
BOOK REVIEW

Methods in Enzymology, Vol. 415, Glycobiology

(M. Fukuda (ed.), Elsevier, Amsterdam-Boston-Heidelberg-London-New-York-Oxford-Paris,
2006, 383 pp., \$149.95)

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This book consists of four sections including 21 chapters written by an international group of authors.

The first section considers processing of N-glycans and methods employed for studies of this type of modification. Four chapters of this section deal with such methods as analysis of lipid-bound oligosaccharides by means of the fluorophore-assisted carbohydrate electrophoresis and identification of a family of 47 α -mannosidases of processing and N-glycan-binding proteins by means of ubiquitin ligases and cytoplasmic peptide N-glycanases.

The second section considers methods of structural analysis of cell and tissue glycans using mass spectrometry. One of the chapters of this section deals with studies of structure of sialyl N-glycans using pyridinyl amination and chromatography followed by subsequent stepwise tandem mass-spectrometry. Identification of glycosylation sites and disulfide bridges and also identification of O-GlcNAc sites are considered in the two last chapters of the second section.

The third section of this book describes methods used for carbohydrate synthesis and also some aspects related to antibiotics. Seven chapters of this section characterize such approaches as the chemoenzymatic method for synthesis of a glycan library, development of glycoconjugate vaccines against *Helicobacter pylori* and *Haemophilus*

influenzae, identification of molecular contacts between antibiotics and 30S ribosomal particles, and also employment of specific irreversible inhibitors for studies of changes in glycosidase structure during processing of these enzymes. This section also considers methods used for metabolic labeling of glycans using azido sugars and methods for studies of cell surface glycosylation.

The fourth section of this book summarizes approaches used for studies of carbohydrate ligand specificity, including interactions of lectins with glycans.

The book contains author and subject indexes, bibliography for each chapter, and also color photographs placed at the end of the book.

This book is very informative, and is novel both in terms of problems discussed and also new methods used for glycobiology. This is also typical for two subsequent volumes of the "Methods in Enzymology" (Vols. 416 and 417), which have been considered in subsequent book reviews.

This book will be very useful for glycobiologists, bioorganic chemists, as well as for researchers working in molecular biology and biotechnology. It may be also recommended for university students and their teachers as supplemental material for the above mentioned fields of science.

Dr. Biological Sciences
G. Ya. Wiederschain