

EFPIA was set up in 1978. The aim of the Association is to promote pharmaceutical discovery and development in Europe and to bring to the market medicinal products in order to improve human health worldwide. In addition, it pursues a mainly scientific aim, ensuring and promoting the technological and economic development of the pharmaceutical industry in Europe.

Research constitutes the main driver of the pharmaceutical companies that bring innovative medicines to patients. It is critical to their sustainable growth to keep the engine of innovation on. This requires ever more resources – and both financial resources and human resources are key to the discovery and development of new medicines.

Research and innovation are highlighted by the development of the Lisbon Strategy that has directed EU policies since its adoption in 2000. Education is the necessary link between research and innovation – together they form the so-called “knowledge-triangle” that fuels the engine of the knowledge economy.

“Portraits of Science – Scientists of Tomorrow” brings together **30 scientists** from **30 countries in Europe**. This publication collects their testimonies and expectations about their careers in Europe – what would make Europe more attractive to compete with other regions in the world?

Contributions included in this publication are reproduced as sent in by the nominees, with minimal editorial adaptations, so that spontaneousness is being safeguarded.

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**Education**



**2001:** University of Minnesota, Biophysics, postdoctoral associate  
**1998:** University of Minnesota, Biochemistry and biophysics, Ph.D.  
**1993:** Vilnius University, Biochemistry, 5-year diploma (BS/MS)  
**1992:** Summer, University of Oslo, School of Environmental Protection

**Professional experience**

**2005-present:** Institute of Biotechnology, Head of Laboratory  
**2003-2005:** Johnson&Johnson, Pharmaceutical Research and Development Scientist  
**2001-2003:** 3-Dimensional Pharmaceuticals (acquired by Johnson&Johnson) Scientist  
**1998-2001:** University of Minnesota, Postdoctoral associate  
**1993-1998:** University of Minnesota, Research Assistant  
**1991-1993:** Institute of Biochemistry, Junior scientist  
 Submitted 2 patent applications.  
 Published more than 20 scientific articles in peer-review journals.  
 Attended more than 40 scientific conferences worldwide, gave invited oral and poster presentations.

**DEVELOPING NOVEL COMPOUNDS**

At the Laboratory of Biothermodynamics and Drug Design, established in 2006 at the Institute of Biotechnology, we are designing, synthesizing, and evaluating novel chemical compounds with anticancer activity.

Laboratory's scientists carry out research in several fields: recombinant cloning and purification of target proteins, organic synthesis of designed compounds, biothermodynamic measurements of novel compound binding to target proteins, and molecular modeling of compound-protein interaction. Lead compounds that show good results by in vitro methods are then tested on human cancerous cells.

A series of compounds were produced to inhibit carbonic anhydrase, especially the isozyme IX that participates in cancer development. Furthermore, a group of high-potency compounds were made to inhibit chaperone Hsp90 ATP-ase activity, essential in refolding of numerous clients acting in various malignancies. Compound binding to target proteins was in single-digit nanomolar range as measured by isothermal titration calorimetry and the thermal shift assay. A number of thermodynamic binding models of fundamental scientific importance were designed and described in the laboratory.

Overall, about 20 target proteins were produced by recombinant methods and over 30 novel potent compounds were produced. The laboratory

is looking for additional collaborations to help advance the compounds to clinical practice.

**LOOKING FORWARD**

My career goal that has been already achieved was to study in the United States and return to Lithuania. After I gained the Ph.D. at the Uni-

***"It is essential for a new laboratory to look forward and establish efficient connections with industry and share our expertise"***

versity of Minnesota and industrial experience at 3-Dimensional Pharmaceuticals and Johnson&Johnson, I returned to Lithuania and established the Laboratory of Biothermodynamics and Drug Design.

Initial phase of the establishment went quite well. I have assembled a team of about 20 researchers, gained international and national research grants, wrote a textbook that helped teach researchers and students the biothermodynamic methods, participated at international conferences, started fruitful collaborations with several European scientists, published first scientific articles, and submitted patent applications.

However, it is essential for a new laboratory to look forward and establish efficient connections with industry and share our expertise.



It is also essential to promote our services, coordinate research tasks, and obtain funding from industry. Especially valuable could be our capabilities in recombinant target protein production and characterization, and lead compound binding evaluation by using novel techniques partially developed in our laboratory.

I hope that such collaborations will lead to new projects with industrial researchers and help develop novel compounds with real therapeutic benefit. 🍀

### Awards

- 1. Award "Direction-Home" given to Lithuanian scientist selected by an independent Swedish-Lithuanian scientific council, by "Telia Sonera" Inc., Sweden (100.000,00 LT)
- 2. Robert Jenness Award by University of Minnesota Department of Biochemistry, Molecular Biology, and Biophysics for the best postdoctoral scientist in 2000 (\$1500,00)
- 3. Third place in Lithuanian High School Olympics (chemistry), high school student, 1988

