

TOPICS IN CURRENT CHEMISTRY

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**Volume Editors** T. K. Lindhorst · S. Oscarson

# Glycoscience and Microbial Adhesion

 Springer

# Glycoscience And Microbial Adhesion Topics In Current Chemistry

**Amélia P. Rauter, Pierre Vogel, Yves  
Queneau**



## **Glycoscience And Microbial Adhesion Topics In Current Chemistry:**

Glycoscience and Microbial Adhesion Thisbe K. Lindhorst, Stefan Oscarson, Julie Bouckaert, 2009-06-23 bacterial carbohydrate recognition are conveyed covering Gram positive as well as Gram negative bacteria in Chapter 4 Streptococci and Staphylococci and in Chapter 5 carbohydrate binding specificities of Helicobacter pylori In Chapter 6 Bitter sweetness of complexity the collected reflections on microbial adhesion are expanded by a perspective on a broader impact of glycosylation on cellular adhesion motility and regulatory processes paralleling the complexity of N glycan structures on cell surfaces It highlights particularly how structural details of N glycans have been causally related to pathological scenarios with a focus on 1 6 N acetylglucosaminyltransferase In the final chapter biofilm formation is reviewed covering knowledge about structure and biosynthesis of polysaccharide intercellular adhesins PIAs which are central to biofilm formation This comprehensive chapter explains all PIA related principles of medical device associated infections It is our hope that this collection of expert articles ranging from structural chemistry and structural biology to biochemistry and medicine will be a stimulation and motivation for our colleagues in the life sciences At the same time we hope that these reflections on microbial adhesion will awake interest in and promote understanding of the complex processes associated with the glycocalyx and the multifaceted interactions between the host cell and its guest as well as the biological consequences resulting from this mutual interplay

**Glycoscience and Microbial Adhesion** Thisbe K. Lindhorst, Stefan Oscarson, 2009-05-30 Mumtaz Virji  
Ins and Outs of Microbial Adhesion Martina Lahmann Architectures of multivalent glycomimetics for probing carbohydrate lectin interactions Stefan D Knight and Julie Bouckaert Structure Function and Assembly of Type 1 Fimbriae Knut Ohlsen Tobias A Oelschlaeger Jörg Hacker A Salam Khan Carbohydrate receptors of bacterial adhesins Implications and reflections Susann Teneberg The multiple carbohydrate binding specificities of Helicobacter pylori Andrea Kristina Horst and Christoph Wagener Bitter sweetness of complexity Dietrich Mack Angharad P Davies Llinos G Harris Johannes K M Knobloch and Holger Rohde Staphylococcus epidermidis biofilms functional molecules relation to virulence and vaccine potential

**Glycosphingolipids Signaling** Cheorl-Ho Kim, 2021-01-23 This book presents the latest knowledge and the most recent research results on glycosphingolipid GSL mediated signaling GSLs are important constituents of the plasma membrane that exert their distinct functions through binding to certain functional proteins They play a role in various human diseases and also function as human alloantigens Cellular GSLs are associated with many biological functions such as cellular oncotransformation phenotype change neuronal or embryonic development regulation of cell division cell cell interaction cell attachment adhesion and motility and intracellular signaling via protein carbohydrate or carbohydrate carbohydrate interactions This book opens by providing the key background on GSL glycan receptor interactions and mammalian GSL synthesis Up to date information is then presented on all aspects of GSL dependent signaling Viral protein and bacterial toxin protein interactions with host cell GSLs are examined in depth and the concluding chapter is devoted to signaling regulation

The book should assist in the further development of new strategies against emerging infectious agents and intractable diseases

**Glycochemical Synthesis** Shang-Cheng Hung, Medel Manuel L. Zulueta, 2016-10-10 This book is a comprehensive and concise review on principles strategies and crucial advances in glycochemistry It focuses on synthesis and practical applications and emphasizes state of the art approaches to the assembly and design of sugars Provides detailed discussion on specific topics like oligosaccharide assembly and design of sugars techniques in glycoconjugate preparation multivalency and carbohydrate based drug design Uses notable examples like solution based one pot methods and automated methods for sugar assembly to illustrate important concepts and advances in a rapidly emerging field Discusses practical applications of carbohydrates like medicine therapeutics drug and vaccine development

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