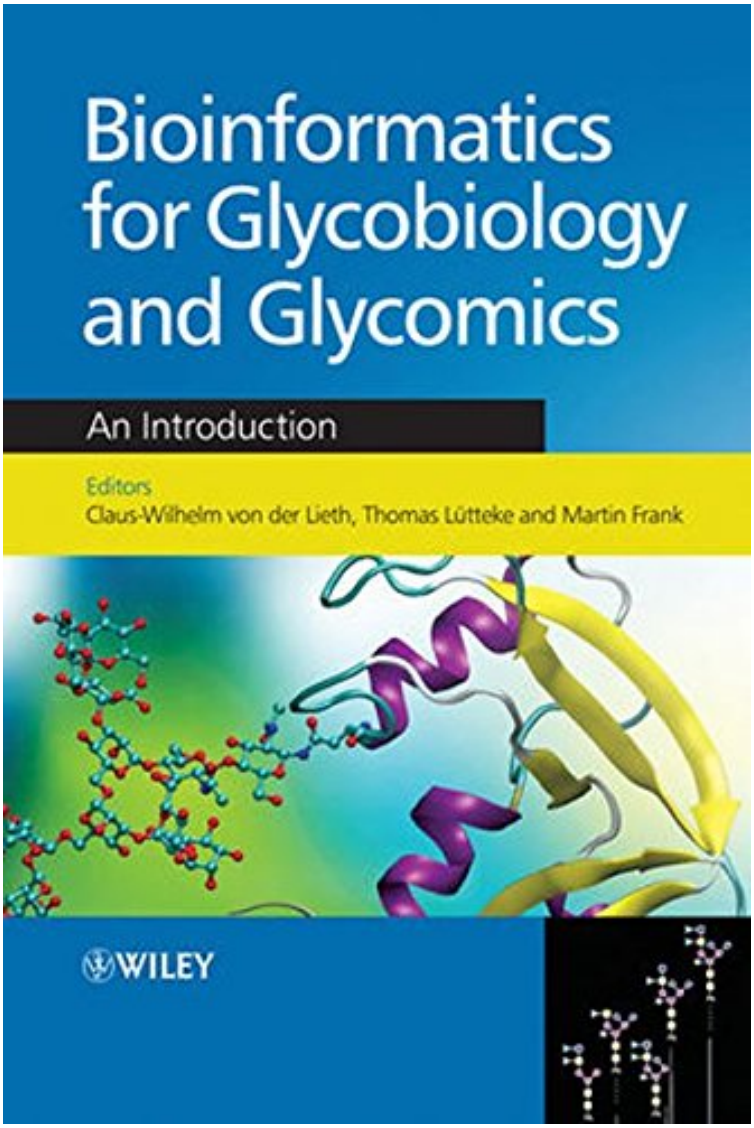
Bioinformatics for Glycobiology and Glycomics: An Introduction

From Wiley
*ebooks | Download PDF | *ePub | DOC | audiobook*



#5122730 in Books 2010-01-19Original language:EnglishPDF # 1 9.90 x 1.30 x 6.80l, 2.20 #File Name: 0470016671494 pages | File size: 79.Mb

From Wiley : Bioinformatics for Glycobiology and Glycomics: An Introduction before purchasing it in order to gage whether or not it would be worth my time, and all praised Bioinformatics for Glycobiology and Glycomics: An Introduction:

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 of bioinformatics for glycobiology. The availability of comprehensive databases and corresponding bioinformatics tools, to access and analyse the large amounts of experimental data relating to the structure of carbohydrates, will be a prerequisite for the success of the large-scale glycomics projects that aim to decipher new, so far unknown, biological functions of glycans. Efficient bioinformatics descriptions and tools can considerably enhance the efficiency of glycomics research, in terms of data quality, analysis and experimental costs. For a complete understanding of the molecular processes in which carbohydrates are involved, such as proteincarbohydrate interactions and the impact of glycosylation on protein function, knowledge of the 3D structure of the carbohydrate, the proteincarbohydrate complex, or the glycoprotein is often indispensable. This book provides a thorough introduction into methods used for conformational analysis of carbohydrates. Key features: Describes bioinformatic approaches to handle carbohydrate-active enzymes and glycosylation. Provides an overview on bioinformatics tools that facilitate analysis of carbohydrate structures. Gives introduction into molecular modelling of carbohydrate 3D structure and carbohydrates contained in the Protein Databank. Assumes only a basic knowledge of biology and bioinformatics.

"This is an excellent and timely first comprehensive overview of the recent efforts directed toward organization and mining of data produced by the rapidly growing fields of glycobiology and glycomics." (The Quarterly of Biology, 1 March 2011) From the Back CoverGlycobiology is the study of complex carbohydrates, or glycans, which play an important role in biochemical signalling between cells and hence in normal cell development. Deficiencies or excess production of particular glycans have been linked to human diseases and have also been shown to play a part in cancer development. This book is the first to be dedicated to the bioinformatics of carbohydrates and glycoproteins. It provides a state-of-the art overview and demonstrates the value of bioinformatics for glycobiology, not simply as a review of databases and tools but rather as an introduction to a new branch of glycobiology. The availability of comprehensive databases and corresponding bioinformatics tools, to access and analyse the large amounts of data relating to the sequence and structure of carbohydrates, will be a prerequisite for the success of the large-scale glycomics projects that aim to decipher new, so far unknown, biological functions of glycans. Interpretation of this sequence information will require new bioinformatics tools and the automated interpretation of experimental data, especially mass spectra, is currently the most active area of research. Efficient bioinformatics descriptions and tools can considerably enhance the efficiency of glycomics research, in terms of data quality, analysis and experimental costs. This book illustrates how bioinformatics can be used to enhance glycomics data mining and improve glycomics analysis. Clearly describes the bioinformatics tools that will allow analysis of carbohydrate structures. Provides a comprehensive review of the area, giving both an introduction and an overview. Assumes only a basic knowledge of biology and bioinformatics. Illustrates the value of bioinformatics for glycomics data mining and analysis.