

Preface

Understanding of cell–cell and cell–matrix interactions is critically important in embryonic development, tissue morphogenesis, growth, and differentiation and maintenance of cellular homeostasis. Dysregulation of these interactions contributes to the development and progression of several pathological conditions. Cell surface molecules particularly glycoconjugates have been identified as one of the key players involved in these cellular processes. Biochemical, immunochemical, cell biology, and molecular biology techniques and computational tools have been employed to establish structure–function relationship of these glycoconjugates. Recently, the focus has been on the Siglecs, G-protein-coupled receptors, and analysis of glycome, the entire complement of the saccharides of an organism. The complexity of sugars in terms of their structures, association with other molecules, such as proteins and lipids, their complex biosynthetic pathways along with distribution pattern and their dynamic nature, makes the study of glycome a challenging task.

The international symposium on the “Biochemical Role of Eukaryotic Cell surface Macromolecules” held in Kolkata, India in Jan 2014 was an opportunity to update comprehensively the major advances in these areas. Contributions from this meeting are presented in the book entitled “Biochemical Role of Cell surface Macromolecules” comprising 24 chapters that provide in-depth analysis of data on cell surface macromolecules in cellular function and their alteration associated with pathological conditions. All contributions are either comprehensive critical reviews or original research papers and cover the most relevant and recent topics related to functional role of cell surface molecules. These include contributions on glycome, biophysical, biochemical, and cell biological approaches to study cell membrane molecules, metabolism of glycoconjugates particularly of proteoglycans and glycoproteins and their implications to cell function.

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Kolkata, India
Bengaluru, India

Abhijit Chakrabarti
Avadhesh Surolia

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Chakrabarti, A.; Surolia, A. (Eds.)

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