

Science is the highest manifestation of human intelligence and service to humanity

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KALERIIA PAVLIVNA GANINA: THE LIFE DEDICATED TO SCIENCE AND MANKIND — ON THE CENTENNIAL BIRTHDAY



The honored master of science and engineering of Ukraine, laureate of the O. Bogomolets Prize, doctor of medicine, professor, and distinguished Ukrainian scientist — pathomorphologist and cytogeneticist — Kaleriia Pavlivna Ganina belongs to the leading figures in Ukrainian science. She belongs to the outstanding national researchers who have significantly advanced medical-biological science through new knowledge, shaping the development of genetic studies in cancer pathology in Ukraine for many years. Prof. Ganina's extensive scientific and teaching work formed a core foundation of cancer genetics in Ukraine.

Together with academician Rostislav Kavetsky, she set up the major principles of the cytological reactivity of the tumor-bearing host, laying down the foundations for a new research trend in experimental oncology. The depth of critical thought in harmony with dedication to science was the prominent quality of Prof. Ganina, noted

by all colleagues who were fortunate to work with her.

Kaleriia Pavlivna Ganina was born on May 20, 1926. Having graduated from a medical institute in 1949, she started her scientific and teaching career in the network of higher medical education. In 1960, Kaleriia Pavlivna joined the staff of Kyiv Research Institute of Experimental and Clinical Oncology (nowadays R.E. Kavetsky Institute of Experimental Pathology, Oncology and Radiobiology of the National Academy of Sciences of Ukraine). The more than 40-year research activity at this Institute was the most fruitful period of Prof. Ganina's scientific career.

Here, the priority trend in her studies was established, namely, the study of cytogenetic alterations in cancer cells and in non-malignant cells of precancerous pathologies, which laid the foundation for the Ukrainian scholarly direction in human cancer genetics.

Her research began with examining the clinical and morphological features of testicular cancer, as well as its morphogenesis and histogenesis. The results of this study enabled her to characterize the morphological patterns of precancerous and cancerous lesions and to propose an algorithm for differential diagnosis. These findings formed the basis of her doctoral thesis "Morphology and histogenesis of testicular tumors." The monograph published under the same title became a guidebook for practicing oncologists. Prof. Ganina's studies attracted the attention of the global scientific community, and she was invited to serve as a WHO expert on

the histological classification of this tumor type. Her work contributed significantly to the development of the unified international classification of testicular tumors, which was later implemented in clinical practice in Europe.

Further research by Prof. Ganina shaped knowledge of the genetic basis underlying the process of tumor development. She developed approaches for the cytogenetic diagnosis of precancerous conditions and cancer. Alongside the genetic alterations in cancer cells, Prof. Ganina studied the corresponding changes in somatic non-malignant cells outside the tumor. For the first time in Ukraine, the role of genetic factors in the origin of neoplasms was substantiated. Genetic alterations in cells have been proven to precede the morphologic manifestation of tumor growth. The analysis of genetic features before the appearance of the malignant growth could open the way for early cancer detection and prognosis of the course of the disease. The multicenter clinic-genealogical studies of cancer patients, as well as individuals at cancer risk due to exposure to the adverse industrial factors in various regions of Ukraine, were prioritized in scientific activities led by Prof. Ganina. Such studies became a question of paramount importance following the Chernobyl catastrophe since radionuclide contamination of the environment is an essential risk factor for cancer development. The analysis of cytogenetic alterations in the peripheral blood lymphocytes for tracking cancer development proved the importance of genome instability underlying neoplastic transformation. Prof. Ganina has always encouraged the importance of combining cytogenetic and morphological analyses, considering the tumor as a complex biological system wherein the morphological changes reflect the genomic alterations.

The scientific legacy of Prof. Ganina comprises more than 400 scientific works, including many monographs and numerous methodical guidelines. She was a thesis supervisor for a dozen scientists.

Prof. Ganina's scientific school of cancer genetics has brought together researchers of all ages, ensuring continuity in the advancement of this research strand. Prof. Ganina's followers continue to investigate cellular and genetic alterations in tumors, advancing the methods she has established in both basic and applied research.

Prof. Ganina was a principled scientist who demanded the exactness of statements and the correspondence of the conclusions to the results obtained. She warned against the hasty generalizations. All her research activities were based on the principles of scientific integrity, comprising the critical analysis of the findings, the correctness of their interpretation, and responsibility for each scientific statement.

She paid particular attention to the professional formation of young researchers, supporting them in their research, encouraging independent thinking and responsibility for the results.

The colleagues and followers of Prof. Ganina noted that she combined her high exactingness with kindness in communication. She could enjoy the success of her students, creating an atmosphere of confidence and intellectual responsibility in her research teams.

The remark by academician Borys Paton "There is no greater honor than to serve science and humanity" is the perfect one to describe the life path and scientific accomplishments of Kaleriia Pavlivna.

The centennial birthday celebration of Kaleriia Pavlivna Ganina offers a meaningful opportunity to honor the distinguished scientist and reflect on her contributions to Ukrainian science. Her name remains an indispensable part of the history and advancement of national oncology.

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