

Information on the status of the host university's infrastructure and the level of scientific research implemented at the host university in the year 2011

The plan of development of the State Educational Institution of Higher Professional Education "Kuban State Medical University" of the Ministry of Healthcare and Social Development of the Russian Federation (GOU VPO KubGMU Minzdravsocrazvitija Rossii), further - Kuban Medical University, for 2010-2015, contains 16 scientific development fields. In Kuban Medical University there are 10 scientific schools. One of the most important and actively developed is «The development of biotechnologies in the field of regenerative medicine and transplantology».

Researches in this field are long- and short-term in character:

Long-term aims:

Increase of disease-free life expectancy and improvement of quality of life, providing a sustainable development of scientific and economic potential of the Russian Federation.

Medium-term aims:

1. Strengthening of influence of strategic requirements of the society for realization scientific and technological development of cell technologies in regenerative medicine.
2. Stimulation of innovations, expansion of cooperation between science and production, and establishing of new partnerships.
3. Creating the new training programs in the field of regenerative medicine for students and listeners of post-degree education of medical universities.
4. Involvement of other specialists, society, corporate and private financial and material resources to carry out necessary researches.

Short-term aims:

1. Development of strategic plans to carry out research work in the field of cell technologies, tissue engineering and their implementation by means of all interested parties.
2. Joining the efforts of science, state, civil society and business for creation the perspective commercial technologies, new products and services.

3. Development of the system of training and retraining of personnel. Organization of courses for improvement of professional skills in the field of regenerative medicine (doctors, clinical lab assistants, immunologists, geneticists, surgeons etc.).

In 2006-2010 yrs 215719,55 thousand rub. were appropriated for scientific researches at the University, including: 85330,932 thousand rub. - basic, 130388,62 thousand rubles. - applied. For researches in a given area it is annually appropriated from 1 to 5 million rubles.

During 2006-2010 156 candidate and 9 doctoral theses were defended in Kuban Medical University, including 4 candidate theses in a given line.

For the last three years (2008-2011), a reorganization of the Scientific and Organizational Department and its expansion were carried out. Within the framework of the Department the following divisions are functioning: the Postgraduate Department, the Research Planning and Reporting Department, the Patent Service (now – the Service of Intellectual Property Protection), the Commercialization and Medical Technologies Sector, the Grant Support Sector, the International Sector, the Clinical Research Sector.

Quality Management System at the University introduced by Rector's Order № 53 of 24.02.2010 according to MS ISO 9001:2008 requirements.

There are two thesis councils in the University:

1) *D.208.038.01 on specialties 03.03.01 – Physiology (medical sciences), 14.00.17 – Surgery (medical sciences)*. The Council Chairman is V.M. Pokrovsky MD, professor, Head of the Normal Physiology Department of Kuban Medical University.

2) *D.208.038.02 on specialties 03.01.04 – Biochemistry (medical sciences), 14.03.03 – Pathological Physiology (medical sciences), 14.01.14 – Stomatology (medical sciences)*. The Council Chairman is I.M.Bykov, MD, professor, Head of the Fundamental and Clinical Biochemistry Department of Kuban Medical University.

Thereby, there is a possibility to defend theses on the given field at the University.

Ethical Commission is functioning at Kuban Medical University. It carries out ethical expertise of clinical researches, conducted by firms or their representatives, and also researches with

involvement of humans, animals, and connected with investigation of cadaveric and biopsy materials.

In the end of 2010-2011 the re-structuring of the CRL with allocation of the Immunology Department and the Department of Molecular Biology was made. The University invested its own resources for creation such centers. Laboratory Center of multiple-access is running since November 2009 yr. Computer Center of multiple-access for students and young scientists is functioning on the basis of Kuban Medical University since 2005.

The University Scientific Educational Centers (SECs) operate as a platform for the innovative projects' developing (stage of the Research and Experimental Design Work, the Experimental Design Work, the development of new technologies and implementations' using method). Since 2010 the following SECs were created at the University: «*Modern technologies of regenerative medicine and transplantology*», «*Genetics of multifactorial diseases*», «*Pharmacology of cardio, neuro- and dermatotropic substances*», «*Priority technologies in fundamental and applied cardiology*».

The «Modern technologies of regenerative medicine and transplantology» SEC (supervisor - Head of the Department of Oncology with the Course of the Thoracic Surgery of the Faculty of Advanced Training and Professional Development professor V. A. Porkhanov) was established in 2010. Professor V.A. Porkhanov is the Emeritus Professor of French Association for Thoracic Surgery, he was awarded the Bakulev Prize for organization of the regional cardiologic service in 2008 and National Medical Premium "Mission" in 2010.

The researches in the field of regenerative medicine are being conducted in Kuban Medical University since 2005 within the framework of the University Department of Oncology with the Course of the Thoracic Surgery of the Faculty of Advanced Training and Professional Development:

1. complex theme "Reconstruction -and endoprosthesis of tracheas at benign and malignant lesions», the state registration № 01.2.00701785 (supervisor Head of the Department of Oncology and Thoracic Surgery professor V. A. Porkhanov);

2. complex theme "Proliferate activity and apoptosis of the tumor cells at lung and mammary gland cancer», № 0120.0.711132 (supervisor - professor N.G. Bahmutskij). According to the research lines, 2 candidate and 1 doctoral theses are carried out.

The SEC carries out and will conduct the research works in many fields, including oncology, surgery, transplantology, otorhinolaryngology, stomatology, ophthalmology, treatment of burn patients.

At the Otorhinolaryngology Department (Head - professor F.V.Semenov) the work «Improvement of methods of the surgical treatment of ENT-organs» (*state registration № 01200903375*) is carried out. «Method of the prevention of the bleeding at tonsilectomia», where regenerative medicine technologies are used, was patented (*Patent № 2336040*). At the Orthopedics, Traumatology and Field Military Department the complex theme on development of regenerative technologies in treatment of burn patients is carried out; the investigations in the area of stomatology are started.

The Kuban State Medical University has the strongest clinical base - GUZ the «Regional Clinical Hospital named after professor S.V.Ochapovsky» DZ KK (further - Regional Clinical Hospital), where Department of Oncology with the Course of the Thoracic Surgery is located. Contract on cooperation regulates use of the rooms of the Regional Clinical Hospital, its equipment and laboratory units and other facilities for educational, basic and clinical research aims. The clinical base (GUZ «Regional Clinical Hospital named after professor S.V.Ochapovsky» DZ KK) meets European requirements for medical institutions, rendering aid in the field of transplantology and regenerative medicine and serves as a clinical platform for development and adoption of regenerative technologies. By present moment, the Department and Hospital staff carried out the following operations on donors' organs transplantations: hearts - 42, lungs-3, kidneys-72, a liver-36.

PCR Laboratory works on the basis of the Biology Department with the Course of Medical Genetics since 2000 (Head of Department - professor V.I. Golubtsov. The re-equipment of the PCR laboratory took place at the establishment of the «Genetics of multifactorial diseases» SEC by forces of Kuban Medical University. For that purpose, the separate areas of 120 м² were allocated. This was done according to all standards for creation of such laboratories

(certificate MU1.3.2569-09 of 22.12.1999). In 2010 employees of the «Genetics of multifactorial diseases» SEC carried out 5 grants of the Russian Foundation for Fundamental Research.

In 2011 - grant of the Targeted Federal Program «Scientific and pedagogical personnel of the innovative Russia» for 2009-2013 search research works (further – works) according to the lot code 2011-1.2.1-141-005 «Carrying out of scientific researches by scientific groups under supervision of doctors of sciences in the following fields: general biology and genetics; fundamental medicine and physiology» on the subject: «Studying of epy- effects of modifier genes of the immune answer on various models of inflammation at children's age».

3 grants of the regional competition of the Russian Foundation for Fundamental Research (RFFR) for a total sum of 5 420 000 rub.

The University has its own vivarium, additional research work can be carried out in vivarium of the Federal State Educational Institution of Higher Professional Education «Kuban State Agrarian University» (Contract for Joint Activity). At the same time the University can use unique facilities of the Research Institute of Medical Primatology of the Russian Academy of Medical Sciences RF (contract on joint activity). The work at this institute creates unique possibilities to carry out a total complex of investigations in vivo in the field of regenerative medicine.

Special Grant Support Sector was formed at the University for methodical help at grant applications and informational support. In 2010 the work was carried out on 17 grants, including the RFFR main contest – 2, the RFFR regional contest – 2, the expeditionary grants – 3, U.M.N.I.K. – 3, IQ of the Year -1. For June 1, 2011 the research works are financed by 11 grants (FTP-1, RFFR-4, U.M.N.I.K.-3, IQ of the Year -3). The Regulations on the University inner grants was established for the total sum of 500 thousand rubles.

Kuban Medical University cooperates actively with many basic research institutes and biomedical centers in Russia and other countries:

- Scientific Research Institute of Medical Genetics of the Siberian Branch of the Russian Academy of Medical Sciences (Head – academician V.P. Puzyrev);
- State Institution Medical-Genetic Center of the Russian Academy of Medical Sciences (Head – academician E.M.Ginter);

- N.K. Koltsov Institute of Developmental Biology Russian Academy of Sciences;
- State Educational Institution of the Higher Education «Kursk State Medical
- University of Ministry of Health and Social Development of the Russian Federation»;
- State Educational Institution of the Higher Education «Rostov State Medical University» of the Ministry of Health and Social Development of the Russian Federation;
- Azerbaijan Medical University of the Ministry of Health of the Azerbaijan Republic;
- Scientific Research Institute of Immunology (USA);
- University Clinic of Freiburg (Germany);
- University of Applied Sciences of Fulda (Germany);
- Medical Faculty of Strasbourg University (France). (*Annex contracts for cooperation*).

Students' Scientific Society named after professor Pyatnitskiy (nearly 1400 students) is working at Kuban Medical University. In 2011 the 72^d Theoretical and Practical Conference of Students was conducted within the framework of the year of the "Russian Science". The young scientists united in the Young Scientists' Society. Since 2009 the course on demonstrative medicine and statistics is being read for all post graduate students of the University.

The "Regenerative medicine" course is given as an elective one for the 6th year students, residents and interns and for the students of the faculty of advanced training on the departments of oncology with the course of thoracic surgery of the Faculty of Advanced Training and Professional Development, biology with the course of medical genetics, clinical immunology, allergology and laboratorial diagnostics of the Faculty of Advanced Training and Professional Development. Formation of the new educational programs in the field of regenerative medicine for students and postgraduate students continues. For students of the Thoracic Surgery Department surgery of the Faculty of Advanced Training and Professional Development are conducted master classes on transplantology during each cycle of General Advanced Training and the Topic Advanced Training.

Professor P. Macchiarini gives lectures, devoted to the modern achievements of regenerative medicine and prospects of development on a regular basis. The last was presented within the framework of the conference «Regenerative medicine – achievements and prospects» on February, 25th, 2011. Lectures were given by:

- The professor of regenerative medicine of the Karolinska Institute (Stockholm), the head of the regenerative surgery and biotransplantation department of the Careggi University Hospital (Florence) Paolo Macchiarini.
- The deputy head of the Biology and development Institution of the Russian Academy of Sciences, professor A.V. Vasilyev “Reparative technologies in the medicine: the results of the research, carried out by the Biology and development Institution of the Russian Academy of Sciences and the experience of interaction with the medical institutions”.

Thereby, the Center of the Regenerative Medicine, supervised by the leading scientist professor P. Macchiarini and founded as a part of the scientific divisions of Kuban Medical University, operating within the framework of the «Modern technologies of regenerative medicine and transplantology» SEC, allows to provide the development of the priority areas of the University developments. The University itself will support the research work of laboratories of the Center, it will be also supported by different grants of the scientific funds, commercial organizations, leaders of Regional Clinical Hospital. The University and the Hospital have qualified personnel ready to execute the given tasks. Now 128 doctors of medicine, 3 academicians (1 – academician of the RAMS, 2 academicians by correspondence of the RAMS), 373 candidates of medical sciences work in the Kuban Medical University.

The development of the Center will allow designing new medical technologies in the field of regenerative medicine, including creation of airway and lung tissue to decrease the death rate of the people with end stage of lungs diseases. These developments will be significant, both for the country, and for the world community. In this sense, the research program of the Regenerative Medicine Center corresponds to the strategic goals of the University development. The center allows to develop cooperation with the other scientific, educational and commercial institutions and to receive the additional financial and material resources

required for Kuban Medical University' development and training of highly skilled experts in the priority areas of medicine.