

Techniques in Glycobiology

Week	Date	Title	Faculty Leader	Location	Lab/Lec
1	8/19	Introduction to Glycoconjugate Analysis	Jerry Hart	Physiology 612	Lecture
	8/21	Colorimetric Assays	Jerry Hart		Lab
	8/23	Release of glycans from proteins and peptide	Yarema and Zachara		Lab
2	8/26	Monosaccharide & Linkage Analysis	Natasha Zachara	Physiology 612	Lecture
	8/28	Glyco-Enzyme Inhibition	Kevin Yarema		Lab
	8/30	Principles of labeling glyco-conjugates	Kevin Yarema		Lab
3	9/2	Labor Day			
	9/4	Compositional Analysis	Natasha Zachara		Lab
	9/6	Sugar Nucleotides	Natasha Zachara		Lab
4	9/9	Study of N-linked and O-linked glycans	Hui Zhang	Physiology 612	Lecture
	9/11	Separation of Oligosaccharides	Jerry Hart		Lab
	9/13	Linkage Analysis	Zachara and Hart		Lab
5	9/16	The O-GlcNAc modification	Natasha Zachara	Physiology 612	Lecture
	9/18	Exoglycosidases to probe structure	Jerry Hart		Lab
	9/20	O-GlcNAc	Zachara and hart		Lab
6	9/23	Characterizing GPI anchors	Jerry Hart	Physiology 612	Lecture
	9/25	Characterizing GPI anchors	Jerry Hart		Lab
	9/27	Glycosyltransferases as probes	Jerry Hart		Lab
7	9/30	Analysis of Proteoglycans and GAGs	Jerry Hart	Physiology 612	Lecture
	10/2	Glycan site-mapping	Van Eyk & Zachara		Lab
	10/4	Analysis of Proteoglycans and GAGs	Jerry Hart		Lab
8	10/7	Analysis of Glycosphingolipids	Subroto Chatterjee	Physiology 612	Lecture
	10/9	Analysis of Glycosphingolipids	Subroto Chatterjee		Lab
	10/11	Lectins in the analysis of glycans and glycoproteins	Hui Zhang		Lab
9	10/14	MS analysis of glycans/glycoproteins	Van Eyk and Zhang	Physiology 612	Lecture
	10/16	Principles of NMR	Allen Bush		Lecture
	10/18	NMR Workshop	Allen Bush		Workshop
10	10/21	MS analysis of glycans/glycoproteins	Van Eyk and Zhang	Physiology 612	Lecture
	10/23	MS theory	Van Eyk and Zhang		Lab
	10/25	MS analysis of glycans and glycoproteins	Van Eyk and Zhang		Lab 2

Techniques In Glycobiology

Kiyoko F. Aoki-Kinoshita



Techniques In Glycobiology:

Techniques in Glycobiology R. Reid Townsend, Arland T. Hotchkiss, 1997-06-25 This work covers methodologies for plant and animal glycoconjugate analysis It details mass spectrometry nuclear magnetic resonance spectroscopy glycolipids and new physical methods of glycosylation characterization chromophore and fluorophore labelling of oligosaccharides separations exoglycosidases and mapping and plant glycobiology **Guide to Techniques in Glycobiology**, 1994

Guide to Techniques in Glycobiology W. Lennarz, 1994 Glycoprotein Methods and Protocols Anthony P. Corfield, 2007-10-26 The mucins mucus glycoproteins have long been a complex corner of glycoprotein biology While dramatic advances in the separation structural analysis biosynthesis and degradation have marked the progress in general glycoprotein understanding the mucins have lagged behind The reasons for this lack of progress have always been clear and are only now being resolved The mucins are very large molecules they are difficult to separate from other molecules present in mucosal secretions or membranes they are often degraded owing to natural protective functions or to isolation methodology and their peptide and oligosaccharide structures are varied and complex Understanding these molecules has demanded progress in several major areas Isolation techniques that protect the intact mucins and allow dissociation from other adsorbed but discrete molecules needed to be developed and accepted by all researchers in the field Improved methods for the study of very large molecules with regard to their aggregation and polymerization were also needed Structural analysis of the peptide domains and the multitude of oligosaccharide chains was required for smaller sample sizes for multiple samples and in shorter time In view of these problems it is perhaps not surprising that the mucins have remained a dilemma of obvious biological importance and interest but very difficult to analyze **Cell Culture Technology for**

Pharmaceutical and Cell-Based Therapies Sadettin Ozturk, Wei-Shou Hu, 2005-08-30 Edited by two of the most distinguished pioneers in genetic manipulation and bioprocess technology this bestselling reference presents a comprehensive overview of current cell culture technology used in the pharmaceutical industry Contributions from several leading researchers showcase the importance of gene discovery and genomic technology development **Glycobiology and Human Diseases** Gherman Wiederschain, 2016-02-22 This book discusses glycobiology and various forms of human diseases Topics covered include immunoglobulins inflammation and glycosylation the role and therapeutic significance of natural anti glycan antibodies in malignancies and in normal and aberrant pregnancy identifying urinary glycans as a possible method for the diagnosis of lysosomal storage disorders Techniques in Protein Chemistry John W. Crabb, 2014-06-28 Techniques in Protein Chemistry V highlights current methods in peptide and protein mass spectrometry sequence and amino acid analysis fragmentations separations protein folding and modeling peptide and protein NMR and peptide synthesis This volume emerged from the manuscripts presented at the Seventh Symposium of the Protein Society held in San Diego on July 24-28 1993 This volume is organized into eight parts encompassing 61 chapters The first part surveys the peptide and protein

characterization detection and analysis by mass spectrometry The subsequent parts describe the structural characterization and analysis of posttranslational processing events as well as the characterization of protein and amino acid sequences using several analytical techniques Other parts explore other analytical methods for peptide and protein separations some aspects involved in protein design and functional domain analysis and the evaluation of protein conformation folding and modeling The last parts contain research papers on NMR analysis of peptide and protein solution structures These parts also look into topics related to peptide synthesis and peptide libraries This book is intended primarily for protein and analytical chemists

Glycome Informatics Kiyoko F. Aoki-Kinoshita,2009-11-19 A Focused State of the Art Overview of This Evolving FieldPresents Various Techniques for GlycoinformaticsThe development and use of informatics tools and databases for glycobiology and glycomics research have increased considerably in recent years In addition to accumulating well structured glyco related data researchers have now developed semi

Methods On Glycoconjugates André Verbert,1995-07-01 By guiding the reader toward answering basic questions on the structural analysis of glycoconjugates using conventional techniques this book studies methods such as chemical cleavage molar composition use of enzymes use of lectins and typical fractionation procedures such as HPLC GLC TLC and other chromatographic systems More sophisticated techniques such as NMR or MS are described to give the reader the essential information needed to adapt procedures to his her requirements This book will serve as a practical manual designed for scientists not familiar with glycoconjugate methodologies but whose research work requires contact with analytical problems or metabolic investigations in glycobiology It is the result of twenty years of experience of summer schools held in a laboratory environment and will acquaint the reader with widely used techniques in the area rather than cataloguing an exhaustive list of methods This will help any biochemist to develop an experiment with ease

Development and Application of Ligation and Labelling Techniques in Glycobiology Mareike Astrid Rapp,2021 **Glycovirolgy Protocols** Richard J. Sugrue,2008-01-18 Glycovirolgy Protocols reviews the increasing importance of glycosylation to the field of virology as well as virus replication The chapters provide an overview of glycosylation in relation to virus infection and the generic techniques that are used to analyze and characterize glycoproteins

A Laboratory Guide to Glycoconjugate Analysis P. Jackson,J.T. Gallagher,2012-12-06 18 2 Principle of FACE Gel Retardation Assay 349 18 3 Labelling of Oligosaccharides with ANTS 350 18 4 Screening of Carbohydrate Ligands for Proteins 352 18 5 Measurement of Binding Constant for the Interaction Between Protein and ANTS Labelled Carbohydrate 355 18 6 Measurement of Binding Constant for the Interaction Between Protein and Native Carbohydrate 357 References 360 The Application of Capillary Affinity Electrophoresis to the Analysis _ of Carbohydrate Protein Interactions 361 19 1 Introduction 361 19 2 Principle of CAE 363 19 3 Determination of Association Constants 364 19 4 Technical Procedures 366 General considerations 366 19 5 Limitations of the Technique 370 19 6 Application of CAE to the Analysis of Carbohydrate Protein Interactions 371 19 7 Conclusions 375 References 377 20 1 Introduction 379 Definitions 380 20 2 Technical

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structure of simple carbohydrates and complex glycoconjugates their non template biosynthesis degradation variety of biological properties and role in living cell and organisms The special chapters of this book highlight hereditary diseases such as lysosomal storage diseases and congenital disorders of glycosylation and also lactose intolerance glycation cancer and other human diseases The book will be useful for wide auditorium starting from senior students of colleges medical schools and also for scientist involved in glycoscience glycobiology research

Comprehensive Natural Products Chemistry Derek Barton, O. Meth-Cohn, 1999-02-18 Comprehensive Natural Products Chemistry

Animal Cell Culture and Technology Michael Butler, 2004-08-02 Provides all essential practical information for establishing a laboratory animal cell culture Comprehensive glossary of terms

Glycosylation Stefana Petrescu, 2012-09-26 This book outlining the concepts of glycobiology is a suite of reviews and articles written by a team of acknowledged researchers and covers some of the key topics in the field Covering a wide range of theoretical and practical issues in the field of glycobiology the Glycosylation book will be of an immediate value for students academics and researchers involved in drug glycoengineering and biomedical research

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