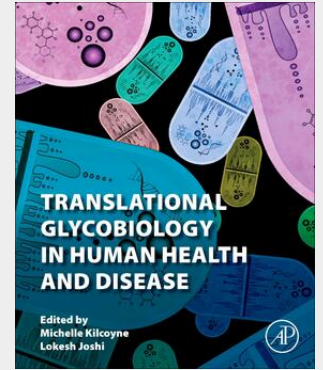


## Translational Glycobiology in Human Health and Disease

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Along with nucleic acids, proteins, and lipids, carbohydrates stand as one of four main components of cellular architecture. However, glycobiology (or carbohydrate bioscience) is little understood by non-experts, partly because carbohydrates are a complex, diverse class of molecules structurally and functionally. In recent years, advances in computational analytics (glycomics) have allowed us to better interpret and realize the importance of glycobiology in human health and disease, and glycans and their associated processes have been shown to play a significant role across a variety of disease types. As the biomedical sciences continue to adopt multi-omic and precision medicine approaches, a greater understanding of glycobiology is essential for maintaining healthy physiology and advancing disease treatment. Translational Glycobiology in Human Health and Disease offers a deep examination of glycobiology for experts and non-experts alike in areas ranging from the role of glycobiology in chronic and infectious diseases to advances in technologies for higher throughput analysis and diagnosis. While keeping human health in the forefront, this book integrates a thorough discussion of glycobiology fundamentals with its growing areas of application and societal impact. With emphasis throughout on the interdisciplinary nature of glycosciences, this book also features perspectives from the health, computational (glycoanalytics), materials, biopharmaceutical, and diagnostic sciences. Disease and speciality areas addressed include glycoimmunology, neuroglycobiology, commensal glycobiology, gut health, regenerative medicine and glycobiology, glycobiology and cancer, congenital disorders of glycosylation, infectious disease glycobiology, and parasite glycobiology. Computational approaches discussed, supporting the advance of new research, include advanced glycoanalytics, glycomics microarrays, glycoengineering, and glycol systems biology. Additionally, authors consider impact areas for society and public health, such as glycobiology and entrepreneurship, policy and regulatory requirements for glycosylation, future research, and translation to new diagnostics and drug discovery.

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