poland, Czech Republic, Slovakia, Hungary, Ukraine, Kazakhstan and others.

The Institute regularly holds international conferences, symposiums and working meetings on experimental and clinical issues of reanimatology.

**DEPARTMENT OF PREVENTIVE MEDICINE  
OF THE RUSSIAN ACADEMY  
OF MEDICAL SCIENCES**

The Department of Preventive Medicine of the RAMS is a scientific-organizational center, which comprises the scientists of the RAMS, working in the following fields: human ecology and environmental health; occupational health; social hygiene, economics and organization of health, nutrition science; history of medicine; microbiology; virology, immunology, molecular biology and genetics of microorganisms, biotechnology and genetics engineering, parasitology, epidemiology, investigations and search for new antibiotics.

The Department of Preventive Medicine performs scientific-organizational management of supervised research institutions.

Of particular attention is the development of fundamental and applied research on the subjects, which are of high significance for medical science and practical health.

The Office of the Department implements planning and coordination of research, makes analysis of the results of investigations performed according with problem-oriented topic plans, federal, interinstitutional and target scientific programs.

The Department of Preventive Medicine supervises ten research institutions.

## D. I. Ivanovsky Institute of Virology

**Director: Prof. Dmitry K. Lvov,**

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*Moscow, Russia*

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*Fax: +7 (499) 190-28-67*

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*Web-site: [www.virology.ru](http://www.virology.ru)*



D.I. Ivanovsky Institute of Virology is the leading national institute in the field of medical virology. The institute has profound international reputation and is active in international research programs and projects.

Scope of activities:

- ◆ molecular epidemiology, prevention, diagnostics, and treatment of viral infections with significant social impact;
- ◆ experimental modeling of viral infections for the purpose of development and clinical use of preventive and anti-viral medicines; development and clinical implementation of modern antiviral drugs and up-to-date medical equipment;
- ◆ biosecurity of homeland in regard to emerging and re-emerging infections (influenza, arboviruses etc.): monitoring and predictive modeling of emergency situations;
- ◆ molecular medicine: basic and applied research, development of new generation of vaccines and early diagnostics of viral infections.

Investigations include different virological problems: influenza, AIDS, viral hepatitis, arboviral infections, herpes-viral infections, rubella, rabies, and others.

Fundamental studies in virology are combined with development of modern methods of diagnostics, including highly technological techniques such as real-time PCR, microarrays, genetic and cell engineering, biotechnology.

Development and trials of new anti-viral medicines for viral infections with significant social impact, work on creation and maintenance of the State collection of viruses, collections of cell cultures and plasmids are constantly performed.

The Institute carries out advanced specialized training of post-graduates in virology, molecular biology and infectious diseases.

«Voprosy Virusologii» («Problems of Virology») journal is issued every two months.

## N.F. Gamaleya Research Institute of Epidemiology and Microbiology



**Director: Prof. Alexander L. Ginzburg**

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Moscow, Russia*

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Scope of activities:

- ◆ medical microbiology, including genetics and molecular biology of pathogenic bacteria;
- ◆ epidemiology and ecology of pathogenic microorganisms;
- ◆ basic and applied infectious immunology.

N.F. Gamaleya Institute of Epidemiology and Microbiology is one of the oldest Russian research institutions that has been active over a century.

Two laboratories of the Institute are the WHO Collaborating Centers and nine laboratories are national research laboratories (for leptospirosis, legionellosis, brucellosis, rickettsiosis, mycoplasmosis, chlamydia infections, tularemia, borreliosis, clostridiosis).

The Institute is engaged in post-graduate advanced training of scientific personnel in microbiology, allergology, immunology and epidemiology.

The Institute has the Chair of Infectology, it was one of the first to be organized at the Faculty of Post-Graduate Advanced Training.

So far, the Institute has also been the chief organization of the Interdisciplinary Scientific Council on Microbiology and the co-ordinator of activities in this field.

Specialists of the Institute collaborate with the World Health Organization, Centers for Disease Control and Prevention {CDC, USA} as well as with other international and national scientific organizations.

## I.I. Mechnikov Research Institute of Vaccines & Sera

**Director: Prof. Vitaly V. Zverev**

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Moscow, Russia*

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*E-mail: [instmech@iitp.ru](mailto:instmech@iitp.ru)*



The Institute is a leading organization in the field of vaccinology, medical microbiology, virology, immunology, biotechnology and in the development of a new generation of immunobiological preparations for diagnosis, prevention and immunotherapy of infectious, allergic and autoimmune diseases.

Scope of activities:

- ◆ studies of cell and molecular mechanisms of inborn and acquired immunity to bacterial and viral infections;
- ◆ investigations of genetics and variability of viruses;
- ◆ development of methods and remedies for gene therapy of infectious diseases;
- ◆ application of nanotechnology and nanomaterials for the development of immunobiological preparations.

On the basis of the Institute there functions the Scientific Council on Vaccinology and the «Measles, Rubella and Mumps» Coordinating Committee of the RAMS Scientific Council on Virology.

The Institute takes part in realization of Federal Special Programmes, scientific-technological programmes of the RF Ministry of Education & Science and international projects.

The Institute is engaged in post-graduate advanced training of high quality research specialists.

The Institute carries out international cooperation with a number of countries in accordance with international projects in the field of medical science and public health.



## A.N. Sysin Research Institute of Human Ecology and Environmental Health



**Director: Prof. Yuri A. Rahmanin**

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Moscow, Russia*

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*Fax: +7 (499) 245-03-14*

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*Web-site: [www.sysin.ru](http://www.sysin.ru)*

### Scope of activities:

- ◆ development of fundamental principles of human ecology and environmental health as the scientific foundation for the state activity in environmental protection and rehabilitation and in improvement of Russian population health status;
- ◆ study of mechanisms and general laws of the effect of environmental factors of different nature (physical, chemical and biological) on the organism, with a view of methodology development for detection, evaluation and prediction of ecologically induced population health damage;
- ◆ development of means and methods for diagnostics and correction of the ecologically induced health changes, including the use of modern research methods (non-invasive and molecular-genetic methods); provision of medical service for the population risk groups; implementation of reproductive health programs;
- ◆ improvement of scientific methodology of population health risk evaluation in the decision making for lowering and prevention of harmful effect of environmental factors;
- ◆ development of methodology for ecology-hygienic regulation of environmental factors of different nature and the estimation of their separate, integrated and joint effect, taking into account regional features as well as the safety of new products and technologies (used in public service, civil engineering and for the household needs);

development of a system of normative and technical documents in human ecology and environmental health;

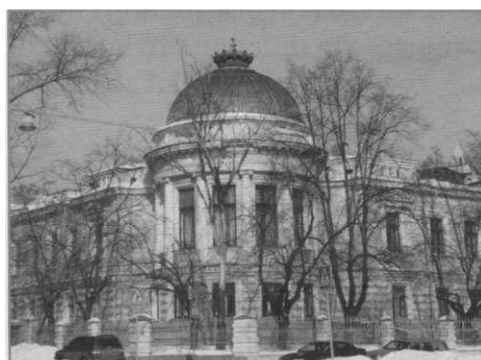
- ◆ determination of transformation, spread and distribution laws of chemical and biological contaminants in different environmental objects and in human organism for the purpose of actual anthropogenic load evaluation.

The scientists of the Institute are successfully co-operating with colleagues from China, Kazakhstan, the Ukraine, Byelorussia and other countries.

The Institute is actively engaged in post-graduate advanced training of scientific personnel at special postgraduate courses and through individual research work.

The Institute organises on a regular basis meetings with foreign specialists (conferences, plenary sessions, study visits etc.).

## G.F. Gause Institute of New Antibiotics



**Director: Prof. Alexander A. Firsov**

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*119021, Moscow, Russia*

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*Web-site: [www.gause-inst.ru](http://www.gause-inst.ru)*

Scope of activities:

- ◆ screening for novel antibacterial, antitumor, and antifungal antibiotics, immunomodulators, inhibitors of cholesterol biosynthesis;
- ◆ taxonomy of actinomycetes;
- ◆ target-oriented synthesis or chemical modification of antitumor and antibacterial antibiotics;
- ◆ investigation of mechanism of action of antibiotics;
- ◆ search for new antibiotics that overcome resistance to commercial antibiotics;
- ◆ PK/PD modeling with antibiotics.

The Institute is engaged in joint studies and search for antitumor, antifungal and antiviral antibiotics with research centers in the USA, Germany, Belgium, France, Taiwan, Norway, Ukraine.

## Institute of Nutrition

**Director: Prof. Victor A. Tutelyan**

*Address: 2/14, UstinskyPr., 109240,*

*Moscow, Russia*

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*Web-site: [www.ion.ru](http://www.ion.ru)*



Scope of activities:

- ◆ elaboration of fundamentals for the state policy in the field of healthy nutrition;
- ◆ study of food substances assimilation (proteins, fats, carbohydrates, vitamins, mineral substances, and others) at cellular, molecular and other levels for substantiation of current physiological requirements of human organism for food substances and energy in different age and professional groups in Russia;
- ◆ elaboration and upgrading of scientific methodology of estimating human nutrition and nutrition status; monitoring of factual nutrition and children's and adults' nutrition status; revealing of deviations in nutrition structure and status of different population groups from modern healthy nutrition norms; study of prevalence and insufficient consumption of the most essential nutrients (valuable proteins, polyunsaturated fat acids, vitamins, macro- and microelements, other biologically active food constituents);
- ◆ elaboration and application of modern scientific approaches to evaluation of non-traditional food sources and foods into hygienic research and state sanitary control;
- ◆ elaboration of criteria and methods of evaluation of novel foods as well as products, received by way of new technologies, including genetically modified sources of vegetative and animal origin;
- ◆ study of enzymatic mechanisms of human organism protection from alien substances and natural and anthropogenic contaminants,

character and role of enzyme systems, providing the body resistance to their impact, influence of natural biologically active compounds, potentially capable to increase host defenses;

- ◆ study of pathogen mechanism of disease development connected with nutrition failure, its prophylaxis and treatment.

For these purposes the Institute of Nutrition conducts research in the sphere of nutrition: works out recommendations for application of scientific research in national economy and public health; elaborates physiological requirements for food substances and energy for different age and professional population groups; elaborates hygienic standards and regulations and other documents concerning quality control and safety of food staff and food products.

The Institute carries out post-graduate advanced training of specialists in its field.

It publishes «Problems of Nutrition» journal (6 issues per year).

For many years the Institute has been collaborating with the World Health Organization, United Nations Children's Fund, Committee «Codex Alimentarius» (FAO/WHO), Food and Drug Administration (FDA, USA), Centers For Disease Control and Prevention (CDC, USA) as well as with other international and national scientific organizations.

The Institute can organize reception of foreign specialists (including accommodation at the hostel); it has excellent facilities for holding symposia and conferences (there is a fully equipped conference hall for 150 participants and two smaller halls). Many of Institute's leading specialists speak foreign languages.

## Research Institute of Occupational Health

**Director: Prof. Igor V. Bukhtiyarov**

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Moscow, Russia*

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### Scope of activities:

- ◆ multidisciplinary studies of health of workers exposed to occupational factors and promotion of scientifically based measures to improve working conditions, environmental protection, safety and strengthening of workers health, extension of their life-span, preventive measures and treatment of professional and work-related diseases;
- ◆ development of a new scientific direction – occupational health as integrated area of prophylactic and curative medicine, working out and perfection of methodology of hygienic standardization of occupational and environmental factors including their combined impact; development of workers health occupational risk assessment methodology and management and principles of evidence-based medicine with reference to occupational health;
- ◆ development of theoretical base of general patterns and mechanisms of different occupational (chemical, physical, biological) and working process factors effects on workers health with the aim to substantiate effective prophylactic, diagnostic, treatment and rehabilitation methods of occupational and work-related diseases;
- ◆ development of fundamental health problems of able-bodied population on the basis of human organism main systems functional state study and also adaptive and reserve possibilities of workers in changed social conditions;

- ◆ perfection of assessment methodology of interrelation between working conditions and occupational and work-related diseases; substantiation of the unified parameters and criteria of workers health estimation and those for the industrial environment estimation, for perfection of social-hygienic monitoring;
- ◆ development of innovative medical and organizational technologies in order to decrease negative impact of working conditions on workers health including reproductive health;
- ◆ development of methods for occupational risk estimation and management taking into account the concepts of WHO, ILO, EU as WHO CC for occupational health.

The Institute is a Collaborating Center for Occupational Health of the World Health Organization.

The Institute is engaged in post-graduate advanced training in occupational health.

The Institute issues scientific peer-reviewed journal «Occupational Health and Industrial Ecology».

## **M.P. Chumakov Institute of Poliomyelitis and Viral Encephalitis**

**Director: Prof. Michail I. Michailov**

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*Moscow Region, Russia*

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*Fax: +7 (495) 439-93-21; +7(495)549-67-60*

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*Web-site: [www.poliomyelit.ru](http://www.poliomyelit.ru)*



One of the great achievements of the Institute is the development of the oral polio vaccine (OPV) from A. Sabine strains under the leadership of Professor Mikhail P. Chumakov, the first director of the Institute. At the same time technology for the large scale production of OPV was developed. This work of the Institute has been taken by the WHO as a basis of the program for eradication of poliomyelitis in the world. At present the Institute is engaged in surveillance for poliomyelitis and polioviruses in the Russian Federation.

Profound investigations are carried out on the tick born encephalitis (TBE), molecular biology of its virus and pathogenetic characteristic. First inactivated cultural tick born encephalitis vaccine was developed by the staff of the Institute. Later production technology of concentrated and highly purified TBE inactivated vaccine was constructed.

Fundamental studies are performed concerning etiology, laboratory diagnostics, epidemiology, treatment and prophylactics of the viral hepatitis. Hepatitis E virus as well as simian hepatitis A virus has been discovered at the Institute by Dr. M. Balayan.

Comprehensive research of the hemorrhagic fevers has high priority in the research programs of the Institute.

The clinical department of the Institute deals with complicated and atypical forms of viral neuroinfections and hepatitis.

Modern cultural antirabies vaccine was developed at the Institute.



Fundamental research works are conducted on transmission and replication mechanisms of picornaviruses, interactions of picornaviruses with cell, mechanisms of recombination enteroviruses, etc.

Deep research is being performed on molecular biology characteristics of enteroviruses, fickleness of polioviruses and molecular epidemiology of polio diseases, characteristics of the recombinants of enteroviruses.

One of the important peculiarities of the Institute is the possibility for the researchers of the Institute to participate in the development of the technology for production and in large scale production of new vaccines. After reorganization of the production area (1957) it is developing and producing the following vaccines: inactivated and live polio vaccines, tick born encephalitis vaccine, anti rabies vaccine, yellow fever vaccine, measles, enterovirus 71, hepatitis A.

The Institute is active in post-graduate advanced training of specialist in related sciences.

Every year the Institute publishes its own scientific proceedings.

## **National Research Institute of Public Health**

Director: Prof. Oleg P. Schepin

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Moscow, Russia Tel.: +7 (495) 917-48-86 Fax: +7  
(495) 915-03-98 E-mail: [institute@niph.ru](mailto:institute@niph.ru) Web-site:  
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Scope of activities:

- A. study of public health and socioeconomic regularities of its formation;
- B. research on population health protection system development;
- C. strategic analysis of the health care system;
- D. provision of scientific foundation for health care economics;
- E. research in primary health and social care;
- F. study of sanitary and epidemiological service organization;
- G. research on the organizational problems of maternal and child health and social care;
- H. study of emergency health care organization;
- I. history of medicine and public health issues;
- J. study of international healthcare problems;
- K. coordination of research studies and information on public health issues.

Within the framework of international cooperation the Institute participated in some WHO projects. For many years the Institute has been the base for successful functioning of the WHO Collaborating Center for Family of International Classifications. At present the Center is actively involved in practical application and further improvement of some components in Family of International Classifications, in particular International Classification of Diseases.

The Institute is maintaining close contacts with specialists from the Commonwealth of Independent States and other countries.

The Institute is the leading organization in training and advanced training of physicians and other health workers in public health issues. And it is also the coordinator of health research activity in the Russian Federation.

## National Research Institute of Public Health

**Director: Prof. Oleg P. Schepin**

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*E-mail: [institute@niph.ru](mailto:institute@niph.ru)*

*Web-site: [www.niph.ru](http://www.niph.ru)*



### Scope of activities:

- ◆ study of public health and socioeconomic regularities of its formation;
- ◆ research on population health protection system development;
- ◆ strategic analysis of the health care system;
- ◆ provision of scientific foundation for health care economics;
- ◆ research in primary health and social care;
- ◆ study of sanitary and epidemiological service organization;
- ◆ research on the organizational problems of maternal and child health and social care;
- ◆ study of emergency health care organization;
- ◆ history of medicine and public health issues;
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The Institute is maintaining close contacts with specialists from the Commonwealth of Independent States and other countries.

The Institute is the leading organization in training and advanced training of physicians and other health workers in public health issues. And it is also the coordinator of health research activity in the Russian Federation. The Institute publishes the quarterly scientific research journal «The Bulletin of the National Research Institute of Public Health» (founded in 1992).

## Scientific Research Institute of History of Medicine

**Director: Prof. Valentin P. Zhmurkin**

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*Moscow, Russia*

*Tel./fax: +7 (495) 698-56-86*

*E-mail: [ramm@ramn.ru](mailto:ramm@ramn.ru)*

The Institute of History of Medicine is the main institution to study historical and philosophical problems of medicine.

Scope of activities:

- ◆ implementation of fundamental and applied scientific research in historical field;
- ◆ development of medicine and high medical education and health care in Russia in 18-20 cc;
- ◆ development of medical science and practice during different cultural – historical epochs;
- ◆ medical museum and terminology study;
- ◆ development of investigational methods for historical medical research.

The Institute develops biographic and bibliographic data of Russian specialists, outstanding representatives of medical science, medical education.

The Institute's planned events include scientific congresses, conferences, seminars etc, devoted to different aspects of medical history, medical terminology, organization of museums with participation of Russian and foreign specialists.

Main attention is given to cooperation with scientific organizations and higher educational establishments in the process of realization of federal and regional programs and projects, expertise regarding historical – medical issues and terminological analyses.

## **SIBERIAN DEPARTMENT OF THE RUSSIAN ACADEMY OF MEDICAL SCIENCES**

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The main direction of organizing and scientific activity of the Siberian Department of the RAMS is medical-ecological research including fundamental and applied studies of biochemistry, biophysics, genetics, endocrinology, molecular biology, immunology, physiology, morphology in tight connection with the environment and influence of the environment on human organism.

The causes of origin and regional characteristics of diseases such as hypertension, coronary heart diseases, pneumonia, stomach and duodenal ulcers, diabetes mellitus and problems of mother and child care, problems of the optimization of nutrition of the population living in the Eastern regions of this country are under investigation.

One of the important research areas is elaboration of the scientific principles for recreation measures and sanatorial and health resort treatment.

Wild medical plants and biological active substances of natural origin are under investigation.

Special emphasis is laid on the research areas related to the study of natural focal diseases, to application of mathematical methods and automatic equipment to the research and treatment prophylactic work; on the study of

ecology problems, the scientific principles of environmental protection, and the problems of further improvement of the prophylaxis and treatment of workers, engaged in different branches of industry and agriculture and suffering from occupational diseases.

The scientists of the Siberian Department cooperate with their colleagues from the USA, Canada, Scandinavian countries, and a big number of other countries of the world on the bilateral and multilateral basis within the framework of the RMAS, the World Health Organization and so on.

One of the forms of scientific organizational activities of the Presidium of the Siberian Department of the RMAS lies in holding mobile sessions to decide on the spot the most urgent problems of the medical science and the improvement of the structure of practical health care in the respective regions.

The Presidium directs its effort towards training specialists and upgrading research workers.

The supreme body of the Siberian Department is the General Meeting of its staff members and in between its session the Department is directed by the Presidium of the Siberian Department.

## Research Center of Clinical and Experimental Medicine

**Director: Prof. Vyacheslav A. Shkurupi**

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*Novosibirsk, Russia*

*Tel.: +7 (383) 333-64-56*

*Fax: +7 (383) 333-64-56*

*E-mail: [ccem@scem.nu](mailto:ccem@scem.nu)*

*Web-site: [www.centercem.ru](http://www.centercem.ru)*



Priority Research Directions:

- ◆ Study of basic processes of human adaptation and compensation in health and disease under environmental, medical, and social conditions of Siberia and the Far North (circumpolar regions).
- ◆ Development of new diagnostic aids, preventive means and treatment methods for contagious and noncontagious diseases.

About 3,000 patients with cardio-vascular, endocrine system and gastrointestinal tract diseases are treated annually at the institute clinic. At the clinic works a Metabolic Care Center and a well-equipped physiotherapeutic department (acupuncture, thermal procedures, hydrotherapy – shower- bath, etc.)

The Center is engaged in advanced post-graduate training of medical specialists in a number of disciplines – ecology, histology, cytology, cellular biology, developmental biology, embryology, internal diseases; cardiology, social hygiene and health care organization, pathological anatomy, occupational pathology, etc.

The scientific journal «Siberian Concilium» is issued.



## Research Institute of Physiology

Director: Prof. Valeri A. Trufakin

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Novosibirsk, Russia Tel: +7 (383)

332-42-55 Fax: +7 (383) 332-42-54

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Web-site: [www.iph.ma.nsc.ru](http://www.iph.ma.nsc.ru)



### Priority Research Directions:

- ◆ Physiological mechanisms of human and animal activity, development and sustainability.
- ◆ Study of dynamics of functional state of organism in normal conditions and following exposure to extreme and sub-extreme conditions.
- ◆ Study of regulatory mechanisms of memory storage and adaptive reaction.
- ◆ Investigation of visceral systems.

Special medical treatment for adults and children with psychosomatic pathology, insomnia in combination with medicament therapy with psychotherapeutic correction is available at the clinic. About 1,200-1,400 patients are treated every year in the clinic.

The Institute carries out post-graduate advanced training of medical specialist in biochemistry, physiology, histology, cytology, cellular biology, developmental biology, embryology, human anatomy, physiopathology, psy- chophysiology, clinical laboratory diagnostics, therapy.



## Research Institute of Clinical and Experimental Lymphology

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Priority Research Directions:

- ◆ Comprehensive study of tissue microplot dysfunction based on the systemic analysis of lymphoid organs, lymphatic stream, nonvascular microcirculation and interstitium under lymphatic system pathologies and endotoxicosis, which occur at different stages of ontogenesis under environmentally hazardous conditions and their correction.
- ◆ Investigation of time-structure pattern of neuro-endocrine-immune homeostasis under normal conditions and working out the methods for its correction.
- ◆ Development of new technologies for the correction of lymphatic system dysfunctions by modifying the functional status of lymphoid cells under the multiple treatment of priority health conditions when patients have different genotypes.

New trend in the science of the lymphatic system – ecological lymphology is being developed. According to this trend lymphatic system plays a part in realization of pathogenic environmental influence on organism. Methods of diseases treatment through lymphatic system have been elaborated.

Special hi-tech medical care of patients with endocrine system pathology («diabetic foot»), locomotor apparatus disorders, gynecologic diseases, autoimmune diseases (rheumatoid arthritis, systemic lupus erythematosus) is available at the clinic. Technology of postmastectomy lymphedema, lympho and venous pathologies treatment is extensively used in the clinic. Every year the clinic treats more than 2,000 patients.

Advanced post-graduate medical training in such disciplines as human anatomy, surgery, histology, cytology, cellular biology, obstetrics and gynecology, anesthesiology and critical care medicine, clinical pharmacology, pathologic anatomy, therapy, surgery is possible at the Institute.

## Research Institute of Regional Pathology and Pathomorphology

Director: Prof. Lev M. Nepomnyaschikh

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### Priority Research Directions:

- ◆ Study of morphogenesis of major general pathological processes and of diseases of cardio-vascular, pulmonary, digestive, excretory and other systems in environmental conditions of Siberia and Northern regions.
- ◆ Investigation of clinico-pathologic and molecular genetic mechanisms underlying the progression of persistent bacterial and viral infections; working out an algorithm of biotechnological assessment of treatment in oncohematology.
- ◆ Study of tissue, cellular, and intracellular spatial pattern of parenchymal and stromal structures, identification of molecular and cellular mechanisms of necrocytosis and cell regeneration in ontogenetic Cycle and disease and under adaptation to extreme factors.
- ◆ Development of integrated structural and functional methods for morphological diagnostics and prediction of alternative and plastic changes in organs or tissues from the viewpoint of induced regenerative reactions.

The Institute is engaged in post-graduate advanced training of medical specialists in histology, cytology, cellular biology, internal diseases, dermatoses and venereal diseases, human pathology, physiopathology, stomatology.

## Research Institute of Clinical Immunology

**Director: Prof. Vladimir A. Kozlov**

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Priority Research Direction:

- ◆ Molecular genetic basis for the control of the processes of differentiation, activation, and proliferation of immune system cells under its integrative interaction with main regulatory systems under normal and immunopathological conditions at individual and population level.
- ◆ Mechanisms of immune regulating effect of hormones, neuro-mediators, neuropeptides are investigated. Methods of immune diagnosis and immune therapy (including cellular) of rheumatic, allergic, and oncological diseases, secondary immune deficiency are elaborated.

Special hi-tech medical care for patients with autoimmune and allergic diseases, leucosis, aplastic anemia, secondary immune deficiency conditions is available in the clinic. Every year the clinic treats more than 1,700 patients. The Interregional Center for Bone-marrow Transplantation where auto transplantations are carried out is working. The Center ranks as the second one in Russia according to the number of carried out transplantations. Hi-tech methods of immune pathological diseases treatment developed at the Institute are used.

The Institute is engaged in post-graduate advanced training of medical specialists in internal diseases, allergology and immunology.

## Research Institute of Molecular Biology and Biophysics

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### Priority Research Directions:

- ◆ Research in molecular biology and gene expression of xenobiotic metabolism system.
- ◆ Study of genetic polymorphism in Siberian populations and molecular genetic mechanisms underlying regional pathologies.
- ◆ Working out of methods for bioindication and biomonitoring of living organism exposure to environmental chemical factors.
- ◆ Investigation of molecular mechanisms of neuronal plasticity, in particular, the role of tissue-specific and brain-specific proteins and peptides.
- ◆ Study of stage-specific antigens showing limited expression, immunochemical identification of minor antigens in health and disease.
- ◆ Design and development of medical information technologies and measuring computer systems for research and practical applications into clinical practice.

Investigations in the fields of human chemical ecology, enzyme systems of xenobiotic metabolism (including antitumoral drugs) are carried out. Models and biocontrol for prophylaxis and treatment of a number of diseases are elaborated; software and hardware complexes are produced.

«Drugs microsomal oxidation and metabolism: mechanisms of oxygenase reactions catalyzed by cytochrome P450 and their modeling» research was awarded the RF State Prize in the domain of science and technique in 1998.

The RF State Prize in the domain of science and technique in 2005 was awarded to the development and application to production and medical practice of a new high-efficient medical product on the basis of ultra-small antibodies to endogenous regulators.

Advanced postgraduate training in biophysics, molecular biology, biochemistry, physiology, equipment, systems and products of medical purpose is possible at the Institute.



## Research Institute of Internal Medicine

Director: Prof. Mikhail I. Voevoda

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Priority Research Direction:

- ◆ Study of molecular biological, organismal, and population regularities in the pathogenesis of internal diseases of Siberian population and development of the scientific basis for their diagnostics and treatment.

Epidemiological studies of chronic noninfectious diseases in Siberia, monitoring of cardiovascular diseases and their risk factors prevalence and trends are carried out. The conception of atherogenesis as sort of chronic inflammation is developed.

Creation and application of mobile consultative-diagnostic centers with mobile telemedicine complexes for providing population of distant regions of the Russian Federation with special medical care was awarded the RF State Prize in the domain of science and technique in 2006.

Patients with cardiovascular, neurologic, endocrine diseases, gastrointestinal system disorders get special medical care in the clinic. Diagnostic of gene pathology is carried out. 1,500 patients are managed annually on an inpatient and 18,000 on an out-patient bases.

The following centers are functioning under the supervision of the Institute:

- ◆ Municipal Lipid Center (1,900 consultations annually).
- ◆ Center of Stroke Register (1,240 consultations).
- ◆ Municipal Center of Dementia Control (1,500 consultations).
- ◆ Municipal Center of Thrombosis Prophylaxis and Treatment (7,500 consultations).

Advanced post-graduate training is performed in such disciplines as biochemistry, endocrinology, internal diseases, cardiology, nervous system diseases, gastroenterology, genetics, geriatrics, ultrasound diagnosis, functional diagnosis etc.

## **Research Institute of Biochemistry**

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### Priority Research Directions:

- ◆ Study of biochemical mechanisms of stress and changes in human homeostatic systems induced by the exposure to environmental factors of Siberia and North.
- ◆ Investigation in molecular mechanisms of intercellular interaction in normal conditions and under functional strain of homeostatic systems with a view to the development of methods for controlling proliferative, dystrophic, and regeneration processes.
- ◆ Working out of methods for the correction of metabolic disturbances, biochemical principles of balanced nutrition and xenobiotic metabolism making use of various methods including those of chemical microanalysis.
- ◆ Study of targeted regulation of gene activity based on molecular biology and biotechnology methods, construction of strains of producers of immune system regulator proteins, development of prophylactic drugs and medications, diagnostic kits and aids and setting up of their pilot production.

The Institute is engaged in advanced postgraduate training in molecular biology, biochemistry, histology, cytology, cellular biology, etc.

## Research Institute of Integrated Problems of Hygiene and Occupational Diseases



**Director: Prof. Vasili V. Zakharenko**

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### Priority Research Directions:

- ◆ Comprehensive study of human reproductive health, assessment and prediction of reproduction and damage to health of the population in Siberian and northern regions.
- ◆ Development of efficient preventive means, treatment and after-treatment of patients employed in key industries for occupational and general diseases.
- ◆ Working out of scientific basis for the hygiene of human habitation under increased exposure to social and environmental hazards in Siberia.
- ◆ Study of the problems of public health care, development of the strategy and implementation of technology for health-improvement and recreational programs.

Diagnosics and treatment of occupational diseases: fluorine intoxication, occupational lung pathologies (chronic dust bronchitis, pneumoconiosis), trinitrotoluene intoxication, vibration disease, vertebrogene pathology, sensorineural hearing loss, peripheral nervous system diseases, musculoskeletal system disorders are carried out in the clinic. Methods of occupational pathology prophylaxis are being developed. More than 2,500 patients are treated in the clinic annually.

Advanced postgraduate training in hygiene, public health, social hygiene and public health, neurology, occupational pathology, therapy is possible at the Institute.

## Scientific and Production Fundamental Research Laboratory for Reconstructive Girdio-Vascular Surgery

**Director: Prof. Leonid S. Barbarash**

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Priority Research Directions:

- ◆ Fundamental and applied research in cardiology, angiology and cardio-vascular surgery.
- ◆ Development of new biomaterials for cardio-vascular surgery, their experimental and clinical testing.

A whole series of xenobioprosthesis (vessels, mitral valves) for cardiovascular surgery are being developed and manufactured.

Emergency and planned special hi-tech medical treatment of patients with cardiovascular diseases is carried out in the clinic. More than 5,000 patients with cardiovascular pathologies get therapeutic and surgical treatment annually. Mitral valves and vessels bioprosthesis developed in the laboratory decreased the rate of complications, increased life span, and improved quality of life of patients.

A series of research works on theoretical basis of optimal conditions of reparative regeneration of supporting organs and tissues was awarded the RF State Prize in the domain of science and technique in 1999. A group of scientists was awarded the RF Government Prize in the domain of science and technique in 2001 for development and clinical application of new biotechnologies in cardiovascular surgery.



## Research Institute of Medical Problems of Northern Regions

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### Priority Research Directions:

- ◆ Study of the processes of physical development factors of health sustaining and impairment, immune mechanisms in pathogenesis of adult and child health of indigenous and non-indigenous population in Siberia and northern regions.
- ◆ Working out of efficient methods of maintaining human health and quality of life: preventive means diagnostic aids, treatment, and after-treatment methods for the most common diseases of indigenous and non-indigenous population in northern regions and Siberia.

Structure and prevalence of cardiovascular, gastrointestinal, endocrine diseases in children and adults is being investigated.

A research on geographic pathology and epidemiology of cardiovascular, oncological, and nervous diseases was awarded the RF State Prize in the domain of science and technique in 1982.

Special medical treatment of therapeutic (cardiology, gastroenterology), surgical (general surgery, gynecology, ENT diseases, neurosurgery, maxillofacial surgery), and pediatric (gastroenterology, cardiology, pulmonology) profiles is available in the clinic. Laparotomic and laparoscopic surgeries, reconstructive plastic surgeries with using material with memory are carried out in the surgery department of the clinic. More than 6,000 patients are treated and there are more than 20,000 medical visits annually in the clinic.

The Institute is engaged in advanced postgraduate training in allergology and immunology, gastroenterology, surgery, endoscopy, functional diagnostics, virology, physiology, anthropology, genetics.

## Far Eastern Research Center of Physiology and Respiratory Pathology

**Director: Prof. Viktor P. Kolosov**

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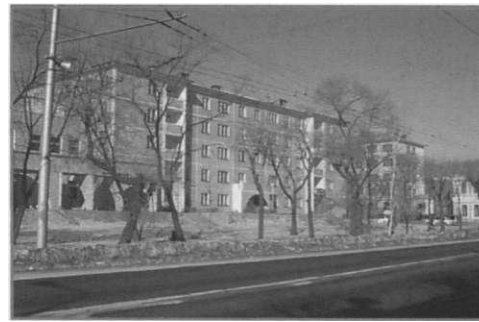
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Center affiliations:

1. Vladivostok affiliation –  
Research Institute of Medical  
Climatology and Rehabilitation  
Treatment

**Director: Prof. Evgeni M. Ivanov**

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2. Khabarovsk affiliation – Research Institute for Mother and Child  
Care

**Director: Prof. Vladimir K. Kozlov**

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Priority Research Directions:

- ◆ Study of morphofunctional mechanisms for protecting respiratory apparatus at various stages of ontogenesis under exposure to extreme environmental factors.

- ◆ Study of mechanism underlying the failure of «mother-fetus» system and its effect on the development of respiratory system and newborn's vitality.
- ◆ Study of recovery mechanisms of cardiorespiratory system and working out of pathogenetically justified rehabilitation technologies using the recreational potential of the Far East region.

Special medical treatment of patients with respiratory organs pathology (children and adults), with ear, nose, throat pathology (children and adults), pregnant women with respiratory organs pathology is carried out in the clinic of the Center of Physiology and Respiratory Pathology (Blagoveschensk).

Special medical treatment of patients with cardiovascular system diseases, digestive apparatus, endocrine system disorders, dystrophia is carried out in the clinic of Vladivostok affiliation.

Special medical treatment of children with respiratory organs diseases, digestive apparatus disorders, kidney pathologies, with birth defects is carried out in the clinic of Khabarovsk affiliation.

More than 6,500 patients are treated annually in the three above listed clinics of the Center.

Advanced postgraduate studies are possible in virology, epidemiology, obstetrics and gynecology, internal diseases, pediatrics, anesthesiology and resuscitation, pulmonology, social hygiene and public health, pathologic anatomy, histology, cytology, cellular biology.

The scientific journal «Bulletin of Physiology and Respiratory Pathology» is issued.

## Research Institute of Epidemiology and Microbiology

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### Priority Research Directions:

- ◆ Ecology of on-organismal populations of pathogenic bacteria causing saproozoonosis and mechanisms of their mutability in different habitat types.
- ◆ Molecular basis of bacterium pathogenicity.
- ◆ Molecular epidemiology of bacterial infection.
- ◆ Molecular and genetic population characteristics of viral populations causing infections in natural reservoirs and its manifestation in regional clinical and epidemiological peculiarities of these infections.
- ◆ Mechanisms underlying resistance to infections and correction of its distortion by various immunomodulators.

A group of scientists was awarded the USSR State Prize in the domain of science and technique in 1989 for creation and application of new technologies of diagnostics, prophylaxis, and treatment of pseudo tuberculosis.

The Institute is active in postgraduate advanced training in virology, microbiology; histology, cytology, cellular biology; pathologic anatomy; epidemiology; allergology and immunology.

The scientific journal «Pacific medical journal» is issued.

## Research Center of Medical Ecology

**Director: Prof. Lyubov I. Kolesnikova**

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Center structure:

### 1. Research Institute of Pediatrics and Human Reproduction

**Director: Prof. Lyubov I. Kolesnikova**

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### 2. Research Institute of Epidemiology and Microbiology

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### 3. Angarsk affiliation – Research Institute of Occupational and Environmental Diseases

**Director: Prof. Viktor S. Rukavishnikov**

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Priority Research Directions:

- ◆ Epidemiology, modeling, and prediction of main regional pathologies in the course of development and malfunctions of regulatory systems, as well as the reproductive health status on exposure to hazardous environmental conditions.
- ◆ Development of new instruments for monitoring and analysis of population and individual health, improvement and refining diagnostic aids, methods for treatment and prevention of occupational and environmental diseases.
- ◆ Study of etiology and immunology of tick-borne encephalitis, viral hepatitis and other contagious diseases in Eastern Siberia.
- ◆ Development and perfection of diagnostic aids and means for preventing contagious diseases.
- ◆ Special hi-tech medical treatment in the field of pediatrics, endocrinology (adult), neurology, child and adult gynecology is available in the clinic of the Institute of Medical Ecology. More than 6,500 patients are treated annually in the clinic.

Diagnostics and treatment of occupational diseases of workers of mining, machine-building, chemical, timber industry is carried out in the clinic of Angarsk affiliation. About 2,500-3,000 patients are treated annually in the clinic.

Advanced postgraduate training in biochemistry, virology, microbiology, physiology, genetics, ecology, endocrinology, neurosurgery, neonatology, child endocrinology, obstetrics and gynecology, occupational pathology is carried out at the Center.

The scientific journal «Bulletin of ESSC SB RAMS» is issued.

## Research Center of Reconstructive and Plastic Surgery



**Director: Prof. Evgeni G. Grigorjev**

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Center structure:

1. Research Institute of Surgery

**Director: Prof. Evgeni G. Grigorjev**

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2. Research Institute of Traumatology and Orthopedics

**Director: Vladimir A. Sorokovikov**

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Priority Research Directions:

- ◆ Methods for controlling regenerative processes in patients suffering from internal and locomotor system diseases at local, regional, and systemic level.
- ◆ Working out of technologies for prediction, prevention, and treatment of degenerative, dystrophic and infectious complications in reconstructive and plastic surgery.

Viscerogenic purulent septic diseases, sepsis, chronic osteomyelitis, mechanisms of permanent infection of abdominal cavity under peritonitis

have been investigated. Mechanisms of reparative regeneration under orthopedic trauma have been studied.

A group of the institute scientists was awarded the RF State Prize in the domain of science and technique in 2003 for development and application into medical practice of new technologies for diagnostics and treatment of surgery purulent septic diseases and complications.

Special hi-tech medical treatment of 3,000 patients with musculoskeletal apparatus pathology (prosthesis and re-endoprosthesis of large joints, reconstructive plastic surgeries with use of titanium nikelide), with purulent processes of organs of chest and abdominal region (lung gangrene and abscesses, peritonitis, multiple intestinal fistulas, pancreatonecrosis etc.) is available in the clinic annually.

The Center is engaged in advanced post-graduate training in traumatology and orthopedy, surgery, cardiology, pathologic physiology, anesthesiology and rheumatology, social hygiene and public health.



## Research Institute of Cardiology with Tyumen affiliation (Tyumen Cardiology Center)



**Director: Prof. Rostislav S. Karpov**

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Tyumen affiliation – Tyumen Cardiology Center

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Priority Research Directions:

- ◆ Comprehensive fundamental investigation to identify the mechanisms underlying occurrence and progression of cardio-vascular diseases.
- ◆ Working out of new drug treatment and follow-up care for patients with acute myocardial infarction.
- ◆ Improvement of already available and development of new methods for reconstructive heart surgery and plastic cardiovascular surgery.
- ◆ Development and implementation of new treatment methods for heart rhythm disturbance (arrhythmia).
- ◆ Diagnostics, treatment and prevention of atherosclerosis, coronary (ischemic) heart disease, and arterial hypertension.
- ◆ Investigation in development regularities and incidence of cardio-vascular diseases in Siberia and the Far East among various

indigenous and non-indigenous populations depending on various climatic, geographic, industrial and social factors.

The clinic provides patients (including infants) with cardio-vascular system pathologies: acute coronary syndrome, paroxysmal rhythm disturbance, cardiac anomalies with special hi-tech medical care (therapeutic and cardiosurgical) on a twenty-four hour basis. Latest treatment technologies such as: intraluminal coronary and general thrombolysis, balloon dilatation of coronary vessels, installation of stents in emergency cases, installation of electric cardio stimulators, etc. are used in the clinic. Every year the clinic treats about 14,000-15,000 patients and about 5,000 patients are operated.

The Siberian Arrhythmia Center where topical diagnostics and treatment of cardio rhythm is carried out is working.

Cardiology dispensary consults annually more than 70,000 inhabitants of Siberia, the Far East and CIS countries.

The Institute is engaged in advanced postgraduate training in cardiology, pathologic physiology, radiologic diagnostics and radiologic therapy, cardio-vascular surgery, anesthesiology and resuscitation, and clinical residency studies

The scientific journal «Siberian Medical Journal» is issued.

## Research Institute of Medical Genetics



**Director: Prof. Valeri P. Puzyrev**

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### Priority Research Directions:

- ◆ Structural and functional study of human genome in health and disease.
- ◆ Study of genetic diversity of human populations, structure and evolution of human gene pool, formation regularities of genetic load in populations.
- ◆ Investigation in hereditary basis of susceptibility to common diseases.
- ◆ Working out and implementation of new methods for gene diagnostics and treatment of human hereditary diseases.
- ◆ Study of epigenetic mechanisms for transmitting hereditary information in living systems.
- ◆ Study of the biological basis of chromosome aberrations in human cells at various stages of ontogenesis.

Diagnosics, prophylaxis and treatment of hereditary diseases and birth defects; prenatal diagnostics of hereditary pathologies (invasive and noninvasive methods) are carried out in the clinic. Special cytogenetic, biochemical and molecular-genetic methods are used for hereditary pathologies diagnostics. Regional register of families with monogenic and chromosomal diseases are carried out. More than 800 patients are treated annually.

Advanced post-graduate training of medical specialists in genetics and laboratory genetics is carried out at the Institute.

## Research Institute of Mental Health

**Director: Prof. Valentin Ya. Semke**

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### Priority Research Directions:

- ◆ Study of the incidence of the most common mental health disorders in Siberia and the Far East depending on various environmental and social factors.
- ◆ Working out and practical implementation of new combined treatment (psychotherapy, pharmacotherapy, and occupational therapy) for mental patients in Siberia and the Far East.
- ◆ Development of scientific basis for specialized mental health service in Siberia and the Far East.

Special medical treatment of patients with boundary mental pathologies, affective disorders, schizophrenia; rehabilitation of patients with alcoholism and drug addiction, with neurological and somatoform disorders is carried out in the clinic. More than 2,500 patients are treated annually in the clinic.

The Institute is engaged in postgraduate advanced training in psychiatry and narcology.

The scientific journal «Siberian Bulletin on Psychiatry, Narcology» is issued.

## Research Institute of Obstetrics, Gynecology, and

### Perinatology



**Director: Prof. Lyubov A. Agarkova**

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#### Priority Research Directions:

- ◆ Study of interaction of social and heredofamilial factors of pregnancy, fetal, and perinatal pathologies at population, family and individual level.
- ◆ Working out of new diagnostic and treatment technologies and maintaining of reproductive health, prophylactic regional program of medical and social rehabilitation of pregnant women and new-born children.

Special medical treatment of women with gynecological diseases, reproductive function disorders, pregnancy and delivery pathology as well as new-born children with perinatal period pathology is carried out in the clinic.

## Research Institute of Oncology

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Web-site: [www.oncology.tomsk.ru](http://www.oncology.tomsk.ru)*

Priority Research Directions:

- ◆ Fundamental studies of the incidence pattern and pathogenetic mechanisms of malignant tumors in Siberia and the Far East, identification of endogenous and exogenous etiological factor and their complexes to improve organization of cancer care facilities to the population of the region.
- ◆ Investigation of life support systems and molecular genetic characteristics of a tumor reflecting the mechanisms of carcinogenesis and neoplastic proliferation, in order to identify groups of high oncology risk, early disease detection and medical prognosis to provide timely and efficient treatment to the patients.
- ◆ Working out of new efficient schemes of combination therapy of oncologic patients based on high-technology approaches, improved modes of adjuvant therapy, pathogenetically justified application of new chemical drugs and modifiers of cytoreductive treatment, advanced methods of reconstructive and plastic surgery and approaches to follow-up treatment.

Special and hi-tech medical treatment of 2,500 patients from different regions of Siberia, the Far East and the CIS countries with oncologic diseases of all types of localization are carried out in the clinic annually. Use of up- to-date reparative plastic technologies of treatment, intraoperative radiation therapy allows not only to increase the number of survived patients but to improve quality of their life.

Advanced postgraduate training in oncology, radiologic diagnostics, radiologic therapy, radiology, rontgenology is carried out at the Institute.

The scientific journal «Siberian oncological journal» is issued.

## Research Institute of Pharmacology

**Director: Prof. Alexandr M. Dygay**

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Priority Research Direction:

- ◆ Study, development and investigation of new synthetic or herbal based pharmaceuticals and plant preparations for treatment of oncological, cardiological, neurological and hematological patients.
- ◆ Development of new medical products: hemopoiesis stimulators for anemia and leucopenia treatment; energy exchange regulators; medications for antimetastatic and antineoplastic action is carried out.
- ◆ Special medical care of therapeutic profile is available in therapy, cardiology, hematology and neurology departments in the clinic. The main goal of the clinic is to determine medical product bioequivalence. More than 2,500 patients are treated annually.

A group of the institute scientists was awarded the RF State Prize in the domain of science and technique in 2005 for the creation and application into production and medical practice of new high-efficient medical products based of very small doses of antibodies to endogenous regulators.

Advanced postgraduate training in pathological physiology, pharmacology, clinical pharmacology and therapy is available at the Institute.

## **Yakutsk Research Centre**

**Director: Prof. Michail I. Tomskii**

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### Priority Research Direction:

- ◆ Research of fundamental mechanisms of adaptation and pathology forming, low temperatures influence on human organism under conditions of the Far North and development of effective methods of prophylaxis and maintenance of health.
- ◆ Research in environmentally specific, occupational and more common diseases in the Sakha Republic (Yakutiya) and development of methods of prophylaxis, diagnostics, monitoring and treatment.
- ◆ Genetic demographic and molecular genetic researches of birth defects, inherited and multifactorial diseases among population of the Sakha Republic (Yakutiya).

The scientific journal «Yakut Medical Journal» is issued.



## THE NORTH-WEST DEPARTMENT OF THE RUSSIAN ACADEMY OF MEDICAL SCIENCES

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The North-West Department of the Russian Academy of Medical Sciences was organized in 1998 by the decision of RAMS General Meeting for further development of basic and applied investigations in the North-West region of Russia.

The Department unites members of RAMS, working at RAMS and other research institutes, establishments for high medical education and at medical institutions within the North-West region. The main task of the Department is coordination of enumerated institutions research work in the field of scientific and public health problems.

The Department includes 4 institutions (Research Institute of Experimental Medicine, D. O. Ott Research Institute of Obstetrics and Gynecology, Research Institute of Influenza, St. Petersburg Institute of Bioregulation and Gerontology) and 4 regional centers in Arkhangelsk, Novgorod, Petrozavodsk and Siktivkar.

The North-West Department follows the Regulations of the RAMS as well as its own Regulations affirmed by the Presidium of the RAMS to whom the branch is subordinated.

In addition the Department takes part in training specialists of highest qualification, implements international cooperation (USA, Sweden, Norway, Slovakia, China and others) in the field of medicine and public health, ensures publications and scientific information, organizes congresses, conferences, symposia and other scientific meetings. The activities, scientific achievements and social life within the North-West region are reflected in the «Academic Journal of Medicine» founded by the Department in January, 2001.

## Research Institute of Experimental Medicine

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Tkachenko  
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The Institute was founded in 1890 by Prince A.P. Oldenburgsky. This was the first medico-biological center in Russia.

Main directions of research:

Department for physiology named after I.P. Pavlov: investigations of in- tra-cells interactions of brain structures, mechanisms of adaptive behavioral reactions; neurobiological bases of afferent structure of neuro-immune interaction; models of the demyelination process.

Department for ecological physiology: biological significance of environmental ecological factors in the process of physiological formation of functions; investigations of ecology-genetic manifestations of dioxin pathology.

Department for the physiology of visceral systems named after K.M. Bykov: investigations into mechanisms of differently directed shifts in the atrium and their comparison with the dynamics in the lesser circle and the role of reaction of certain vascular regions in the formation of the volume of inflow of venous blood to the heart; studies of the mechanisms of integration of neuromediator and hormonal factors in the regulation of digestive function.

Department for neuropharmacology named after S.V. Anichkov: possibilities to optimize the disturbances of visceral functions with the substances acting in the field of synaptic transmission and substances of the metabolic type of action (derivates of taurine, uridine, imidazole, dicarboxylic acid); modeling of the ligand-receptor interaction.

Department for biochemistry: study of the types of lipoproteins modification leading to the development of autoimmune response; investigations into mechanisms of dyslipoproteinemia development.

Department for general pathology and pathological physiology: studies of the physiological role of cytokines and glucocorticoid hormones as mediators of neuro-immune interactions in the ligand-receptor and signal mechanisms of the stress reaction development; structural and functional properties of antimicrobial peptides and proteins of animal origin.

Department for molecular microbiology: investigations in the field of group A, B and G streptococci and streptococcal diseases; their genes fine structure and transcriptional regulation of pathogenic factors expression; recombinant peptides construction with the aim to study their pathogenic activity and usefulness for vaccine composition; studies of the surface IgG Fc binding proteins role in genesis of streptococcal sequelae; development of genotyping methods for molecular epidemiology of pathogenic streptococci.

Department for molecular genetics: studies of inherited diseases, differentiation mechanisms with emphasis on embryonic stem cells, enlargement of molecular genetic screening among the population of St. Petersburg; experiments with transgenic animals carrying foreign mtRNA.

Department for immunology: studies of the cytokine regulation network in association with problems of infection immunology, the direct precursors of the complement cascade proteins; comparative-immunological investigations of regularities in formation of congenital immunity.

Department for virology named after A.A. Smorodintsev: development of the technology of live influenza vaccine; investigation the influence of biological properties of the influenza virus on the local immune response.

Department for morphology: investigations into the mechanisms of action of unfavorable factors of external and internal media on the developing brain; models of pathogenesis various kind of pathology in brain; studies in immunological factors of atherosclerosis and ways of treatment.

The Institute is active in post-graduate advanced training of medical specialists.

The Institute has a unique scientific library and a museum of the Institute's history.

## St.-Petersburg Institute of Bioregulation and Gerontology

**Director: Prof. Vladimir H. Khavinson**

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*Web-site: [www.gerontology.ru](http://www.gerontology.ru)*



St. Petersburg Institute of Bioregulation and Gerontology was established in 1992 and since then has been engaged in research in bioregulation and gerontology. Its basic task is to introduce into medical practice the results of 20-year experimental and clinical studies of a new class of medicinal substances – peptide bioregulators.

The Institute comprises 15 laboratories, which are united in three major departments: the Department of Biogerontology, the Department of Cell Biology and Pathology, and the Department of Clinical Gerontology and Geriatrics.

Scope of activities:

- ◆ study of the mechanisms of ageing;
- ◆ study of the properties and mechanisms of peptide bioregulators effects;
- ◆ design and introduction into clinical practice of new medicinal substances based on peptide bioregulators;
- ◆ study of the markers for in vivo diagnostics of age-related diseases;
- ◆ exploration of demographic aspects of population ageing.

The achievements of the Institute are protected by 143 patents, including 43 foreign ones (USA, Japan, Switzerland, Australia etc.), as well as by 7 trademarks.

Since June 2001 the Institute has been engaged in post-graduate advanced training of medical specialists in gerontology and geriatrics.

The Institute supports regular publication of the following periodicals: «Herald of the Gerontological Society of the Russian Academy of Sciences» (since 1996) and the scientific journal «Advances in Gerontology» (since 1997).

The Institute is actively involved in international collaboration both with foreign research institutions and international organizations. It regularly conducts on its basis international congresses and conferences in gerontology. In 2007 there was held the VI European Congress of IAGG with participation of 1500 scientists from 70 countries of the world.

## Research Institute of Influenza

**Director: Prof. Oleg I. Kiselev**  
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### Scope of activities:

- ◆ development and use of molecular-biological investigations of influenza and hepatitis viruses, determination of virus pathogenicity and immunogenicity genetic mechanisms;
- ◆ studies in etiology, immunology and pathogenesis of influenza and other acute respiratory diseases (ARD);
- ◆ epidemiological and etiological monitoring of influenza and other ARD in Russia, improvement of automatic systems for epidemiological surveillance;
- ◆ analysis and coordination of laboratory diagnosis of influenza and ARD in Russia, integration with morbidity data;
- ◆ investigations of susceptibility of influenza viruses circulating in Russia to antiviral drugs;
- ◆ development and production of a new generation of diagnostic reagents (monoclonal antibodies, enzyme immunoassay kits for detection of virus antigens or antibodies, FITC-conjugated antibodies, highly purified virus antigens, oligonucleotide and protein microchips);
- ◆ synthesis and screening of new antiviral drugs with a wide spectrum of activity, investigation of mechanisms of antiviral action of modern influenza chemical drugs;
- ◆ application of nanotechnologies for the design of influenza antiviral drugs and diagnostic reagents;

- ◆ studies and evaluation of new vaccines (including vaccines prepared by gene engineering techniques) and methods for specific and non-specific influenza and ARD prophylaxis;
- ◆ clinical trials of new antiviral drugs, vaccines and therapy for influenza, ARD, hepatitis and herpes infections;
- ◆ collaboration in global influenza surveillance with WHO, WHO Collaborating Influenza Centres (USA, Great Britain, Japan, Australia), in molecular virology, vaccine and drug studies (Austria, Sweden, Germany);
- ◆ development of guidelines, methodical recommendations, influenza and pandemic preparedness programmes, emergency responding plans.

The Institute acts as the Head Research Institute of the problem «Influenza and Influenza-like Illnesses: Prophylaxis and Treatment», Federal Influenza and ARD Centre, WHO National Influenza Centre; the Institute participates in the Commission for Influenza Vaccine and Diagnostic Strains of the Russian Ministry of Public Health and Social Development.

The Institute is engaged in advanced post-graduate training in virology, biotechnology epidemiology and infectious diseases.

## D. O. Ott Research Institute of Obstetrics and Gynecology

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The Institute was founded in 1797. The structure of the Institute includes 4 departments: Obstetrics, Endocrinology of Reproduction, Perinatology and Scientific Methodology

Scope of activities:

- ◆ ecological reproductology;
- ◆ prenatal diagnostics of hereditary and congenital diseases;
- ◆ perinatology;
- ◆ endocrinology of reproduction;
- ◆ diagnostics of intrauterine infections; diagnostics and correction of obstetrical complications (miscarriage, gestoses, placental insufficiency, abnormal labor activity) and extragenital diseases (diabetes mellitus, thyroid gland diseases, respiratory and cardiovascular systems, gastrointestinal tract).

A new trend of medical genetics – predictive medicine as well as the present-day conservative and surgical methods of treatment of gynecological diseases (endometriosis, myoma of the uterus) are being elaborated at the Institute.

International relations are established with the scientists in a number of foreign countries.

The Institute actively participates in post-graduate advanced training of medical specialists in related subjects.

The scientific practical magazine «Z. Akus. Zen. Bolezn» was founded and is published quarterly with the assistance of the Institute.