

PREFACE

In 2006, we published three volumes in the *Methods in Enzymology* dedicated to Glycobiology field as follows: Glycobiology (Volume 415), Glycomics (Volume 416), and Functional Glycomics (Volume 417). We have seen the tremendous progress in the field of glycobiology since then. In particular, the explosive progress was made in immunology, neuroglycobiology, glycomics, signal transduction, and many other disciplines, examining each unique system and employing new technology. The Academic Press kindly gave another opportunity to update the introduction of new methods to a large variety of readers who like to contribute to the advancement of Glycosciences. In the current series of *Methods in Enzymology*, Glycomics (Volume 478), Functional Glycomics (Volume 479), and Glycobiology (Volume 480), have been dedicated to disseminate information on the methods in determining the biological roles of carbohydrates, thanks to Academic Press Manager, particularly to Ms. Zoe Kruze and Ms. Dels Retchagar. The second volume (Volume 479), Functional Glycomics, covers new development in glycosciences, including functional studies of glycosylation in stem cells, functions revealed by gene knockout mouse, glycan defects in muscular dystrophy, and glycans in tumor formation. In the accompanying Glycomics book (Volume 478), glycomics revealed by mass spectrometric analysis, by carbohydrate-binding proteins, and chemical glycobiology are described. The latter include protein-carbohydrate interaction, synthetic carbohydrate chemistry, and identification of carbohydrate-binding protein by carbohydrate mimicry peptides. The third volume, Glycobiology (Volume 480), covers proteoglycan function, infection, immunity, and carbohydrate-binding proteins, including galectin, and new development, including O-glycosylation in Notch and related signaling.

In these books, I tried to bring as new development as possible of these expanding fields, and I believe that we have a collection of outstanding contributors who have expertise in their respective fields.

I believe that this book will be useful to a wide variety of readers from graduate students, researchers in academic, and industry, to those who would like to teach glycobiology and glycosciences at various levels. We hope that this book will contribute to further explosive progress in glycosciences and glycobiology.

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