Advances in Nucleic Acid Therapeutics

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Synopsis
The sequencing of the human genome and subsequent elucidation of the molecular pathways that are important in the pathology of disease have provided unprecedented opportunities for the development of new therapeutics. Nucleic acid-based drugs have emerged in recent years to yield extremely promising candidates for drug therapy to a wide range of diseases. Advances in Nucleic Acid Therapeutics is a comprehensive review of the latest advances in the field, covering the background of the development of nucleic acids for therapeutic purposes to the array of drug development approaches currently being pursued. Bringing contributions together from leaders at the forefront of progress, this book depicts the many approaches currently being pursued in both academia and industry.

Brief Contents
- History and development of nucleotide analogs in nucleic acids drugs
- Mechanisms of action of antisense oligonucleotides
- The medicinal chemistry of RNase H activating antisense oligonucleotides
- Antisense technology: liver targeting and beyond for drug discovery
- Targeting point mutations with antisense oligonucleotides
- Splicing modulation
- Targeting toxic repeats
- Research and development of oligonucleotides targeting microRNAs
- Oligonucleotide targeting of long non-coding RNAs
- Conjugate-mediated systemic delivery of RNAi-based therapeutics: enhancing PK/PD relationships of medicinal oligonucleotides

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Anthocyanins from Natural Sources
Exploiting Targeted Delivery for Improved Health

Marianne Su-Ling Brooks Dalhousie University, Canada
Giovana B Celli Dalhousie University, Canada

Synopsis
Interest in anthocyanins has increased in the past few years, due to their potential health-promoting properties as dietary antioxidants, as well as their use as natural dyes. This book discusses ways of targeting the delivery of these compounds, through manipulation of exploitation mechanisms. It addresses all aspects from anthocyanin extraction, health benefits, and metabolism to specialized controlled release applications. This title serves as a reference to those specialising in pharmaceutical science, food engineering, food science or human health and nutrition.

Brief Contents
- Chemistry and Extraction of Anthocyanins: Natural Sources of Anthocyanins
- Chemistry of Anthocyanins
- Extraction of Anthocyanins from Natural Sources - Methods and Commercial Considerations
- Extraction of Anthocyanins from Food Processing Wastes - Potential and Issues
- Health Benefits and Metabolism: Health Benefits
- Pharmacokinetics
- The Stability and Absorption of Anthocyanins in the Mouth
- Role of the Stomach in Anthocyanin Absorption

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Layered Materials for Energy Storage and Conversion


Synopsis

The considerable interest in graphene and 2D materials is sparking intense research on layered materials due to their unexpected physical, electronic, chemical, and optical properties. After a brief introduction to layered materials, the chapters of this book gather various fascinating topics including electrocatalysis for fuel cells, lithium-ion and sodium-ion batteries, photovoltaic devices, thermoelectric devices, supercapacitors and water splitting. With contributions from key researchers, this book will be of interest to students, researchers and engineers worldwide who want a basic overview of the latest progress and future directions.

Brief Contents

- MOFs-derived Materials for Extremely Efficient Electrocatalysis
- Two-dimensional layered materials for high-performance lithium-ion batteries
- Intercalation based layered materials for rechargeable sodium-ion batteries
- Ionic liquid electrolytes for graphene-based supercapacitor with an ultrahigh energy density
- Properties and applications of layered thermoelectric materials
- Graphene-Carbon Nanotube Hybrid Films for High-Performance Photovoltaic Devices
- Metal-organic frameworks (MOFs) as potential hybrid ferroelectric materials

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Organometallic Chemistry

Volume 42

Nathan J Patmore University of Huddersfield, UK
Paul I P Elliott University of Huddersfield, UK

Synopsis

With the increase in volume, velocity and variety of information, researchers can find it difficult to keep up to date with the literature in their field. This interdisciplinary field has the potential to provide answers to problems and challenges faced in catalysis, synthetic organic chemistry and the development of therapeutic agents and new materials. Providing an invaluable volume, this volume contains analysed, evaluated and distilled information on the latest in organometallic chemistry research.

Brief Contents

- Recent Developments in Molecular Precursors for Atomic Layer Deposition
- Metal nodes and metal sites in metal-organic frameworks
- Photosensitisers for CO2 photoreduction: from metal complexes to rylene, an overview
- π-Coordinated Arene Metal Complexes and Catalysis
- Multiphoton and upconversion excitation of lanthanide(III) ions in coordination complexes

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Nanoscience
Volume 5

P John Thomas  Bangor University, UK
Neerish Revaprasadu  University of Zululand, South Africa

Synopsis

The field of nanoscience continues to grow at an impressive rate and, with such a vast landscape of material, careful distillation of the most important discoveries will help researchers find the key information they require. Nanoscience Volume 5 provides a critical and comprehensive assessment of the most recent research and opinion from across the globe. Anyone practising in any nano-allied field, or wishing to enter the nano-world will benefit from this resource, presenting the current thought and applications of nanoscience.

Brief Contents

- Nanostructured Materials for Supercapacitor Applications
- Nanomedicine in sensing, delivery, imaging and tissue engineering: Advances, opportunities and challenges
- Nanoscale porphyrin superstructures: properties, self-assembly and photocatalytic applications
- Progress in single source precursors for layered 2D metal chalcogenide thin films and nanomaterials
- Plant Extracts Mediated Synthesis of Silver Nanoparticles For The Reduction of Organic Dyes

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Vitamin E
Chemistry and Nutritional Benefits
Etsuo Niki University of Tokyo, Japan

Synopsis
This book provides an overview of the state-of-the-art of the chemistry of vitamin E with regards to properties and functions and also nutritional benefits. It summarizes information on the role and activity of vitamin E, the current understanding of the advantages and limitations of vitamin E, and also its application in promotion of health and prevention of diseases. Based on sound, solid scientific evidence, this is a timely addition to the literature as the centennial anniversary of the discovery of this important vitamin approaches.

Brief Contents
- General Chemistry: Structure, Function, and Action
- Tocotrienol
- Membrane Localization, Stabilization, Fluidity
- Cellular Uptake of Tocopherols and Tocotrienols
- alpha-Tocopherol Transfer Protein
- alpha-Tocopherol Phosphate
- alpha-Tocopherol Nicotinate
- Oxidants and Antioxidants: Biological Oxidants
- Lipid Oxidation
- Antioxidant Action of Vitamin E

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