

## Preface

The 29th FEBS Congress celebrates the 40th Anniversary of The Federation of European Biochemical Societies. The impetus for the founding of FEBS came from the wish for a closer cooperation of biochemical societies in Europe "... to promote the science of biochemistry, and in particular to encourage closer contacts between European biochemists by arranging meetings, exchanging information, and promoting contacts between the members of the Constituent Societies" [1]. It appears more than fortuitous that in the same year (1964) the European Molecular Biology Organisation (EMBO) came into being.

The late 1950s and early 1960s were marked by several noteworthy advances, which paved the way for molecular biology. In 1962, the Nobel Prize in Physiology and Medicine was awarded to Crick, Watson and Wilkins "for their discoveries concerning the molecular structure of nuclear acids and its significance for information transfer in living material" [2]. That same year, the Nobel Prize in Chemistry was awarded to Perutz and Kendrew "for their studies of the structures of globular proteins" [2]. In 1965, Jacob, Lwoff, and Monod won the prize "for their discoveries concerning genetic control of enzyme and virus synthesis" [2]. Around the same time, the nature of the genetic code (i.e., triplets or quadruplets, commaless or not) was still under debate. The problem had been solved, when in 1966 the 31st Cold Spring Harbor Symposium on Quantitative Biology [3] was devoted to this topic. Also, the 3rd FEBS Meeting organized by the Polish Biochemical Society in Warsaw [4] reflected the 'hot themes' of this era by giving prevalent attention to colloquium contributions and communications in the section entitled 'The properties and function of genetic elements'.

Five years later, in 1971, Fred Sanger and Paul Berg participated as lecturers in a NATO Advanced Study Institute in Erice (Sicily). I vividly remember a 'night session', where challenging new research topics were discussed. Sanger presented his ideas on how to tackle DNA sequencing, and Berg reported his first attempts to join DNA molecules from different sources *in vitro* and to introduce and express them in a host cell. In this context, the use of restriction enzymes discovered by Arber, and shortly after isolated by Nathans and Smith, was an important advance. It is unnecessary to recall the enormous progress that is based on DNA sequencing and recombinant DNA technologies. These and further newly de-

veloped biochemical and biophysical techniques finally permitted researchers to approach more complex aspects of cellular and organismic molecular biology: interplay of macromolecules in regulatory circuits; signal transduction and cell-cell communication; cell cycle and molecular clocks; dynamics of cell components, transport, and cellular trafficking; organization, biogenesis and function of biomolecular complexes and cell organelles; adaptation of cells to environmental conditions; defense mechanisms from immune response to parasite-host interactions; to accentuate just a few.

In the 'post-genomic era', mass screening procedures developed in proteomics and functional genomics, aiming at comprehensively analyzing cellular networks, are beginning to shed light on evolutionary diversity. Indispensable for molecular medicine, these new techniques help to unravel the molecular causes that lead from homeostasis to aberrant physiology.

Participants of the 2004 Warsaw Congress will have ample opportunity to hear the latest developments in these various fields. The 35 sessions, composing the six symposia of the congress, were well thought-out by the organizers and I am glad that a number of lecturers have contributed to this Warsaw Special Issue. The order of these minireviews follows the sequence of topics as set out in the programme. I hope that all participants will enjoy this venue and profit from the novel insights to be expected.

## References

- [1] The first Statutes of FEBS (2004) in: Forty Years of FEBS – A Memoir (H. Feldmann, Ed.), p. 4, Blackwell Publishing Ltd., Oxford.
- [2] The Nobel Prize Internet Archive. Available from <http://almaz.com/nobel/nobel.html>.
- [3] Cold Spring Harbor Symposia on Quantitative Biology. Available from <http://library.cshl.edu/symposia/>.
- [4] Abstracts of Communications of the 3rd Meeting of the Federation (1966) Academic Press, London and New York; PWN – Polish Scientific Publishers, Warszawa.

Horst Feldmann  
Editor

Available online 4 May 2004