



### **Professor Sergej Inge Vechtomov**

**Foreign Member of the Lithuanian Academy of Sciences since 2002**

Professor Inge Vechtomov Sergey Georgievich, a distinguished Russian geneticist, academician of the Russian Academy of Sciences, was born in 1939 to a family of writers in Leningrad and spent the second world war in the besieged city with his mother.

In 1961, Inge-Vechtomov graduated from the Leningrad State University, Department of Genetics and Breeding. In 1965, defended the candidate of science dissertation titled “A Study of the Direct Mutations and Reversions of Adenine Requirement Character in Yeast” and was appointed an assistant with the Department of Genetics and Breeding. In 1967–1968, he underwent training in the United States—at Yale University (New Haven, Connecticut) and University of California (Berkeley, California). Since 1969, IngeVechtomov was the head of the Laboratory of Physiological Genetics with Leningrad State University. In 1972, he defended the doctor of science dissertation titled “Structure, Function, and Interaction of Genes in Yeasts” and in 1973, Inge-Vechtomov was elected the head of the Department of Genetics and Breeding and head of the Department of Genetics with the Biological Institute of Leningrad State University. In 1980–1989, he was the dean of the Faculty of Biology and Soil Science, Leningrad State University. In 1987, Inge-Vechtomov was elected a corresponding member of the USSR Academy of Sciences; in 2003, a full member of the Russian Academy of Sciences; and in 2002, a foreign member of the Academy of Sciences of Lithuania. In 2005, head of the St. Petersburg Branch of the Vavilov Institute of General Genetics, Russian Academy of Sciences.

Professor Inge-Vechtomov highly contributed to the research into molecular, ecological, and evolutionary genetics. His works in the field of yeast genetics are recognized worldwide. Working with this model object, IngeVechtomov established a new direction in studying the genetic control of precision protein synthesis. For the first time, the genes SUP35 and SUP45 and their products, translation termination factors, were identified. The follow-up of these studies was the research into the mechanism of epigenetic control of precision translation connected with the action of [PSI+] extrachromosomal determinant. In his works, Inge-Vechtomov has proved that [PSI] is a conformational isomer (prion) involved in translation termination. He guided largescale studies on identification and characterization of other yeast prions. These works formed the background for the

concepts of the mechanism of protein inheritance. Yeast prions appeared a convenient and safe model for studying the mechanisms of emergence and spreading of human and animal prion diseases, including neurodegenerative amyloidoses of various etiologies. Results of these studies are used in developing diagnostic methods for such diseases. The problems in ecological genetics occupy an important place in the sphere of Inge-Vechtomov's scientific interests. The studies into molecular mechanisms underlying modification variability of yeast mating, which are subsequently removed by repair mechanisms have led to development of the  $\alpha$  test—a system for testing the genetic activity of environmental factors. These works are important for solving the problems in genotoxicology and genetic safety. In recent years, Inge-Vechtomov has been successfully developing the genetic direction that considers the cell as a system where the same genes are involved in the control of different cell processes. He pioneered in developing the principle of polyvariance in template processes, which considers the variation mechanisms in the reproduction and realization of genetic information from the unified standpoint, and has advanced the hypothesis of SOS translation implying that the cell under conditions of energy deprivation synthesizes proteins with mistakes bypassing the ribosomal correction, requiring additional energy spending.

Prof. Inge-Vechtomov is the author of over 250 scientific publications, including the textbooks and manuals *Introduction to Molecular Genetics* (1983), *Genetics with Basics of Breeding* (1989), and *Particular Genetics of Saccharomyces Yeasts* (coauthored with T.S. Karpova, 1993), as well as the monograph *Genetic Control of Protein Synthesis* (coauthored with M.D. Ter-Ovanesyan, 1988).

He supervised 45 candidate of science and 5 doctor of science dissertations. The educational activity of the Department of Genetics and Breeding with St. Petersburg State University, headed by Inge-Vechtomov, is highly esteemed both in this country and abroad. Many foreign university and postgraduate students, now successfully working in many countries, have graduated from this department. Inge-Vechtomov has a high authority in the world scientific community, participating in organization and holding of large scientific meetings, presenting lectures at top conferences, and fruitfully collaborating with scientists from many countries.

Inge-Vechtomov was the founder and has been the editor-in-chief of the journal *Ekologicheskaya genetika* (Ecological Genetics); editor-in-chief of the journal *Vestnik SPbGU. Seriya biologii* (Courier of St. Petersburg State University: Biological Series); is a member of editorial boards of the journals *Vestnik VOGiS* (Herald of the All-Russia Society of Geneticists and Breeders) and *Fiziologicheskii zhurnal im. Sechenova* (Sechenov Journal of Physiology); and was a member of the editorial boards of the journals *Zhurnal obshchei biologii* (Journal of General Biology) in 1989–1999, *Priroda* (Nature) in 1989–1991, *Current Genetics* in 1982–1984, *IUBMB Life* in 2001–2006, and others.

Prof. Inge-Vechtomov is actively involved in scientific organizational activities. In 1974–1986, he significantly contributed to the foundation and development of the building for molecular genetics and molecular biology of Leningrad State University, to the activities of the expert councils with the Russian Foundation for Basic Research (1997–2005) and INTAS (1999–2003). In 1992–2004, Inge-Vechtomov was the president of the Vavilov Society of Geneticists and Breeders and is currently a deputy president of this society, chairman of the Scientific Council of the Russian Academy of Sciences for Genetics and Breeding (since 2007), chairman of the Ecological Section and a member of the Presidium of the Science and Technology Council with the Government of St.

Petersburg and the Master Council for Biological Sciences and Technology with the Ministry of Science and Education of the Russian Federation.

The scientific and educational activities of IngeVechtomov were recognized: he was awarded the Lenin Komsomol Prize for the series of publications on the gene structure and function in the system of genotype (1973), prize of St. Petersburg State University for educational merits (1995), and prize of the Government of the Russian Federation for the textbook Genetics with Basics of Breeding (1998). He is an Honored Scientist of the Russian Federation (1999), The Medal of the Order "For Merit to the Fatherland" (2010), Gratitude of the President of the Russian Federation (2015), N. I. Vavilov Gold Medal (2017).

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