Amino Acids, Peptides and Proteins
Volume 41
Edited by Maxim Ryadnov and Ferenc Hudecz

Synopsis
Amino Acids, Peptides and Proteins comprises a comprehensive and critical review of significant developments at the biology/chemistry interface. Compiled by leading researchers in their subject, this volume incorporates current trends and emerging areas. Appealing broadly to researchers in academia and industry, it will be of great benefit to any researcher wanting a succinct reference in the field.

Brief Contents
- Studying peptide interactions at interfaces
- Proteins and peptides for the diagnosis and therapy of Leishmania donovani parasite infections
- Differentially instructive peptide designs
- Mass spectrometry analysis of peptide distances
- Antimicrobial anti-biofilm peptides
- Surface and interface analysis of functional proteins and peptides
- Mechanism of drug transport by ABC multidrug proteins in structural perspectives
- Advances in radiolabelling of amino acids/peptides/proteins; Design,
Anti-aging Drugs
From Basic Research to Clinical Practice
Edited by Alexander M Vaiserman

Synopsis
This book provides an overview of current research aimed to search for life-extending remedies and describes pharmacological aspects of anti-aging medicine. Readers are introduced to the fascinating historical background of geroprotection in the first chapter. In-depth information on models for investigating geroprotective drugs precedes a section covering anti-aging properties of pharmaceutical compounds, such as HDAC inhibitors, phytochemicals and mitochondrial antioxidants. Finally, strategies to translate discoveries from aging research into drugs and healthcare policy perspectives on anti-aging medicine are provided to give a complete picture of the field. A timely and carefully edited collection of chapters by leading researchers in the field, this book is a fascinating and useful resource for pharmacologists, gerontologists and any scientifically interested person wishing to know more about the current status of research into anti-aging remedies, challenges and opportunities.

Brief Contents
- Geroprotection
- Models and methods for anti-aging intervention
- Anti-aging and life-extending properties of pharmaceutical compounds
- From basic anti-aging medicine research to drug policy and treatment
Arsenic is Everywhere: Cause for Concern?
William R Cullen and Kenneth J Reimer

Synopsis
Following on from the popular book Is Arsenic an Aphrodisiac?: The Sociochemistry of an Element, this book continues the authors work in addressing the issues surrounding arsenic. It explores arsenic in food and water, the need to clarify toxicity, and scientific and public misconceptions about arsenic. It also looks at the use of arsenic in medicine, from cancer treatments to alternative therapies such as homeopathy. This book will fascinate students and researchers alike.

Brief Contents
- Arsenic in Medicine
- Toxicity
- Alternative Medicine
- Organoarsenicals
- Other Eaters Big and Small
- Food and Water

To order
Royal Society of Chemistry
Marston Book Services Ltd
160 Eastern Avenue, Milton Park
Abingdon
Oxfordshire
OX14 4SB, UK
Tel: +44 (0) 1235 465522
Fax: +44 (0) 1235 465555
Email: enquiries@marston.co.uk
www.marston.co.uk

USA and Canada
Please contact:
Ingram Publisher Services
Customer Service, Box 631
14 Ingram Blvd
La Vergne, TN 37086, USA
Tel: +1 (866) 400 5351
Fax: +1 (800) 838 1149
Email: ips@ingramcontent.com

www.rsc.org/books
Registered charity number: 207890
Biocatalysis in Organic Synthesis
The Retrosynthesis Approach
Nick Turner and Luke Humphreys

Synopsis
This unique textbook provides new guidelines for “biocatalytic retrosynthesis” in which molecules are disconnected with consideration for applying biocatalysts in the forward synthesis direction. It aims to enable students to make the connection between biocatalysis and synthesis earlier in their studies and to equip students for the modern world of organic synthesis where biocatalysts play an increasingly important role. Tutorials enable the reader to practise disconnecting target molecules to find the ‘hidden’ biocatalytic reactions which can be applied in the synthetic direction. It also contains a complete description of the current biocatalyst classes that are available. This textbook is an essential resource for lecturers and students studying synthetic chemistry. It also serves as a handy reference for practising chemists wishing to embed biocatalysis into their synthetic toolbox.

Brief Contents
- Biocatalysis basics and principles
- Hydrolysis
- Reverse hydrolysis
- Reduction
- Oxidation
- C-X bond formation
- C-C bond formation
- Miscellaneous biocatalysts
- Acrylic systems
- 4-,5-,6-,7- membered carbocyclic rings

To order
Royal Society of Chemistry
Marston Book Services Ltd
160 Eastern Avenue, Milton Park
Abingdon
Oxfordshire
OX14 4SB, UK
Tel: +44 (0) 1235 465522
Fax: +44 (0) 1235 465555
Email: enquiries@marston.co.uk
www.marston.co.uk

USA and Canada
Please contact:
Ingram Publisher Services
Customer Service, Box 631
14 Ingram Blvd
La Vergne, TN 37086, USA
Tel: +1 (866) 400 5351
Fax: +1 (800) 838 1149
Email: ips@ingramcontent.com

www.rsc.org/books
Registered charity number: 207890
Carbohydrate Chemistry
Volume 42
Edited by Amelia Pilar Rauter, Thisbe Lindhorst and Yves Queneau

Synopsis
The synthesis of novel carbohydrates and carbohydrate mimetics continues to be a major challenge for organic chemists, not least because of the increasingly interdisciplinary nature of carbohydrate science. Covering both chemical and biological science related to the particular volume topic, this series demonstrates the interdisciplinary nature of modern carbohydrate research, and benefits any researcher who wishes to learn about the latest developments in the carbohydrate field.

Brief Contents
- Contemporary glycoconjugation chemistry
- Advances in applications of NMR methods to uncover the conformation and recognition features of glycans
- Recent advances in Kdo-glycoside synthesis
- Predictable and highly efficient preparation of carbohydrate-based vaccines
- Squaric acid chemistry is the way to go
- Synthetic Approaches to Cyclodextrins and Their Analogues
- Bacterial lipopolysaccharides covalently bound to hopanoids: key molecules that favour the life of Bradyrhizobia in stressful environments
- Giant dsDNA viruses taste for sugars

To order
Royal Society of Chemistry
Marston Book Services Ltd
160 Eastern Avenue, Milton Park
Abingdon
Oxfordshire
OX14 4SB, UK
Tel: +44 (0) 1235 465522
Fax: +44 (0) 1235 465555
Email: enquiries@marston.co.uk
www.marston.co.uk

USA and Canada
Please contact:
Ingram Publisher Services
Customer Service, Box 631
14 Ingram Blvd
La Vergne, TN 37086, USA
Tel: +1 (866) 400 5351
Fax: +1 (800) 838 1149
Email: ips@ingramcontent.com

www.rsc.org/books
Registered charity number: 207890
Chemical Biology of Glycoproteins
Edited by Zhongping Tan and Lai-Xi Wang

Synopsis
Glycans attached to proteins are known to act as both negative and positive regulators of protein function. Growing appreciation of protein glycosylation’s importance has led to increasing amounts of research into understanding how this process works. Chemical biology tools and techniques are bridging the existing gaps in knowledge of the complex nature of glycosylated protein forms. This book describes the development and application of glycoprotein and glycan synthesis technologies as tools for understanding and manipulating protein glycosylation.

Brief Contents
- General aspects of the chemical biology of glycoproteins
- Chemical biology of protein N-glycosylation
- Chemical biology of protein O-glycosylation
- Chemical biology of O-GlcNAc glycosylation
- Chemical synthesis and engineering of N-linked glycoproteins
- Chemical and chemoenzymatic synthesis of complex N-glycans
- Programmable synthesis of proteoglycans and glycosaminoglycans
- Chemoenzymatic synthesis and functional studies of homogeneous heparin and heparan sulfate
- Synthesis and functional studies
Chemistry in Your Kitchen
Matthew Hartings

Synopsis
Whether you know it or not, you become a chemist any time you step into a kitchen. Through its unique meal-by-meal organisation, the book playfully explores the chemistry that turns our food into meals. The book features many experiments that you can try in your own kitchen, such as exploring the melting properties of cheese, retaining flavour when cooking and pairing wines with foods. This is a fascinating read for anyone interested in the science behind cooking.

Brief Contents
- Part I. Breakfast: Coffee; Bacon; Eggs; Croissants
- Part II. Lunch: Bread; Cheese; Cured Meats; Salad with Vinaigrette
- Part III. Dinner: Flavour Pairing; Cooking Meat; Sauces; Vegetable Main Courses; Starch
- Part IV. Drinks: Wine; Beer; Cocktails; Carbonated Beverages
- Part V. Dessert: Ice Cream; Biscuits; Truffles.
Detection of Drug Misuse
Biomarkers, Analytical Advances and Interpretation
Edited by Kim Wolff

Synopsis
This text describes the current state-of-the-art techniques used for identifying and confirming drug misuse as well as recent advances in biomarkers, instrumentation and analysis methodology. The title discusses both recreational and designer drugs, including non-addictive and addictive drugs. This book is a useful and fascinating resource for healthcare professionals working in the field of drug misuse as well as academics and postgraduates researching within analytical, chromatography, medicinal and pharmaceutical chemistry; drug metabolism; addiction science; and forensic toxicology, science and medicine.

Brief Contents
- Urinalysis
- Point-of-care drug testing
- Online colour tests for recreational drugs
- Sophisticated analytical techniques
- Drugs in Sport
- Drug driving
- Customs and Border Control
- Transport and Safety critical
- LSD
- Psilocybin

To order
Royal Society of Chemistry
Marston Book Services Ltd
160 Eastern Avenue, Milton Park
Abingdon
Oxfordshire
OX14 4SB, UK
Tel: +44 (0) 1235 465522
Fax: +44 (0) 1235 465555
Email: enquiries@marston.co.uk
www.marston.co.uk

USA and Canada
Please contact:
Ingram Publisher Services
Customer Service, Box 631
14 Ingram Blvd
La Vergne, TN 37086, USA
Tel: +1 (866) 400 5351
Fax: +1 (800) 838 1149
Email: ips@ingramcontent.com

www.rsc.org/books
Registered charity number: 207890
Advance Book Information

Fast NMR Data Acquisition
Beyond the Fourier Transform
Edited by Mehdi Mobli and Jeffrey Hoch

Synopsis
This book will provide a definitive reference source on all modern signal processing methods applied in the field of NMR spectroscopy. The authors will provide a complete survey of the fundamentals supported by examples of modern applications of non-Fourier methods of spectrum analysis in NMR spectroscopy. Key material will include: an introduction to nD FT-NMR; spectroscopic methods of speeding up data acquisition; high resolution from short data records; and non-uniform sampling: deterministic sampling and non-deterministic sampling. The book will be essential reading for NMR spectroscopists and analytical chemists working in industry and academia.

Brief Contents
- Introduction to nD FT-NMR
- Spectroscopic methods of speeding up data acquisition
- High resolution from short data records
- Non-uniform sampling: deterministic sampling
- Non-uniform sampling: non-deterministic sampling

To order
Royal Society of Chemistry
Marston Book Services Ltd
160 Eastern Avenue, Milton Park
Abingdon
Oxfordshire
OX14 4SB, UK
Tel: +44 (0) 1235 465522
Fax: +44 (0) 1235 465555
Email: enquiries@marston.co.uk
www.marston.co.uk

USA and Canada
Please contact:
Ingram Publisher Services
Customer Service, Box 631
14 Ingram Blvd
La Vergne, TN 37086, USA
Tel: +1 (866) 400 5351
Fax: +1 (800) 838 1149
Email: ips@ingramcontent.com

www.rsc.org/books
High Pressure Technologies in Biomass Conversion

Edited by Rafal Bogel-Lukasik

Synopsis
Carbon dioxide plays an increasingly important role in biomass processing. This book presents the current state of the art of the diverse approaches for CO2 use in biomass valorisation. It demonstrates the interdisciplinary aspects of high-pressure technologies across biology, chemistry and biochemical engineering areas. It brings researchers and industrialists up to date with the latest advances in this field, including novel technologies for energy, biochemicals and materials production; and green chemical engineering processes.

Brief Contents
- High-pressure CO2+H2O Technology
- Introduction to High Pressure CO2+H2O Technology in Sustainable Biomass Processing Technologies
- Pre-treatment of Biomass Using CO2-based Method
- Enzyme-catalysed Reactions in High-pressure CO2
- Direct Conversion of Natural Polymers Using High-pressure CO2 and CO2-H2O Mixtures
- Processing of Ligninocellulosic Biomass Derived Monomers with High-pressure CO2 and CO2-H2O Mixtures
Intermolecular Interactions in Crystals
Fundamentals of Crystal Engineering
Edited by Juan Novoa

Synopsis
Crystal Engineering concerns the design and synthesis of molecular crystals with desired properties, which requires a deep understanding of intermolecular interactions. This new book brings together all the current information about the most relevant intermolecular interactions providing an introductory text for graduates. The textbook introduces the nature and identification of bonds and the latest knowledge of their physical meaning. Properties of the most relevant intermolecular bonds identified in molecular crystals are described. Cooperative effects from different bond types present in one solid are also explained.

Brief Contents
- Part A: Basic concepts on intermolecular interactions
- Intermolecular interactions and bonds in crystals. A general view
- Theoretical models of the chemical and intermolecular bond
- On the meaning of bonds
- The importance of repulsive intermolecular interactions in crystals
- Experimental detection of intermolecular bonds using STM techniques
- Intermolecular bonds as seen from theoretical/experimental AIM analysis
- Spectroscopic MW techniques for the study of intermolecular interactions
- Spectroscopic vibrational techniques for the study of intermolecular interactions

To order
Royal Society of Chemistry
Marston Book Services Ltd
160 Eastern Avenue, Milton Park
Abingdon
Oxfordshire
OX14 4SB, UK
Tel: +44 (0) 1235 465522
Fax: +44 (0) 1235 465555
Email: enquiries@marston.co.uk
www.marston.co.uk

USA and Canada
Please contact: Ingram Publisher Services
Customer Service, Box 631
14 Ingram Blvd
La Vergne, TN 37086, USA
Tel: +1 (866) 400 5351
Fax: +1 (800) 838 1149
Email: ips@ingramcontent.com

www.rsc.org/books
Registered charity number: 207890
NMR in Glycoscience and Glycotechnology

Edited by Editor: Koichi Kato and Thomas Peters

Synopsis

Focusing on solution and solid-state NMR of carbohydrates, glycoproteins, glyco-technologies, biomass and related topics which will have significant impact on the development of therapeutic agents eg vaccines, this volume is timely and useful not only for NMR specialists but also for a broader scientific community. The precise analysis of glycosylation patterns in humans can be used in therapies of utmost importance. However, the complexity and heterogeneity of dynamic glycan structures often discouraged researchers from actively challenging and addressing this important issue. Written by leading experts in the field, this book is an important contribution to the literature in this area for a wide spectrum of readers.

Brief Contents

- NMR spin couplings in oligosaccharides
- Metabolic stable isotope labelling of glycoproteins
- NOE enhancement and discrimination by conjugating non-labeled glycan to 13C/15N-labeled protein
- Use of paramagnetic and RDC constraints in the structural analysis of glycans
- CORCEMA and CORCEMA-ST
- Filter diagonalization method for the analysis of oligosaccharides
- Lanthanide-chelating carbohydrate conjugates to detect carbohydrate–protein interactions
Pharmacology for Chemists
Drug Discovery in Context

Edited by Raymond Hill, Terry Kenakin and Tom Blackburn

Synopsis
Assuming little previous knowledge of biology, this book aids graduate chemists to close the gap in their knowledge of pharmacology and make the link between medicinal chemistry and the way in which drugs act on the body. The availability of receptor structures has revolutionised drug discovery and development necessitating an up-to-date source of information for chemists entering this new pharmacological world. Chapters explain the history of pharmacology, the relationship between receptor structure and function and receptor pharmacology relevant to drug design. This unique textbook will be an essential resource for chemists planning to work in drug discovery, or postgraduate students and practising chemists interested in expanding their pharmacology knowledge.

Brief Contents
- The Biotech-Pharmaceutical Industry: Evolution or Revolution?
- Pharmacology: A Historical Perspective
- Receptor Structure and Physiochemical Properties
- Designing and Characterizing Drug Function and Quantitative Analysis
- Actions of Drugs on Organs in the Body
- Actions of Drugs on Organs and Systems
- Quantitative Structure-Activity Relationships and Experimental Design: Predicting Dose in Clinical Studies from Preclinical Experiments
- Reducing Risk in Drug Development Translational Pharmacology
- The Future of ADMET in Drug Design and Development

To order

Royal Society of Chemistry
Marston Book Services Ltd
160 Eastern Avenue, Milton Park
Abingdon
Oxfordshire
OX14 4SB, UK
Tel: +44 (0) 1235 465522
Fax: +44 (0) 1235 465555
Email: enquiries@marston.co.uk
www.marston.co.uk

USA and Canada
Please contact:
Ingram Publisher Services
Customer Service, Box 631
14 Ingram Blvd
La Vergne, TN 37086, USA
Tel: +1 (866) 400 5351
Fax: +1 (800) 838 1149
Email: ips@ingramcontent.com
Single Entity Electrochemistry
Faraday Discussion

Synopsis
Electrochemistry is at the centre of energy technologies such as batteries, fuel cells and solar cells, and it plays a key role in widely used and emerging sensing and diagnostic platforms. This Faraday Discussion presents the key challenges in the design, execution, analysis, theory and interpretation of single entity electrochemistry experiments, and assesses the implications of such measurements for electrochemistry and broader interfacial science.

Brief Contents

- Nanoparticles (NPs), Nanotubes (NTs) and Nanowires (NWs)
- Nanopores
- Complex Surfaces and Reactions at the Nanoscale
- Molecular Electroanalysis: From Single Molecules to Single Cells

To order

Royal Society of Chemistry
Marston Book Services Ltd
160 Eastern Avenue, Milton Park
Abingdon
Oxfordshire
OX14 4SB, UK
Tel: +44 (0) 1235 465522
Fax: +44 (0) 1235 465555
Email: enquiries@marston.co.uk
www.marston.co.uk

USA and Canada
Please contact:
Ingram Publisher Services
Customer Service, Box 631
14 Ingram Blvd
La Vergne, TN 37086, USA
Tel: +1 (866) 400 5351
Fax: +1 (800) 838 1149
Email: ips@ingramcontent.com

www.rsc.org/books
Ultrafast Imaging of Photochemical Dynamics

Faraday Discussion

Synopsis

Photochemical reactions range from photosynthesis to atmospheric reactions, and technologies such as sensors or displays. Due to their complexity, they remain the least understood type of chemical process. However, new experimental techniques capable of monitoring photochemical processes in unprecedented detail are appearing. This Faraday Discussion brings together experimentalists and theoreticians working from different perspectives in the field. It provides the opportunity to identify how new techniques can complement each other, to address contention and controversy, and to propose future research.

Brief Contents

- Electronic and Non-adiabatic Dynamics
- Attosecond Processes and X-ray Spectroscopy
- Structural Dynamics
- Vibrational and Condensed Phase Dynamics

To order

Royal Society of Chemistry
Marston Book Services Ltd
160 Eastern Avenue, Milton Park
Abingdon
Oxfordshire
OX14 4GB, UK
Tel: +44 (0) 1235 465522
Fax: +44 (0) 1235 465555
Email: enquiries@marston.co.uk
www.marston.co.uk

USA and Canada
Please contact:
Ingram Publisher Services
Customer Service, Box 631
14 Ingram Blvd
La Vergne, TN 37086, USA
Tel: +1 (866) 400 5351
Fax: +1 (800) 838 1149
Email: ips@ingramcontent.com

www.rsc.org/books
Registered charity number: 207890
Validation of Chromatography Data Systems
Ensuring Data Integrity, Meeting Business and Regulatory Requirements

Robert McDowall

Synopsis
Guiding chromatographers working in regulated industries and helping to validate their chromatography data systems to meet both business and regulatory needs, this book will be a detailed look at the requirements to ensure a system is fit for purpose throughout the life cycle. The work is divided into four parts, initially providing a background to the regulatory requirements and documented evidence needed to support a claim that a system is validated. Development of the system, operation and finally retirement are then all discussed in detail with case studies and practical examples provided as appropriate.

Brief Contents
- How To Use This Book
- What is a CDS and its Evolution
- Laboratory Informatics and the Role of a CDS
- Applicable GXP Regulations and Guidance
- Concepts of Computer Validation
- Understanding Life Cycles and SW Classification
- CDS Data Integrity
- CSV Risk Management: System Risk
- Working Electronically
- Specifying User and System Requirements