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This book contains original papers and reviews on carbohydrate research in medicine, authored by participants of the 29th International Carbohydrate Symposium, where this topic had a special emphasis. The focus on biological events involving carbohydrates and glycoconjugates has delivered reliable approaches for disease treatment and diagnosis. Research on carbohydrate-based compounds for therapeutic applications is illustrated in various contributions, namely those covering the development of novel agents against Alzheimer's disease, e.g. the neuroprotective C-glycosylated flavones and the isonucleoside-based cholinesterase inhibitors. New imino sugar glucosidase inhibitors are also disclosed, a class of compounds with potential for diabetes, Gaucher disease or cancer treatment. Also the development of a useful synthetic method towards multivalent glycoclusters of biomedical interest is here highlighted. The relevance of glycomimetics in drug discovery and the progress on carbohydrates in early diagnosis and cancer treatment are reviewed. Noteworthy is the chitosan-based delivery system for drug oral administration, a new biomaterial-based approach to improve bioavailability. Another study on the conformation of Streptococcus capsular polysaccharide backbones by molecular modelling provides useful information for bacterial immunotherapeutic approaches. All original contributions and reviews clearly demonstrate the potential of glycosciences for innovation in medicinal (glyco)chemistry and pharmaceutical research.



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