

## Editorial



Beat Ernst



Gerardo Ramos

On the occasion of Prof. Dr. Daniel Belluš 70th birthday, a symposium on 'Frontiers in Bioorganic Chemistry' was held in his honour at the University of Basel. More than 200 friends and colleagues of Daniel Belluš came together and enjoyed contributions from Stephan Hanessian, Léon Ghosez, Bernd Giese as well as from several former co-workers of Daniel. At that occasion, the idea of a special issue of CHIMIA dedicated to Daniel Belluš was born. It should concentrate on contributions from scientists who have had the opportunity to collaborate with Daniel at some point in their career. The result is the present issue entitled *From Chemical Research to Industrial Applications* and covers a large variety of research areas, their common denominator being chemistry. These areas reflect the interests of Daniel Belluš, who was and still is fascinated by all aspects of organic chemistry, a fascination he also transmitted to his co-workers.

Working at the Slovak Academy of Sciences (1961–67) and later on at the ETH Zürich (1967–69) Daniel Belluš pioneered the field of organic photochemistry. In the Central Research Laboratories (CRL) of Ciba-Geigy in Basel (1969–85), he achieved several innovative contributions in the field of bioactive small ring compounds, e.g. the stereoselective synthesis of analogues of the natural insecticidal pyrethrum, the synthesis of suicide enzyme inhibitors like armentomycin and the mycotoxin moniliformin as well as squaric acid. In 1978 he discovered, together with Roger Malherbe, a new, broadly applicable reaction which allows ring enlargement by four carbons in one step (*Helv. Chim. Acta* 1978). The reaction is now recognized as the Belluš-Claisen rearrangement. The eighties were dedicated to the Cu-catalyzed reactions enabling the synthesis of numerous precursors of bioactive heterocycles. His article in *Pure Appl. Chem.* (1985) on this topic is an elegant blend of creative synthesis and thoughtful mechanistic analysis. It became one of his most cited publications, especially after the emergence of Cu-catalyzed atom transfer radical polymeriza-

tion techniques, i.e. 10–15 years after Belluš' paper was published. For his company, Belluš' contributions paved the way for products of multi-million revenues.

After a series of fast promotions, Daniel Belluš became Head of the CRL (1981–1985), which under his leadership developed into a center of industrial research excellence, thus attracting outstanding scientists and university graduates. He initiated R&D programs in several emerging methodologies, such as homogeneous catalysis, chiral chromatography or enzymatic reactions. In addition, he actively participated in the development of new photoinitiators and photoresists (*J.M.S. - Pure Appl. Chem.* 1994).

As Global Head of R&D of the Crop Protection Division of Ciba-Geigy (1985–1991) Prof. Belluš was responsible for 1600 scientists and staff in 14 countries. In this period, eleven new products were introduced to the world market. His decision to establish and to vigorously pursue the new research project *Chirality in Crop Protection* revolutionized former paradigms (*Angew. Chem.* 1991). Within a short time, it produced for Ciba-Geigy and now for Syngenta novel, environmentally vastly improved crop protection compounds. In his next position as Head of Global Corporate Research Units of Ciba-Geigy (1991–1996) Daniel Belluš assumed responsibility for the direction of the company's basic research programs and collaborative strategic alliances worldwide in selected areas of bioorganic and medicinal chemistry, e.g. glycochemistry and antisense technology, as well as modern areas of material and bioanalytical science. Even during these years, beside his top-managerial duties, Daniel Belluš also performed basic research on selected bio-oriented topics with 2–3 postdocs in his laboratories.

In addition, Daniel Belluš was very active as author (96 papers, 49 patents), as teacher and lecturer, as visiting professor (Zurich, Amsterdam, Montreal, Pittsburgh, Nagoya), as member of scientific and managerial societies, for example of the Board of Swiss Chemical Society, and in advisory boards of numerous journals. Inevitably, a number of honours were awarded to Daniel Belluš, including three honorary PhD titles. But limiting our reflections to his excellence in science would not cover all aspects of our enduring friendship. Our roads crossed some 25 years ago because of chemistry, which has remained the cornerstone in our long-lasting interactions. With his curiosity and tenacity necessary to open new doors to connect science with market needs, he still is our role model of a successful scientist in the chemical industry.

For all of us, having the opportunity to work close to him, we not only met a sharp and tireless chemist, but discovered a big-hearted man, full of humour and passion for science.

Beat Ernst  
Professor of Molecular Pharmacy  
University of Basel

Gerardo Ramos  
Head of Development  
Syngenta Crop Protection AG