Glycoconjugate Journal (1995) **12**: i–ii

Editorial

The study of glycoconjugates in pathological processes appears at last to have come of age. In a delightful review of the history of research on glycoconjugates, Professor José Cabezas (*Glycobiology: Background and Development*, an essay available from Dr Cabezas, Dept of Biochemistry and Molecular Biology, Avenida del Campo Charro, 37007 Salamanca, Spain) pointed out that the word 'mucus' was used as far back as the eighteenth century to refer to various viscous human and animal secretions, and that E. Eichwald, a Russian physician working in Germany, was the first to demonstrate in 1865 the conjugation of carbohydrate and protein. However, progress in the field was very slow between 1865 and the mid-twentieth century. Professor Jean Montreuil, in a highly personal and entertaining review (Introduction to Vol I, *Glycoconjugates: Comprehensive Biochemistry Series*, edited by J. Montreuil, H. Schachter and J. F. G. Vliegenthart, Elsevier, in press) attributes this lack of progress to the tremendous complexity of glycoconjugate structures and to the general view that carbohydrates were rather uninteresting reservoirs of food energy.

As most of the readers of this journal know only too well, the past 25 years have seen an explosion of activity in the glycoconjugate field. Initially, this was catalysed by advances in our knowledge of the fine structures of large glycoconjugates and the ability to classify these molecules into specific categories. Later, this expansion was rapidly fuelled by our increasing understanding of the physiological pathways involved in the biosynthesis and degradation of these molecules.

Where physiology leads, pathology usually follows, or so the old adage goes. This has been particularly true in the glycoconjugate field during the last ten years, but as our understanding has become more comprehensive, and as easier and more rapid techniques have become available to investigate glycoconjugate structure, it is becoming more difficult to tell the leader from the follower. As judged from the number of papers and scientific meetings on pathological topics in glycoconjugate research, there is a growing interest in the subject (see *Glycosylation and Disease*, 1994, **1**: 67–74, for examples of the diversity of the field).

It appears that glycans can be present on molecules in a myriad of forms that are affected by pathological processes. Much further work is required to define these forms and to understand the regulation of their synthesis and turnover, and the roles they play in the aetiology and progression of disease. Carbohydrate-based procedures for the diagnosis of disease have been developed based on the appearance of certain glycoforms, some of which are well documented in a clinical setting (for instance, reduced sialylation of transferrin in alcoholism, reduced galactosylation of IgG in rheumatoid arthritis, and non-enzymatic glycosylation in diabetes). Glycosylation changes on the cell surface are also of great relevance to disease as highlighted by the recent discovery of carbohydrate-mediated cell-cell interactions which are important in inflammation and possibly cancer metastasis. Finally, intensive effort is being expended in developing new therapeutic agents for a variety of diseases (for example, lysosomal storage diseases, anti-inflammatory agents).

Glycoconjugate Journal was started 11 years ago in response to the rapid growth of glycoconjugate research. The emphasis of the early papers was primarily on structure, biosynthesis and degradation but recent issues have included many papers on areas that now come under the umbrella of the term 'glycobiology', for example, our recent special issues on lectins organized by Nathan Sharon included papers on the various biological roles of the lectins. In order to reflect the changing situation in glycoconjugate research and the growing interest in the role of glycosylation in disease, it has been decided by the editors and publishers of *Glycoconjugate Journal* to merge with another glycan journal called *Glycosylation and Disease*. This merger will bring together under one cover many aspects of glycan research and thereby will establish an active and forward-looking medium for development of this fascinating subject.

Glycosylation and Disease was initiated by one of us (GAT) about eighteen months ago. Its aims and scope were to publish articles on any aspect of glycosylation (for example, glycoproteins, glycolipids, proteoglycans, or glycation) in relationship to diseases (for example, immunological, inflammatory and arthritic diseases, infections, metabolic disorders, malignancy, neurological disorders). Articles were intended to focus on glycosylation changes either as a marker of the disease process or, from a more fundamental point of view, as a means to understand basic pathological mechanisms. Articles were also accepted on inherited carbohydrate disorders, on the effects of toxicological agents (alcohol, tobacco, narcotics, environmental agents) on glycosylation, and on the role of glycosylation in the efficacy of new therapeutic agents. In its new format the aims and scope of *Glycosylation and Disease* will remain the same (see Vol 1 of the journal for details).

This issue of *Glycoconjugate Journal* is the first in which the two journals are combined. For historical reasons the name *Glycoconjugate Journal* will be retained but the increased scope of the new journal is indicated on the cover. *Glycosylation and Disease* will be printed as a separate section in the journal and any article submitted for publica-

tion in this section will be reviewed by a separate Editorial Board under the leadership of GAT. Potential authors will therefore have a choice between submitting papers to the basic glycosciences section (submissions to any one of T. Osawa, H. Schachter or J. F. G. Vliegenthart) or to the *Glycosylation and Disease* section (submissions to any one of M. C. Glick, G. A. Turner or S. Yazawa) according to the content of the article.

In this issue, the *Glycosylation and Disease* section contains review articles concerned with blood glycoconjugates as markers of disease. These illustrate, albeit in a restricted group of molecules, the wide nature of the disease states in which glycosylation changes are found, the diversity of the changes observed, and the diagnostic potential of these molecules.

The editors and the publishers, Chapman and Hall, are most excited by this new venture. We look to you, as readers and authors, to support our efforts to build a quality journal that will serve the needs of all the glycoconjugate community for many years in the future.

Graham A. Turner and Harry Schachter, editors

The contents of the last volume of *Glycosylation and Disease* are shown on pages 248–249.