

THE LATVIAN INSTITUTE OF ORGANIC SYNTHESIS-50



Fifty years ago the Institute of Organic Synthesis was created at the Latvian Academy of Sciences. This institute differed essentially from the usual academic institutes in its unique management structure, which brilliantly promoted introduction of the results of fundamental investigations into medical and agricultural practise.

In addition to chemical synthesis and analytical laboratories, the Institute also incorporated pharmacology and toxicology laboratories with a vivarium and a nursery for rearing laboratory animals, laboratories for technological applications, the development of prepared medicines, analysis and standardization, and a Experimental Plant. With such a structure, the institute was able to realize the full cycle of drug creation ranging from conception and chemical synthesis or gene technology (*interferon*, *interleukin*) to release of the first industrial batches. The developed technologies were then transferred to the plants operated by the Ministry of Medical Industry. In some cases production of the drugs was continued at the Experimental plant – when its synthesis was a complicated process (peptide bioregulators, prostaglandins) and when the product was destined for export (*storafur*). The latter gave the Institute the means for acquiring the scientific equipment and improving the production process.

The Institute of Organic Synthesis created 16 original medicines, in 11 of which the active substance was a heterocyclic compound. The institute introduced more than 60 generic preparations for the treatment of cancer, various infections, cardiovascular disease, and other illnesses.

In addition to the fundamental investigations and the development of drugs, the Institute was one of the first in the Soviet Union to use computers to predict the biological activity of organic compounds. It planned a biological research center in order to conduct preclinical trials in accordance with world standards (GLP), promoted the introduction of patent protection for chemicals, defended its patents in the Japanese court, organized collaboration with pharmaceutical companies in Japan, Germany, France, Finland, the USA, and other nations, and started to export its products to Japan, France, and other countries.

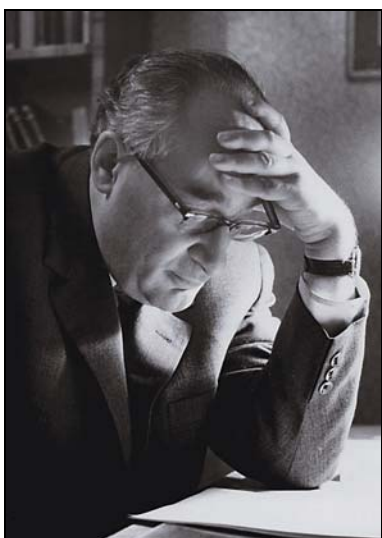
Since 1991, when Latvia regained its independence, there were substantial changes in Latvian science. These changes also affected the Institute of Organic Synthesis, where the number of workers was reduced by a third. The Institute's department of molecular biology went to form part of Latvian University, while the pharmaceutical company Grindeks was created on the basis of the former Experimental plant – the toxicology laboratory, and the pharmacokinetics group of the Institute of Organic Synthesis.

In order to overcome the increasing financial constraints the Institute intensified its international activity. Contracts were signed with pharmaceutical companies in the USA, Great Britain, Switzerland, Finland, Sweden, and Japan for the synthesis of biologically active compounds and the development of methods for their production, and joint projects with the pharmaceutical companies of Germany, Great Britain, and Sweden were started.

The Institute continues to publish the international journal "Chemistry of Heterocyclic Compounds," not only preserving its periodicity and increasing its size but has also begun to publish an on-line edition in conjunction with the Springer publishers.

These historical events and also the prospects for the development of the Latvian Institute of Organic Synthesis are illustrated in the respective articles in this issue of the journal. Some results from collaborators at the Institute associated with the chemistry of heterocyclic compounds are included.

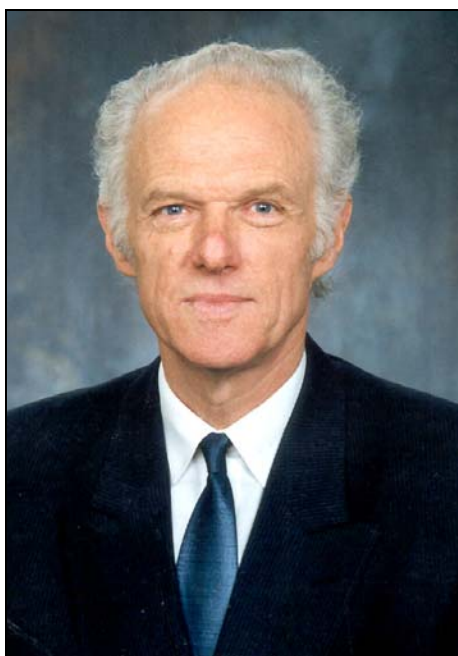
Prof. E. Lukevics, Editor-in-Chief



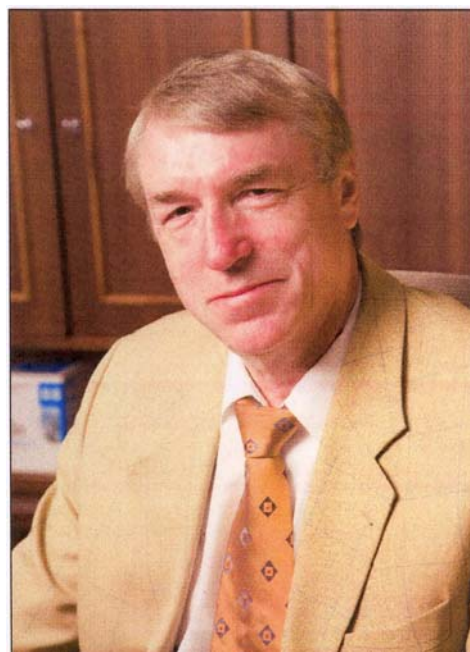
Solomon Hiller (1915-1975), Academician of the Academy of Sciences of the Latvian SSR. Founder of the Institute of Organic Synthesis and its director for 18 years. Specialist in the chemistry of heterocyclic compounds and scientific manager having the ability to carry the results of scientific investigations forward to practical application



Gunars Chipens, Academician of the Latvian Academy of Sciences. Director of the IOS from 1975 to 1982. He works in the field of the chemistry and biology of peptide hormones and organized the first production of bioregulators of the peptide type in Latvia



Edmunds Lukevics, Academician of the Latvian Academy of Sciences. Director of the IOS from October 1982 to 2003 inclusive. Specialist in the field of organosilicon and organogermanium chemistry, one of the founders of silicon and germanium bioorganic chemistry



Ivars Kalvinsh, Academician of the Latvian Academy of Sciences. Director of the IOS since January 1, 2004. Specialist in medical chemistry, author of several drugs



Mariya Shimanska (1922-1995), Honorary Member of the Latvian Academy of Sciences. First Deputy Director of the IOS on scientific work. Founder of the Laboratory of Catalytic Synthesis



Gustavs Vanags (1891-1965), Academician of the Academy of Sciences of the Latvian SSR. He initiated the development of theoretical organic chemistry in the Republic in the post-war years

Sofija Zaeva (1895-1971), Professor. She organized the first antimicrobial trials of products from the Institute



Margeris Lidaks (1928-2003), Academician of the Latvian Academy of Sciences, Deputy Director of the IOS on scientific work (1964-1971). He worked in the field of organic chemistry, mostly heterocyclic chemistry, and medicinal chemistry, author of several drugs

