



Committee)

## “What the Industry Expects from Molecular Life Sciences Graduates?”

**Detlev Riesner**

**Heinrich-University Duesseldorf and Qiagen N.V., Germany**



Detlev Riesner, born 1941, had held the chair of Biophysics at the Heinrich-Heine-University in Düsseldorf since 1980 and retired in 2006. He has held the position of Dean of the Science Faculty (1991-92), Vice President of the University (Research) (1996-99), Director of Technology (1999-2006), and became a member of the University's board of trustees in 2007. Prior to that, he was Professor of Biophysical Chemistry at the Darmstadt Institute of Technology and from 1975 to 1977 Lecturer of Biophysical Chemistry at Hannover Medical School. He is a co-founder of the Company Qiagen N.V., a member of the Supervisory board since 1996 and Chairman of the supervisory board since 1999. He is a member of the boards of several biotech-companies and scientific agencies. His main research areas were infectious molecules, i.e. viroids in plants and prions in humans and animals

**Abstract:**

*More than 90% of all graduates in life sciences leave the academic career and follow careers in non-university research or management. “Talent outweighs experience” is the general rule inside as well as outside the university, and the scientific background is an asset in scientific excellence, methodological expertise and creativity. Work in industry requires competencies adapted to innovation, problem solving and complexity, customer focus, business impact and accountability. It will be pointed out how these competencies will be required on different levels in the industry like research, management and leadership. The scientist graduated from university has to adapt his outstanding knowledge to new forms of competence mapping, project management, allocation of resources, team work and communication. Helpful are training courses in so-called soft skills which are offered nowadays by many universities. Based on the requirements of the industry some advice for job interviews will be given.*

## “From Basic Research to Applied Science”

Ruth Arnon

Weizmann Institute of Science, Rehovot, Israel



PROF. RUTH ARNON, President of the Israel Academy of Sciences and Humanities. Formerly Vice-President of the Weizmann Institute of Science Prof. Arnon is a noted immunologist. Prior to her appointment as Vice-President, she served as Head of the Department of Chemical Immunology, and as Dean of the Faculty of Biology. Prof. Arnon has made significant contributions to the fields of vaccine development, cancer research and to the study of parasitic diseases. She is the co-developer of Copaxone® a drug for the treatment of multiple sclerosis, which is marketed worldwide. Prof. Arnon is a member of the Israel Academy of Sciences, and was the Chairperson of its Sciences division from 1995-2001. On the world scene, she is an elected member of the European Molecular Biology Organization (EMBO), and the American Philosophical Society (APS). She has served as President of the

European Federation of Immunological Societies (EFIS), and as Secretary-General of the International Union of Immunological Societies (IUIS), as well as the President of the Association of Academies of Sciences in Asia (AASA). Her awards include the Robert Koch Prize in Medical Sciences, Spain's Diaz Memorial Prize, France's Legion of Honor, the Hadassah World Organization's Women of Distinction Award, the Wolf Prize for Medicine, the Rothschild Prize for Biology, The AESKU Prize for Life Contribution to Autoimmunity and the Israel Prize. She received Honorary Doctorates from Ben-Gurion University of the Negev, and Tel-Aviv University.

### **Abstract:**

*“Scientific activity carried out in academic institutions is comprised mostly if not entirely, of basic research, which is curiosity-driven. In some cases the results may become applicable, when they are related to a problem that merits the development into an applied project. At this stage it is ready for Technology Transfer to industry, a small or large company, for further development. This will be exemplified here by a project from my own research activity, namely the research on copolymer 1 and its beneficial effect in all animal models of multiple sclerosis, (EAE). It reached that stage and was developed by the TEVA Company to an approved drug Copaxone®, for the treatment of MS patients. This project has started as completely basic research program directed to the understanding of the mechanism of the animal model of MS, experimental autoimmune encephalomyelitis (EAE). In this process several synthetic copolymers were investigated, one of which demonstrated high efficacy in the suppression of EAE. Collaboration with neurologists and subsequent clinical trials indicated its efficacy in MS patients as well. At this point it turned into applicable research aimed at the evaluation of this copolymer for applied purposes, ultimately resulting in a drug for MS, which was developed by TEVA. The resulting drug Copaxone® was approved in 1996 by the FDA and since then in many other countries. Today it is marketed worldwide with about one third of the MS drugs market share, and is used by over 250,000 patients, with good efficacy and high safety profile. Above and beyond that, the success of this applied project enabled the support of continuous basic research in the field of MS”.*

***“How Medical Schools Prepare Students for the Industry? „***

**Tomáš Zima**

**First Faculty of Medicine, Charles University, Prague, Czech Republic**



Prof. Tomáš ZIMA, MD, DSc. (1966) graduated from the First Faculty of Medicine, Charles University, Prague in 1990. He received PhD degree in Biochemistry in 1993 and DSc degree of Medicine in 2000 and professor of medical chemistry and biochemistry is since 2001 and Head of Institute of Medical Biochemistry and Laboratory Medicine, the 1st Faculty of Medicine, Charles University and General University Hospital Prague. He was the Dean of the First Faculty of Medicine, Charles University from 2005 to 2012 and now, he is the vicedean of the faculty. From 2009, he is a visiting professor of Faculty of Medicine, Zagreb University. His main research interests include oxidative stress, AGE's, experimental nephrology, tumour markers, and laboratory management and accreditation.

He is author of more than 350 articles, author of 5 books and co-author of 58 chapters in books. He is the Editor in Chief – Folia Biologica and Addictology. Prof. Zima has member in many learned societies (member of Czech Medical Academy, Czech Learned Society) and their Boards (e.g. member of Executive Board EFLM, president of Czech Society of Clinical Biochemistry) and he was the Chair of Executive Committee of FEBS in 2011 and now, is a member of education Committee of FEBS.

He received many awards among which, “Professor Honoris Causa, State Medical University JY. Horbachevski in Ternopol, Ukraine, “Research Award”-12th Asian-Pacific Congress of Clinical Biochemistry, Seoul (2010) and “Award of President of Czech Medical Chamber for contribution in continual education” (2010) and ESBRA Peter Berner Award (2011).

**Abstract:**

*“More than 90% of all graduates in life sciences leave the academic career and follow careers in non-university research or management. “Talent outweighs experience” is the general rule inside as well as outside the university, and the scientific background is an asset in scientific excellence, methodological expertise and creativity. Work in industry requires competencies adapted to innovation, problem solving and complexity, customer focus, business impact and accountability. It will be pointed out how these competencies will be required on different levels in the industry like research, management and leadership. The scientist graduated from university has to adapt his outstanding knowledge to new forms of competence mapping, project management, allocation of resources, team work and communication. Helpful are training courses in so-called soft skills which are offered nowadays by many universities. Based on the requirements of the industry some advice for job interviews will be given”.*