

## PREFACE

*R.E. Kavetsky Institute of Experimental Pathology, Oncology and Radiobiology, NAS of Ukraine — 50<sup>th</sup> Anniversary*

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R.E. Kavetsky Institute of Experimental Pathology, Oncology and Radiobiology (IEPOR) of National Academy of Sciences (NAS) of Ukraine was founded in 1960 by Council of Ministers of UkrSSR. The main aims of the new Institute were to intensify the investigations in the field of oncology, to allow the practical help for clinics and hospitals and to train the physicians specializing in surgical, medical and radiological oncology.

The founder and the first director of the Institute was a famous oncologist and pathophysiological Academician R.E. Kavetsky. Fruitful work of the Institute allowed improving significantly the level of oncological health care in Ukraine, initiating a number of priority studies in the field of experimental and clinical oncology that resulted in the significant enlargement of scientific research trends. This promoted the decision of the Council of Ministers of UkrSSR to transfer the Institute to the Academy of Sciences of UkrSSR in 1971 with the new title — Institute of Oncology Problems of Academy of Sciences of UkrSSR. The Institute has accounted 302 collaborators, including 102 scientific researchers, 12 Doctors of Sciences, and 64 Ph.D. After the death of Academician R.E. Kavetsky in 1978, the Institute has been headed by his disciple Academician V.G. Pinchuk, and the Institute has been named by its founder R.E. Kavetsky. Taking into account the broadened scientific subjects in 1991 the Institute has been re-named as R.E. Kavetsky Institute of Experimental Pathology, Oncology and Radiobiology, Academy of Sciences of Ukraine. At present time the Institute is headed by Academician of NAS of Ukraine V.F. Chekhun.

Scientific activity of many prominent scientists of Ukraine who have made a significant impact in the development of important fundamental and applied problems of molecular oncology, experimental pathology, immunology and radiobiology, has been closely related to this Institute. Activity of R.E. Kavetsky, V.G. Pinchuk, Z.A. Butenko, K.P. Ganina, D.G. Zatul, Yu.O. Umansky, G.I. Kulik and many other scientists promoted quick progress in studies in a number of scientific fields: «Cytology of tumor growth»; «Research of molecular and cellular mechanisms of leukaemogenesis»; «Genetics of human cancer»; «Biotherapy. Natural anticancer compounds»; «Immunology of malignant growth».

Due to the fruitful work of collaborators of the Institute, there have been initiated and are presently under development the priority research activities that are recognized world-wide, namely «Radiobiological and ecologic aspects of Chernobyl power plant accident», «Study of biological action of laser irradiation and development of methods of photodynamic therapy of neoplasia», «Cancer stem cells», «Study

of pathogenetic aspects of metastasis», «Molecular basis and medico-biological problems of pharmacologic resistance», «Tumor cell microenvironment», «Fundamental mechanisms, means and methods of sorption detoxification therapy».

Presently IEPOR NAS of Ukraine is a potent center of scientific research devoted to the most actual problems of experimental pathology, molecular oncology, radiobiology and biotechnology. In the Institute there are 11 scientific departments where 284 collaborators work, including 140 researchers, from which — 1 Academician of NASU, 25 Doctors of Sciences, 67 Ph.D. and 17 post-graduate students.

Among the most important innovative developments of the Institute one could mention technology of early and differential diagnostics of precancerous and cancerous processes of different localizations; methods for evaluation of tumor sensitivity to anticancer means preparations to prognose the therapeutic efficacy and individualize the treatment; medico-genetic consultation of oncological patients and their family members; evaluation of genome instability of peripheral blood lymphocytes; determination of human individual radiation sensitivity; molecular methods of prognosis of disease outcome.

There has been developed an original anticancer vaccine on the basis of patients' tumor antigens and adjuvants of bacterial origin that is used in clinics.

Significant progress has been made also in the field of nanotechnology, in particular, for the first time nanocomposites of ferrous oxide for creation of vector system for delivery of anticancer preparations have been produced.

The achievements of the scientists of the Institute have been highly appraised by the Government of Ukraine and by scientific community: 14 scientists are the Laureates of State Awards, 20 scientists were awarded by personal Award of NAS of Ukraine, 7 scientists received degree of «Honored Worker of Science and Technology of Ukraine». Scientific achievements are reflected in more than 150 patents and more than 300 monographs that have been highly appreciated by scientific community.

The Institute pays a great attention to coordination of scientific research in the field of experimental and clinical oncology, and cooperates with scientific and educational organizations of Ukraine, regional and city oncological hospitals for implementation of the developments of fundamental oncology into medical practice. On the basis of the Institute a Problem Commission «Oncology» of Ministry of Health and Academy of Medical Sciences of Ukraine is functioning.

The Institute provides the cooperation with many universities and oncological centers of Great Britain, Spain, Italy, Canada, Germany, France, USA, Sweden, Switzerland, Japan.

Since 1994 the Institute is the only one organization from Ukraine which is the associated member of the Organization of European Cancer Institutes (OECEEIG). The leading scientists of IEPOR are associated members of international organizations: ASCO, BACR, EACR, ESMO, ESHO, INCTR, IFCC, SRA, etc. The Institute is a founder of International scientific-theoretical journal «Experimental Oncology» (1979) and scientific-practical journal «Oncologiya» (1999), that are widely recognized in Ukraine, CIS and many countries in the world.

On the basis of IEPOR of NAS of Ukraine there has been created and functions the Bank of cell and tissue cultures of man and animals — a unique collection of cell cultures and tumor strains for performance of experimental studies, which belongs to National Heritage of Ukraine. The treasury of Institute library accounts 49244 scientific journals and 18687 monographs.

In accordance with the order of the President of Ukraine an International Conference «Tumor and Organism: New Aspects of Old Problem» will be held on September 21–24th, 2010, in Kiev. This scientific meeting is devoted to the 50th anniversary of the Institute. It is planned to discuss up to date results of studies on interaction between tumor and host, to appoint the priority directions in the creation of methods for preclinical diagnostics and high-tech means of anticancer therapy.

The program of the Conference includes 5 sections: the first section will focus on the basic aspects of tumor biology and immunology. Topics include mechanisms

that determine metastasis and homing of tumor cells, tumor angiogenesis, the biology and molecular biology of cancer stem cells, immunological aspects of tumor-host interaction. The second section will focus on the tumor microenvironment as a key factor in tumor development and progression. Topics include hypoxia signaling, angiogenesis, aerobic glycolysis in human tumors as a basis for diagnostics and anticancer strategies, inflammation and cancer. The third section will cover fundamental and practical aspects of tumor markers: identification of novel tumor markers, peculiarity of signal transduction pathways in tumor cells, application of tumor markers and cell differentiation antigens for cancer diagnosis and prognosis. The fourth section will focus on underlying mechanisms of carcinogenesis and cancer prevention. Special emphasis will be given on the role of genetic and epigenetic alterations and their interaction in cancer development and novel approaches for creating of sensitive markers for early detection of prevention of cancer. The fifth section will cover the clinical and experimental investigation of cancer therapy mediated through tumor-host interaction (biotherapy, vascular disruptive therapy, etc.), validation of new targets for cancer therapy, and new strategies for delivering therapy to tumors. The special attention will be devoted to the problem of individualized therapy of cancer patients.

The materials of plenary and session lectures presented on conference are published in the current issue of «Experimental Oncology». In the next issue the publication of conference materials will be continued.

***Editorial Board  
of the journal «Experimental Oncology»***