

## Book review

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*Carbohydrate Recognition in Cellular Functions. Ciba Foundation Symposium 145*, edited by Gregory Bock and Sara Harnett, Wiley, Chichester, 1989, x + 294 pp. £ 32.50.

The book under review summarizes the proceedings of a Ciba Foundation Symposium chaired by E. Ruoslahti at the Ciba Foundation Headquarters in London on November 15–17, 1988. It explores the role of carbohydrates in communication between cells, the spatial restrictions of oligosaccharide–protein interactions, the amino acid sequences present in carbohydrate-binding proteins, and the remarkable species specificity of mammalian sperm receptors.

The symposium was attended by 27 experts in the field of cell recognition who participated in the general discussions and the discussions that followed the 15 papers presented. The text follows a uniform format, namely the paper, its references, the minutes of the discussion, and the references cited by the participants. In addition, the minutes of three general discussions are recorded. These and the discussion after each paper are quite interesting, as they explore many of the points not adequately covered or fully explained. It is also interesting that as the symposium progressed, the discussion became more detailed (they covered on average 6 pages in the first session and 13 pages in the last).

The first session started with a short Introduction by the Chairman, and this was followed by five papers, namely, Oligosaccharide–protein interaction: a three-dimensional view, by J. P. Carver, S. W. Michnick, A. Imberty, and D. A. Cumming; Multifunctional glycoprotein receptors for insulin and the insulin-like growth factor, by M. P. Czech, R. E. Lewis, and S. Corvera; Multiple subfamilies of carbohydrate recognition domains in animal lectins, by K. Drickamer; Glycoprotein oligosaccharides as recognition structures, by T. Feizi; and Binding mode of mammalian hepatic Gal/GalNAc receptors by Y. C. Lee. A general discussion on two human lysosomal membrane glycoproteins isolated by M. Fukuda was followed by six papers, namely, Nucleoplasmic and cytoplasmic glycoprotein, by G. W. Hart, R. S. Haltiwanger, G. D. Holt, and W. G. Kelly; Bioactive ganglioside-mediated carbohydrate recognition in coupling with ecto-protein phosphorylation, by Y. Nagai and S. Tsuji; Role of carbohydrates in receptor-mediated fertilization in mammals, by P. M. Wassarman; Families of neural adhesion molecules, by M. Schachner; and Structural and biological properties of carbohydrate units of nervous tissue glycoproteins, by J. Finne; and Carbohydrate recognition in neuronal development, by M. A. Hynes, L. B. Buck, M. Gitt, S. Barondes, J. Dodd, and T. M. Jessell. After the second general discussion, on Expression of developmentally regulated carbohydrates, three papers were presented. These were: Function and pathology of the sugar chain of human immunoglobulin G, by A.

Kobata, T. Mizuochi, T. Endo, and K. Furukawa; The role of oligosaccharides in modifying protein function, by T. W. Rademacher and R. A. Dwek; and Leukosialin, a major sialoglycoprotein defining leucocyte differentiation, by M. Fukuda. The book ends with the minutes of the final general discussion of the diversity of N-linked oligosaccharides on human immunodeficiency virus, and the Chairman's summing up.

In spite of the large number of authors involved in writing this book, the text retains a good deal of cohesion. It is well organized and easy to read, and contains a large amount of useful, and up-to-date information. Its Chairman and the contributors are to be congratulated for their efforts, and the Editors thanked for bringing us a very useful book.

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