

Preface

The relationship between chemistry and biology is succinctly embodied in the often-cited statement “cells obey the laws of chemistry”. In this context, it is also relevant to reflect on the opening lines of the famous paper by Watson and Crick: “We wish to suggest a structure for the salt of deoxyribose nucleic acid [DNA]. This structure has novel features which are of considerable biological interest” [*Nature*, April 25, 737 (1953)]. The elucidation of the structure of DNA and the understanding of its implications in the fundamental processes of life have laid the foundation for the transformation of biology into a truly molecular science. An important note of caution on the interaction between chemistry and biology has been wisely expressed by Arthur Kornberg (Nobel laureate in medicine 1959) “...chemistry and biology are two distinctive cultures and the rift between them is serious, generally unappreciated, and counterproductive” [*Biochemistry* **26**, 6888 (1987)]. Fortunately, continued developments have resulted in building highly significant bridges between chemistry and biology. Thus, the impact of genomic research has led to further erosion of the boundaries between chemistry and biology.

Disciplines in science evolve over time, and new terms emerge which more adequately cover the evolutionary changes that take place in the disciplinary landscape. Today, there is an acknowledged recognition of a multidisciplinary area in which biological phenomena and biological processes are being defined in terms of detailed structural and mechanistic molecular events—this area represents the integration of chemistry and biology. The increasing role of molecular-level chemistry in biology has led to definitions such as biological chemistry or biomolecular chemistry.

IUPAC is alert to new developments in all areas in which the role of chemistry is implicated. In an earlier initiative, the scope of activities of two of the IUPAC Divisions of basic chemistry (viz. organic and physical chemistry) was expanded to include the activities directed at understanding the chemical basis of biological phenomena. Furthermore, an interdivisional committee on biomolecular chemistry was established. Deliberations within this committee have resulted in the development of the IUPAC project 2005-042-1-300 on “Chemistry for Biology”, <<http://www.iupac.org/projects/2005/2005-042-1-300>>. The focus of this project was to organize a Symposium-in-Print that would illustrate the fundamental role of chemistry in a wide variety of biological topics. The project has been initiated by the Division of Organic and Biomolecular Chemistry and is actively supported by a number of IUPAC Divisions and standing committees. These groups have assigned representatives to the task group of the project in order to have an input into the project from their specific chemical background. Some of the task group members have contributed papers to the present Symposium-in-Print.

It should be pointed out that the present Symposium-in-Print complements the contributions from several recent IUPAC-sponsored conferences such as the combined International Conference on Biodiversity (ICOB-5) and International Symposium on the Chemistry of Natural Products (ISCNP-25) in Kyoto, Japan, 2006, and the 9th Eurasia Conference on Chemical Sciences, Antalya, Turkey, 2006. Proceedings of these symposia are published in *Pure and Applied Chemistry (PAC)*. Taken together, these contributions constitute a broad spectrum of illustrations demonstrating the role and the fundamental implications of chemistry for biology.

It is a sad duty to report that Prof. Alastair I. Scott, one of the contributors to the Symposium-in-Print, passed away on 18 April 2007. Prof. Scott was Distinguished Professor of Chemistry and Biochemistry and Director, Center of Biological NMR, Texas A&M University. He was internationally held in high esteem as a scientist who built bridges between chemistry and biology with his work. Within IUPAC's Division of Organic and Biomolecular Chemistry, he played an active role in enthusi-

astically promoting the awareness of the relevance of chemistry for biology. Ian, as he was known to many of us, will be missed by all those who knew him. This issue of *PAC* is dedicated to his memory.

Torbjörn Norin
Task Group Chairman
Uendra Pandit
Task Group Member