

Dear readers, we dedicate this issue to the

Research Institute of Influenza

Deputy Director

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Nowadays, the Russian Research Institute of Influenza is the only one in the world that is focused on the detailed research of Influenza and other Acute Respiratory Diseases (ARD).

A.A. Smorodintsev founded the Research Institute of Influenza and headed it from 1967 until 1972. Smorodintsev was a great virologist, famous all over the world for his influenza research. He was the first to succeed in isolating the influenza virus in Russia in 1934. In addition, Smorodintsev was the first who created the live attenuated vaccine against influenza [1, 2].

Some of the most important scientific innovations including the new ways of diagnostics have been made due to Smorodintsev's research. Smorodintsev studied and evaluated the role of collective immunity during acute infections. He created the system of integrated prophylaxis against influenza by means of interferon inducers. He founded a clinic that specialized in the examination of influenza vaccines, immune-biological and etiotropic medicines.

From 1973 until 1976 the Institute was headed by Prof. M.P. Zykov and then from 1976 until 1988 by Prof. G.I. Karpuhin.

From 1988 to now, the Institute has been led by the academician O.I. Kiselev. He was a renowned specialist in the field of molecular virology and biochemistry. In 2004, he became a governmental award prize winner for his scientific contributions.

Due to Kiselev's ground-breaking research, the Institute has achieved outstanding progress in the sphere of the evolutionary variability of the influenza virus strains. This research was carried out by Prof. T.Y. Luzianina and Prof. D.B. Golubev. Prof. P.Y. Poliak and Prof. Y.C. Shvartsman studied antiviral immunity. Prof. A.A. Sominina created main diagnostic preparations for viral infections. Prof. G.I. Alexandrova has created the first cold-adapted reassortant live influenza vaccine and studied the molecular mechanisms of virus attenuation. Later, the analogous vaccine was created and licensed in the US and Europe under the trade name *FluMist*[®]. During that time Prof. P.D. Starshov and Prof. D.M. Zlydnikov developed the new approaches for the etiotropic and pathogenetic therapy of severe and acute forms of Influenza and other ARD. Prof. V.I. Il'enko and Dr. V.G. Platonov made significant achievements in the creation and mechanism investigation of the new therapeutic and prophylactic medicines. Rimantadine is one of them. In the Institute's clinic, the efficacy of rimantadine was demonstrated and the dosage and specific application schemes were developed. A team of virologists under the lead of Prof. A.S. Shadrin, Prof. L.G. Rudenko, and Prof. V.P. Drinevski

have been focused on the evaluation of the live and inactivated influenza vaccines.

During the 1970s, the system of the epidemiological and etiological influenza surveillance was founded. The system enabled the prediction of seasonal epidemics throughout the Russian Federation (Prof. Y.G. Ivannikov and I.G. Marinich)

Circa 1971 in the Research Institute of Influenza, the WHO National Influenza Centre began to work, focusing on the epidemiological and laboratory control for influenza and other acute respiratory infections. Since that time, the Russian Influenza surveillance system has been involved in the European Integrated Surveillance System (EISS). The Research Institute of Influenza serves as a training base for virologists and epidemiologists of the CIS and Eastern European countries involved in the EISS.

The Institute has a collection of viruses starting since 1930 with more than 20,000 strains. The collection includes the reference strains and epidemic influenza viruses of A, B, and C types as well as other viruses inducing acute respiratory infections. This collection is integrated into the European Virus Archive (EVA). In addition to viruses, the collection includes over sixty items of the diploid and continuous cell lines.

Currently, the research in the Institute of Influenza is conducted in several directions:

- Improvement of the epidemiological and etiological monitoring of influenza and other acute respiratory viral infections, the expansion of Russian Federation cooperation with the WHO.
- Molecular genetic and phylogenetic analyses of influenza viruses circulating in the country. Predicting the direction of the influenza virus variability and other viral agents.
- Identification of genetic determinants of the pathogenicity of existing and newly emerging viruses. The development of new methods for the isolation and taxonomy update for new viruses.
- The study of the molecular mechanisms of the pathogenesis of viral infections.
- Creating a new generation of diagnostic products. The development and implementation of new products for the diagnosis of viral infections, the characteristics of the cytokine status and other immunity factors.
- The development of recombinant influenza proteins and vector vaccines, obtaining viral reassortants for traditional ("seasonal") and pandemic influenza inactivated vaccines.

- Search and directed synthesis of new antiviral drugs of synthetic and natural origin. A comprehensive study of the mechanism of their inhibiting actions.
- Preclinical and clinical studies of toxicity, immunogenicity, and protective efficacy for the prevention of viral infections.
- The study of pathogenesis and improvement of treatment schemes of severe and complicated forms of influenza and other acute respiratory viral infections in adults and children.
- The expansion of the collection of influenza and other respiratory viruses, cell cultures, and hybridomas for the production of monoclonal antibodies. Creation of electronic and printed catalogs.

The Institute of Influenza is the research center and base for the training of highly qualified specialists (graduate and postgraduate traineeship) in three disciplines: Virology (03.02.02), Epidemiology (14.02.02) and Infection Diseases (14.01.09).

REFERENCES

1. Smorodintsev AA, Tushinsky MD, Drobyshevskaya AI, Korovin AA. Investigation on volunteers infected with the influenza virus. *Am J Med Sci* 1937; 194, 59-70.
2. Smorodintsev AA. New live vaccines against virus diseases. *Am J Public Health Nations Health*. 1960; 50(6), 40-45.