Advance Book Information

Biomaterial Based Approaches to Study the Tumour Microenvironment

Jessica O Winter Ohio State University, USA
Shreyas Rao University of Alabama, USA

Synopsis

The tumour microenvironment is increasingly recognized as an important contributor to cancer progression and treatment. This book provides an introduction to the rich chemical, topographical, and mechanical cues in the tumour microenvironment and then introduces readers to bioengineering strategies, including scaffold design and synthesis, chemical signalling and delivery, and co-culture, microfluidics, and organ-on-a-chip tools that can be used to mimic tumour microenvironment features.

Brief Contents

- Tissue Engineering Models for Cancer Pathology
- Introduction to the Tumor Microenvironment
- Mimicking Fibrous Topographical Features of the Tumor Microenvironment
- Mimicking Mechanical Features of the Tumor Microenvironment
- Mimicking Chemical Features of the Tumor Microenvironment
- Mimicking Multicellular Features of the Tumour Microenvironment
- Cell Patterning to Mimic Tumor Anatomy
- Advanced Scaffold Design via Electrospinning
- Advanced Scaffold Fabrication using Additive Manufacturing
- Microfluidic Models of Tumour Microenvironment
- Modeling of Tumor Microenvironment in Tumor Organooids
- Imaging in Scaffolds
- The Intersection of Biomaterials, Tissue Engineering and Immuno-Oncology
- Tissue Engineered Models of Metastasis: Focus on Bone Metastasis
- Tissue-engineered Cancer Models in Drug Screening

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Advance Book Information

Chemicals and Fuels from Biomass via Fischer-Tropsch Synthesis
A Route to Sustainability

Joshua Gorimbo  University of South Africa, South Africa
Xinying Liu  University of South Africa, South Africa
Yali Yao  University of South Africa, South Africa
Diane Hildebrandt  University of South Africa, South Africa

Synopsis
Providing an up-to-date overview of the production of specialty chemicals and fuels from biomass via the Fischer-Tropsch Synthesis pathway, this title makes an excellent addition to the libraries of anyone working in catalysis and chemical engineering.

Brief Contents
- Process Synthesis of BTL, LCA (Scale, Coproduction)
- The Environmental Sustainability of Biomass-derived Fuels
- Gasification of Biomass: An Overview
- Gasification of Bio-oil and Torrefied Biomass: An Overview
- Syngas Conditioning (Catalyst, Process: Sulfur and Tar Cl, F)
- Product Distribution Suits for Downstream
- Fischer-Tropsch Synthesis Reactors
- Fischer-Tropsch Catalysts
- BTL-FT Products Refining Downstream Options and Processes
- BTL-FT to Transportation Fuels
- Sustainable Aviation Fuel from Biomass via Gasification
- Biomass to Liquid-Syngas to Olefins
- Syngas to Oxygenates Conversion
- Biomass to Liquid Fuel via Fischer-Tropsch (BTL-FT) Synthesis
- Future Aspects of BTL-FTS Processes

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Vaccine Development
From Concept to Clinic

A Krishna Prasad Citranvi, USA

Synopsis
Vaccine development is a complex and time-consuming process that differs from the development of conventional pharmaceuticals. Vaccine Development: Concept to Clinic is a detailed overview of the development of new vaccines, covering the entire process and addresses all classes of vaccines from a processing, development and regulatory viewpoint. This book is an ideal companion for any researchers working in vaccine discovery and development or with an interest in the field.

Brief Contents
- Vaccine Development: From Concept to Clinic
- Pre-clinical Safety Assessment Considerations for Vaccine Development
- Clinical Trials in the Development of Vaccines for Infectious Diseases
- Clinical Trials in Immunotherapeutic Vaccine Development
- Pathogenesis and Immunity of SARS-CoV-2 and Vaccination Programs against COVID-19
- High Throughput Assays for Clinical Development
- Virus-like Particle Based Vaccines: GARDASIL®
- Cell Culture-based Influenza Vaccine Development
- Conjugate Vaccines: Design and Development Considerations
- Vaccine Adjuvants: Mechanisms of Action
- Development Considerations for Final Dosage Forms: Mucosal Bacterial Vaccines
- Exploiting Glycans in Vaccine Design
- The PATH Experience in Vaccine Development Partnerships with Manufacturers from Emerging Markets

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Advance Book Information

The Handbook of Medicinal Chemistry
Principles and Practice

Simon E Ward  Cardiff University, UK
Andrew Davis  AstraZeneca, Sweden

Synopsis
An ideal companion for students in medicinal chemistry and drug discovery and development, while communicating core principles the book also places the discipline within the context of new modalities now available to drug discovery. This is a carefully curated compilation of writing from global experts using their broad experience to provide unparalleled insight into the field.

Brief Contents
- Physicochemical Properties
- Synthesis in Medicinal Chemistry
- Useful Computational Chemistry Tools for Medicinal Chemistry
- Structure-based Design for Medicinal Chemists
- Fragment-based Ligand Discovery
- Machine Learning in Drug Design
- Drug Metabolism
- ADME Optimization in Drug Discovery
- Molecular Biology for Medicinal Chemists
- Assays
- Measuring Pharmacological Activity
- Animal Models: Practical Use and Considerations
- Bioinformatics for Medicinal Chemistry
- Translational Science
- Discovery Toxicology in Lead Optimization
- Toxicology and Drug Development
- Patents for Medicines
- Target Validation for Medicinal Chemists
- Lead Optimisation: What You Should Know!

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Advance Book Information

Basic Chemistry for Life Science Students and Professionals
Introduction to Organic Compounds and Drug Molecules

Solomon Habtemariam University of Greenwich, UK

Synopsis
This book is an ideal introduction to organic chemistry in the context of the life sciences and pharmacy related disciplines; utilising drug molecules to illustrate the chemical basis of their efficacy and interaction with biological targets. Ideal for undergraduate students in the natural sciences this book is also an excellent primer for postgraduates in a variety of disciplines including forensic science and allied-health programmes as well as professionals working in related fields seeking a comprehensive introduction to organic chemistry in the context of pharmaceuticals.

Brief Contents
- Introduction to Organic Compounds and Covalent Bonding
- Polarity of Bonds, Electronegativity, and Intermolecular Forces
- Alkenes, Cycloalkenes and Other Unsaturated Hydrocarbons
- Functional Groups
- Isomerism in Organic Compounds and Drug Molecules
- Organic Macromolecules in Cellular Structures, Metabolism, and as Drugs
- Physicochemical Properties of Organic Compounds and Drug Molecules
- Drug-Target Interactions
- Structural Diversity and Sources of Drugs

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Analytical Techniques for Trace Elements in Geochemical Exploration

Raghaw Saran Shri Ramdeobaba College of Engineering and Management, India

Synopsis

Geochemical prospecting for minerals includes any method of mineral exploration based on systematic measurement of the chemical properties. The purpose of the measurements is the discovery of a geochemical “anomaly” or area where the chemical pattern indicates the presence of ore in the vicinity. This book covers a wide spectrum of destructive and non-destructive analytical techniques and their recent developments for quantitation of trace elements. The book is useful to analysts involved in geochemical explorations.

Brief Contents

- Methodology, Instrumentation, Analytical Performance and Application
- Geochemical Exploration
- Determination of Trace Elements Using UV-VIS Spectrophotometary
- Determination of Trace Elements Using Flame-AAS
- Advances in AAS (HR CS AAS)
- Trace Elements Determination Using ICP-OES
- Determination of Trace Elements Using XRF WD and ED
- Inductively Coupled Argon Plasma Mass Spectrometry (ICP MS)
- Laser Fluorimetry
- MP AES
- Nuclear Analytical Techniques (NAT)
- Speciation Analysis
- Electroanalytical Technique and Ion Chromatography
- Synchrotron devices
- Statistical Analysis
- On Site Analysis

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Environmental Nanopollutants
Sources, Occurrence, Analysis and Fate

Joanna Szpunar CNRS, France
Javier Jiménez-Lamana University of Pau and Pays de l’Adour, France

Synopsis
Offering a wide overview of the most recent research on nanopollutants, from the investigation of their sources and fate to the analytical developments for their detection and analysis, this book aims to give the reader a full picture of the global research on engineered and natural nanoparticles in the environment.

Brief Contents
- ENPs and Nanoplastics in Different Environmental Compartments
- Radioactive Nano- and Micro-particles Released from Fukushima Daiichi
- Biomass Burning in Southeast Asia and Atmospheric Nanoparticles
- Investigation of Airborne Nanoparticles
- Phytoplankton Controls on Metal-containing Nanoparticles
- Composition of the Eco-corona Acquired by Plastics
- Effects of Nanoplastics on Aquatic Organisms
- Fate and Behaviour of Carbon Nanomaterials in the Aquatic Environment
- Fate and Transport of Engineered Nanoparticles in Porous Media
- Metal-based Nanoparticles in Plants
- Interaction of Nanoparticles with Environmental Pollutants
- Sampling and Pre-treatment in Nanoparticle Analysis in Water
- Separation Systems Coupled to ICP-MS for Analysis
- Single Particle Inductively Coupled Plasma Mass Spectrometry
- Stable Isotope Labelling and Tracing of Engineered Nanomaterials
- Dosimetry and Imaging by Means of High Resolution Techniques
- Imaging of Nanopollutants at a Sub-cellular Resolution

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Edible Fungi
Chemical Composition, Nutrition and Health Effects

Dejan Stojković University of Belgrade, Serbia
Lillian Barros Instituto Politécnico de Bragança, Portugal

Synopsis
Thousands of organisms fall under the umbrella of fungal species many with unique properties: some innocuous, some useful and some harmful. This book covers the chemical composition and nutraceutical and pharmaceutical properties of edible fungi. It provides updates, future trends and perspectives of edible fungi, their nutritional properties, chemical features and different biological activities ascribed to them. Linking their functional use with different food products, it details the many health related properties of edible fungi. The book also discusses current technologies for mushroom cultivation and cultural use of mushrooms around the globe.

Brief Contents
- Diversity of the Fungi Kingdom: Molecular Tools to Distinguish Mushrooms Considered Safe and Unsafe in Human Health
- Update on Research Data on Nutrient Composition of Mushrooms and Their Potentials in the Future Human Diets
- Updates on Fatty Acids in Mushrooms: Content, Characterization, and Biological Effects
- Bioactive Phenolic Compounds from Mushrooms
- Bioactive Properties of Mushrooms with Potential Health Benefits
- Macromolecules in Fungi with Pharmaceutical Potential
- Terpenes and Steroids in Fungi Used in the Daily Diet
- Cultivation of Mushrooms Widely Appreciated by Consumers
- The Cultural use of Mushrooms
- Application of Mushrooms in the Food Industry
- The Global Market of Mushrooms, Their Uses as Dietary Supplements and Associated Safety Issues