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Altri autori (Persone)	LiethClaus-Wilhelm von der LuttekeThomas FrankMartin <1963->
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Nota di contenuto	Bioinformatics for Glycobiology and Glycomics; Contents; List of Contributors; Preface; Section 1: Introduction; 1. Glycobiology, Glycomics and (Bio)Informatics; Section 2: Carbohydrate Structures; 2. Introduction to Carbohydrate Structure and Diversity; 3. Digital Representations of Oligo- and Polysaccharides; 4. Evolutionary Considerations in Studying the Sialome: Sialic; Section 3: Carbohydrate-active Enzymes and Glycosylation; 5. Carbohydrate-active Enzymes Database: Principles and Classification of Glycosyltransferases; 6. Other Databases Providing Glycoenzyme Data 7. Bioinformatics Analysis of Glycan Structures from a Genomic Perspective 8. Glycosylation of Proteins; 9. Prediction of Glycosylation

Sites in Proteins; Section 4: Experimental Methods - Bioinformatic Requirements; 10. Experimental Methods for the Analysis of Glycans and Their Bioinformatics Requirements; 11. Analysis of N- and O-Glycans of Glycoproteins by HPLC Technology; 12. Glycomic Mass Spectrometric Analysis and Data Interpretation Tools; 13. Software Tools for Semi-automatic Interpretation of Mass Spectra of Glycans 14. Informatics Concepts to Decode Structure-Function Relationships of Glycosaminoglycans 15. NMR Databases and Tools for Automatic Interpretation of Spectra of Carbohydrates; 16. Automatic Spectrum Interpretation Based on Increment Rules: CASPER; 17. Interpretation of  $^{13}\text{C}$  NMR Spectra by Artificial Neural Network Techniques (NeuroCarb); Section 5: 3D Structures of Complex Carbohydrates; 18. Conformational Analysis of Carbohydrates - A Historical Overview; 19. Predicting Carbohydrate 3D Structures Using Theoretical Methods 20. Synergy of Computational and Experimental Methods in Carbohydrate 3D Structure Determination and Validation Section 6: Protein-Carbohydrate Interaction; 21. Structural Features of Lectins and Their Binding Sites; 22. Statistical Analysis of Protein-Carbohydrate Complexes Contained in the PDB; Section 7: Appendices; Appendix 1: List of Available Websites; Appendix 2: Glossary; Index; Color Plates; Cover Page

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#### Sommario/riassunto

This book is the first to be dedicated to the bioinformatics of carbohydrates and glycoproteins. It provides an introduction to this emerging field of science both for the experimentalist working in glycobiology and glycomics, and also for the computer scientist looking for background information for the development of highly sophisticated algorithmic approaches. The book provides an overview of the state-of-the-art in the field, with reviews on databases, and the tools in use for analysis, interpretation, and prediction of the structures of complex carbohydrates, and demonstrates the value

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