Introduction from the Guest Editor

This Special Issue of *Carbohydrate Research* contains a selection of the oral communications and discussions that was contributed to the IV International Meeting on Conformational Studies of Carbohydrates, held in La Thuile (Aosta), Italy, during July 1996.

The meeting was organized by Massimo Ragazzi, from the Italian Research Council (CNR) in Milan, with the desire of maximum discussion on the topics "3D structures of carbohydrates" and "how they interact with proteins". As a satellite to the International Carbohydrate Symposium, it followed successful editions held in Sakai (Japan, 1990), Le Croisic (France, 1992) and Val Morin (Canada, 1994).

The importance of the roles played by carbohydrates in widely different areas (such as food, bio-compatible materials, microbial polymers, therapeutic agents) is increasingly being recognized. The understanding of structure–property relationships in terms of molecular features is among the aspects gaining most attention from the industrial (in particular pharmaceutical) world. In these years we have witnessed impressive progress in obtaining experimental data (especially from NMR) related to the 3D structures of oligo- and polysaccharides and of their complexes. The availability of relatively cheap, but powerful computers and software packages for molecular modelling has notably pushed both graphics and calculations in this research field: *ab initio* derived parameters improved force-field-based mechanistic analysis methods, making predictions of conformational behaviour more reliable. New techniques, such as atomic-field microscopy entered the polysaccharide arena, paralleled by original application of theoretical (Langrangian dynamics, hydrodynamics) and computational (genetic algorithms) tools. On the other hand, we have also felt the need for a deeper consensus on the tools used in interpretation and in modelling. This Meeting offered a special chance to join the approaches of theoreticians and others in discussing the strengths and limitations of the methods and in evaluating the role of diverse computations. The Symposium stretched over five sessions, each divided into Units, each comprising an introduction, given by a Discussion Leader, three to four short presentations followed by a general discussion. More than 50 contributions (oral communications and posters, on display for the whole meeting) covered a wide variety of advanced experimental tools, theoretical methods and computational techniques used in studying the solid-state and solution conformation of oligosaccharides and polysaccharides and their interactions with other molecules. They surely met the expectations of the organizers, offering timely knowledge about recent results and emerging techniques, promoting rich discussions on the "state-of-the-art". We found it quite appropriate to publish a selection of the scientific contributions on these pages here. In addition all abstracts have been put on the World-Wide Web, during and after the Milan Symposium.

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