

# Highlights in Cell/Molecular/ Structural Biology 2010

## INTRODUCTION TO CELL BIOLOGY

by **John K Young** (Howard University, USA)

This book is intended to be an accessible introduction to the cell biology of mammalian cells for junior or senior undergraduate students who have already had an introduction to biological sciences. This engaging and stimulating text focuses on current controversies in cell biology. To solve these puzzles, the reader will learn how to answer a number of fundamental yet hard-hitting questions in the field. He or she is thus able to approach the subject with the right scientific attitude and build a firm foundation of understanding. Basic features of mammalian cells — secretion, division, motility, cell-cell interactions — are described using up-to-date references to the most current scientific literature. The text is well illustrated with clearly understandable diagrams and numerous micrographs of cells. This text will enable non-specialists to acquire a better understanding of current issues in mammalian cell biology.

**Contents:** How do Cells Regulate the Positions and Amounts of Their Organelles?; How do Cells of the Four Basic Tissues Arise from Embryonic Stem Cells?; How do Adult Stem Cells Contribute to Basic Tissue Functions?; How do Giant Cells Form?; How do Lymphocytes and Other Blood Cells Protect the Body From Harm?; Glial Cells, the Unsung Heroes of the Brain; How are the Numbers of Cells in an Organ Regulated?; How do Sensory Cells Function?.

**Readership:** Junior or senior undergraduate students in biology.

<b>220pp</b>	<b>Aug 2010</b>	
<b>978-981-4307-31-4</b>	<b>US\$78</b>	<b>£51</b>
<b>978-981-4307-32-1(pbk)</b>	<b>US\$38</b>	<b>£25</b>

## STRUCTURAL ASPECTS OF PROTEIN SYNTHESIS (2nd Edition)

by **Anders Liljas** (Lund University, Sweden) & **Måns Ehrenberg** (Uppsala University, Sweden)

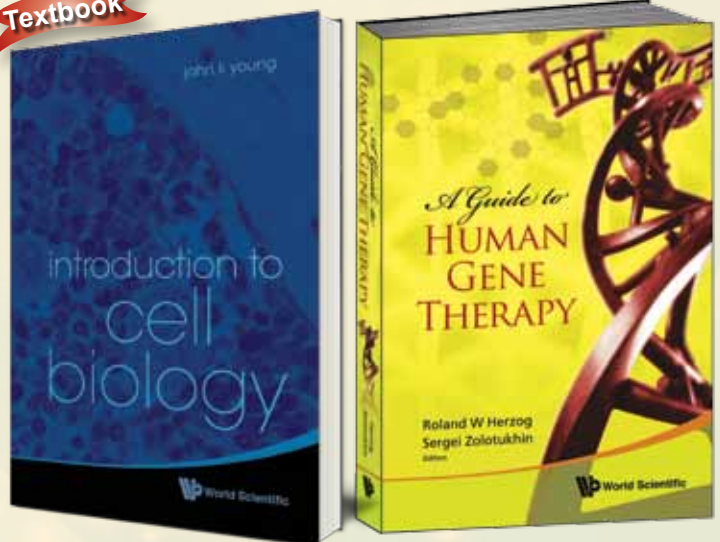
This highly illustrated book provides an up-to-date description of the structure and function of the translation system including ribosomes, tRNAs, translation factors, antibiotics and aminoacyl-tRNA synthetases.

Research on translation is undergoing rapid changes and is receiving significant attention as evidenced by the Nobel Prize in Chemistry 2009. The structural research by crystallography and cryo-EM forms part of an interactive framework that involves biochemistry and molecular computation. The book provides a comprehensive overview of translation in light of the structural results. It is a valuable resource for scientists in this and related fields, as well as for students taking courses with a focus on translation.

**Readership:** Upper level undergraduates and graduate students with an interest in protein synthesis; researchers in cell and molecular biology, biochemistry and biophysics who need to get an overview of translation.

<b>400pp</b>	<b>Mar 2011</b>	
<b>978-981-4313-20-9</b>	<b>US\$126</b>	<b>£87</b>
<b>978-981-4313-21-6(pbk)</b>	<b>US\$65</b>	<b>£45</b>
<b>978-981-4313-22-3(ebook)</b>	<b>US\$164</b>	

Textbook



## A GUIDE TO HUMAN GENE THERAPY

edited by **Roland W Herzog** (University of Florida, USA) & **Sergei Zolotukhin** (University of Florida, USA)

Ever since the birth of molecular biology, the tantalizing possibility of treating disease at its genetic roots has become increasingly feasible. Gene therapy — though still in its infancy — remains one of the hottest areas of research in medicine. Its approach utilizes a gene transfer vehicle (“vector”) to deliver therapeutic DNA or RNA to cells of the body in order to rectify the defect that is causing the disease. Successful therapies have been reported in humans in recent years such as cures in boys with severe immune deficiencies. Moreover, gene therapy strategies are being adapted in numerous biomedical laboratories to obtain novel treatments for a variety of diseases and to study basic biological aspects of disease. Correction of disease in animal studies, is steadily gaining ground, highlighting the immense potential of gene therapy in the medical profession.

This book will cover topics that are at the forefront of biomedical research such as RNA interference, viral and non-viral gene transfer systems, treatment of hematological diseases and disorders of the central nervous system. Leading experts on the respective vector or disease will contribute the individual chapters and explain cutting-edge technologies. It also gives a broad overview of the most important gene transfer vectors and most extensively studied target diseases. This comprehensive guide is therefore a must-read for anyone in the biotechnology, biomedical or medical industries seeking to further their knowledge in the area of human gene therapy.

**Readership:** Academic scientists, biotechnology industry, bio-medical scientists, graduate students, medical students and fellows.

<b>416pp</b>	<b>Jun 2010</b>	
<b>978-981-4280-90-7</b>	<b>US\$122</b>	<b>£84</b>
<b>978-981-4280-91-4(ebook)</b>	<b>US\$159</b>	

## HEME BIOLOGY

The Secret Life of Heme in Regulating Diverse Biological Processes

edited by **Zhang Li** (*The University of Texas at Dallas, USA*)

This book begins with an introduction to the intricate chemical properties of heme and the history of early observations of human diseases associated with heme. It then proceeds to describe the versatile roles of heme in controlling diverse molecular and cellular processes germane to human life and disease processes. Finally, an up-to-date review of human diseases associated with heme synthesis and application of heme synthesis in photodynamic therapy in cancer treatment is presented.

*Heme biology* is unified and logical in presentation. The explanations in the book are detailed enough to capture the interest of the curious reader, and complete enough to provide the necessary information for researchers to have an in-depth molecular understanding of heme biology and further their studies in this fascinating realm.

**Readership:** Undergraduate and graduate students in life sciences, advanced readers and researchers in heme biology.

<b>250pp</b>	<b>Sep 2011</b>	
<b>978-981-4287-92-0</b>	<b>US\$90</b>	<b>£62</b>
<b>978-981-4287-93-7(ebook)</b>	<b>US\$117</b>	

**Textbook**

## ROBOTIC APPROACHES TO HIGH-THROUGHPUT MOLECULAR BIOLOGY

by **Robert O J Weinzierl** (*Imperial College London, UK*)

This essential reading will define all key concepts in laboratory robotics (hardware and software), while presenting a range of robotic applications for high-throughput microbiological culturing and cloning, DNA/RNA and protein purification techniques. In addition, detailed explanations of the underlying principles and numerous practical tips on how to avoid common pitfalls will enable even the non-experts to get robotic methods successfully established in their laboratories.

**Contents:** The Basic Robotic Toolkit for Molecular Biology; Specialised Robotic Accessories; Microbiological Applications; DNA Applications; Protein Applications; Complex Robotic Procedures; Expanding the Platform; Do-It-Yourself Robotics and Prototyping; Quality Assessment and Optimisation.

**Readership:** Academic and professional interested in robotic approaches to biomedical science, molecular biologists working on systems biology.

<b>350pp</b>	<b>Jun 2011</b>	
<b>978-1-84816-420-8</b>	<b>US\$95</b>	<b>£63</b>
<b>978-1-84816-421-5(pbk)</b>	<b>US\$48</b>	<b>£32</b>

## LIVE IMAGING IN ZEBRAFISH

Insights into Development and Disease

edited by **Karuna Sampath** (*National University of Singapore*) & **Sudipto Roy** (*Institute of Molecular and Cellular Biology, Singapore*)

This book successfully brings together state-of-the-art methodologies of live imaging, such as the use of fluorescence correlation spectroscopy (FCS), that will be useful for investigators in the field of developmental biology to address their favorite problem using cell biological approaches in the zebrafish

One of the key reasons that has made the zebrafish such a popular vertebrate model is its transparency and its potential for high-resolution cell biology and imaging. However, there is no comprehensive and up-to-date guide to the new "live imaging" tools that can now be used in the zebrafish.

**Readership:** Upper level undergraduates, graduate students, academics and researchers in cell & molecular biology, fish & marine biology and genetics.

<b>200pp</b>	<b>Oct 2010</b>	
<b>978-981-4307-34-5</b>	<b>US\$84</b>	<b>£58</b>
<b>978-981-4307-35-2(ebook)</b>	<b>US\$109</b>	

Molecular Medicine and Medicinal Chemistry - Vol. 2

## DNA DEAMINATION AND THE IMMUNE SYSTEM

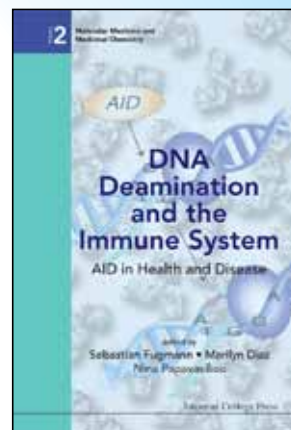
AID in Health and Disease

edited by **Sebastian Fugmann**, **Marilyn Diaz** (*National Institute of Health, USA*), & **Nina Papavasiliou** (*Rockefeller University, USA*)

This book covers the current understanding of the role of activation-induced cytidine deaminase (AID) in the generation of antibody response to antigenic challenge. Since the discovery of AID, and the genetic demonstration of its role in somatic hypermutation and class-switch recombination of antibody genes, much has been learned about the biochemistry of this enzyme. However, some key questions remain hotly contested, such as: how does this enzyme get to the antibody locus leaving the rest of the genome intact, and why are DNA repair pathways which normally repair deamination events co-opted into actually fixing mutations into the genome? These questions, among others, will be addressed in this monograph from various perspectives.

**Readership:** Advanced undergraduates, postgraduates, academics and researchers interested in immunology, genomic stability, DNA repair and nucleic acid biochemistry.

<b>200pp</b>	<b>Sep 2010</b>	
<b>978-1-84816-592-2</b>	<b>US\$78</b>	<b>£54</b>
<b>978-1-84816-593-9(ebook)</b>	<b>US\$101</b>	



ICP Selected Papers - Vol. 1

## THE SELECTED PAPERS OF SIR ALAN FERSHT

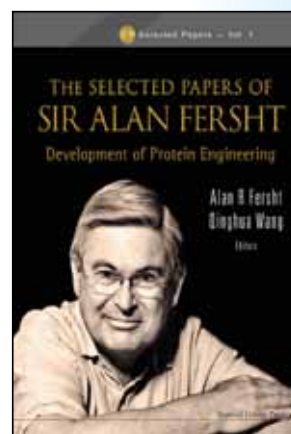
Development of Protein Engineering

edited by **Alan R Fersht** (*University of Cambridge, UK*) & **Qinghua Wang** (*Baylor College of Medicine, USA*)

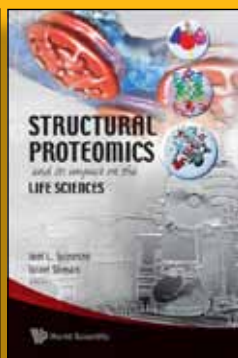
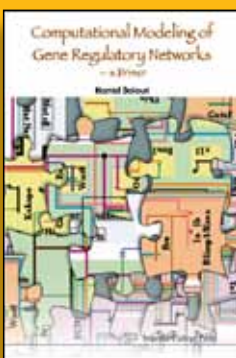
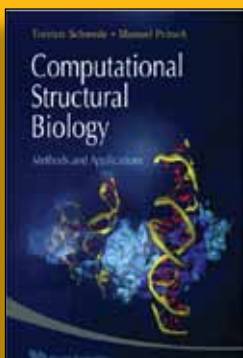
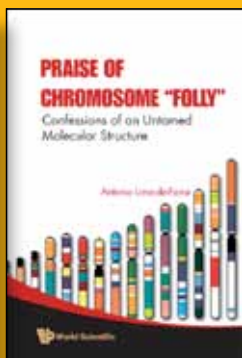
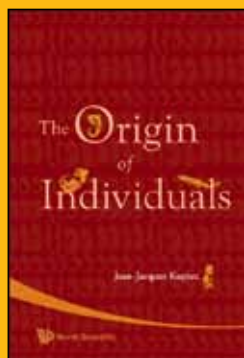
This book compiles a collection of original scientific articles written by Professor Sir Alan Fersht over 40 years of his scientific career. A long-standing icon in the fields of enzymology, protein folding, and protein engineering, Sir Alan Fersht is also one of the world's greatest protein chemists, whose work has been extensively recognized by countless international awards in both chemistry and molecular biology. He has produced a number of classic papers that are cited regularly because of the originality of his work and his insightful analysis. The study of his work on the fusion of physical chemistry and molecular biology provides a course on how to approach the analysis of complex systems in a simple logical manner. His papers are models of clarity, benefitting students of protein chemistry in their understanding of the subject.

**Readership:** Students, researchers and science professionals working at the interface of chemistry and biology, and those interested in the history of modern science.

<b>408pp</b>	<b>Jun 2010</b>	
<b>978-1-84816-554-0</b>	<b>US\$140</b>	<b>£87</b>







## THE ORIGIN OF INDIVIDUALS

by **Jean-Jacques Kupiec** (Ecole Normale Supérieure & INSERM, France)

"Kupiec is a very successful writer, deservedly so. I enthusiastically recommend this courageous book with its iconoclastic viewpoint. The Origin of Individuals is a pleasure to read, presenting complex ideas clearly and effectively. Whether one agrees with him or not, Kupiec's is an inspiring work, a thought-provoking rollercoaster ride through the history of ideas about the origins of ontogeny."

Nature

**Readership:** Researchers, students and lay readers interested in biology, especially embryogenesis.

276pp Feb 2009  
978-981-270-499-3 US\$91 £63  
978-981-283-368-6(ebook) US\$118

## PRAISE OF CHROMOSOME "FOLLY"

Confessions of an Untamed Molecular Structure

by **Antonio Lima-de-Faria** (Lund University, Sweden)

### Opinions of Readers

"An extraordinary work that will fascinate a large audience due to its lucid and novel perspective of chromosome evolution."

Professor Dr Beatriz Porto

Biomedical Sciences Institute, Porto University, Portugal

**Readership:** General educated public, geneticists, evolutionists, molecular biologists and biotech industry specialists.

428pp Sep 2008  
978-981-281-479-1 US\$88 £48  
978-981-281-094-6(pbk) US\$54 £30  
978-981-281-095-3(ebook) US\$114

## COMPUTATIONAL STRUCTURAL BIOLOGY

Methods and Applications

edited by **Torsten Schwede** (Swiss Institute of Bioinformatics & Biozentrum University of Basel, Switzerland) & **Manuel C Peitsch** (Novartis Institutes of BioMedical Research, Switzerland)

"Undergraduates and master students focussed on structural bioinformatics will clearly benefit from the breadth of topics covered ... PhD students will find chapters in their area extremely helpful in getting a concise overview of the state of play of their field, references to key reviews and the challenges that lie ahead. Finally, post-docs and professors will be able to explore tangential areas of their immediate research and get a firm grasp of the larger field by having such a broad spectrum of material presented that is well written and up-to-date."

Crystallography Reviews

**Readership:** Academics, industry scientists in bioinformatics/computational biology/biocomputing/proteomics/systems biology, cell/molecular/structural biology, and pharmacology/drug discovery/pharmaceuticals; suitable for use in a course at graduate and advanced undergraduate level.

792pp May 2008  
978-981-277-877-2 US\$185 £128  
978-981-277-878-9(ebook) US\$241

### Textbook

## COMPUTATIONAL MODELING OF GENE REGULATORY NETWORKS — A PRIMER

by **Hamid Bolouri**

This book serves as an introduction to the myriad computational approaches to gene regulatory modeling and analysis, and is written specifically with experimental biologists in mind. Mathematical jargon is avoided and explanations are given in intuitive terms. Extensive examples and a large number of model descriptions are provided for use in both classroom exercises as well as self-guided exploration and learning.

**Readership:** Undergraduate- and graduate-level experimental biology students and researchers and practicing biologists; computational biology students and researchers;

340pp Aug 2008  
978-1-84816-220-4 US\$68 £37  
978-1-84816-221-1(pbk) US\$45 £25

## PHYSICAL BIOLOGY

From Atoms to Medicine

edited by **Ahmed H Zewail** (California Institute of Technology, USA)

### Textbook

"The scope of this collection of overviews of the present state and future possible developments in physical biology is very broad. The result is both informative and readable. Anyone interested in how physics, engineering and mathematics can contribute to research in biology and medicine, be it on the molecular level or on the healthcare level, should be able to find useful information and inspiration in this book."

Acta Paediatrica

**Readership:** Graduate students and researchers in life sciences (structural biology, genomics, systems biology, molecular biology, neuroscience), biochemistry, physical chemistry, chemical engineering, and biophysics.

584pp May 2008  
978-1-84816-199-3 US\$177 £98  
978-1-84816-200-6(pbk) US\$88 £48  
978-1-84816-201-3(ebook) US\$230

## STRUCTURAL PROTEOMICS AND ITS IMPACT ON THE LIFE SCIENCES

edited by **Joel L Sussman** (Weizmann Institute of Science, Israel) & **Israel Silman** (Weizmann Institute of Science, Israel)

This book presents a state-of-the-art overview of the structural proteomics field, ranging from policy issues related to funding and goals, through the high-throughput procedures for protein production, to the solution of the structures of proteins and higher-order entities, via a multidisciplinary approach involving molecular biology, X-ray crystallography, NMR and electron microscopy, as well as bioinformatics analysis. This is the first book to provide such a comprehensive coverage of a rapidly evolving field.

**Readership:** Academics in protein chemistry/biochemistry/biological chemistry, bioinformatics/biocomputing/proteomics/systems biology, cell/molecular biology/structural biology, genetics/genomics; big pharma & biotech companies and policy makers; researchers in biophysics, neurobiology.

600pp May 2008  
978-981-277-204-6 US\$177 £122  
978-981-277-205-3(ebook) US\$230

## Related Titles

**HISTOPATHOLOGY OF GLYCAN DIVERSITY**

Lectin Histochemistry

by **Nissi Varki** (*University of California, San Diego, USA*) & **Pascal Gagneux** (*University of California, San Diego, USA*)

This book is an educational endeavor in the unique field of Glycobiology, which has an impact on cell development, differentiation, tumor formation, cancer progression and metastasis, as well as pathogen recognition and binding in infectious diseases. The surfaces of all cells are covered by glycoconjugates, the construction of which is exquisitely governed by a number of enzymes, and the expression is highly tissue-specific. Cell surface glycoconjugates are crucial for cell-cell interaction, are finely regulated during embryonic development and cell differentiation, and are the first receptors encountered during pathogen recognition. To study these glycoconjugates, lectins, a type of carbohydrate-binding protein commonly found in plants, are used to detect differences in the cell surface carbohydrate linkages that occur on the different cell types, in different tissues of the body. Much of the histologic work with lectins involves examination of specific tissues but there is no book so far that compiles the results of lectin histochemistry from different organs in one volume. The first of its kind to catalog the patterns of lectin binding to different tissues of organs in humans and mice, this highly illustrated book will be an important reference for academics and researchers in the field of glycobiology.

**Contents: Histochemistry and Histopathology:** Circulatory and Respiratory Systems; Hematopoietic Systems; Digestive Systems; Genitourinary System; Neural System; Digestive System; Integument System; Endocrine System.

**Readership:** Postgraduate students and researchers in the field of glycobiology.

**250pp** Jun 2011  
**978-1-84816-639-4** US\$80 £50  
**978-1-84816-641-7(ebook)** US\$104

**ONCOGENIC MUTATIONS OF TYROSINE KINASES IN HUMAN MALIGNANCIES**edited by **Hsing-Jien Kung & Clifford G Tepper** (*University of California Davis, USA*)

Protein tyrosine kinases (PTKs) represent a major class of oncogenes and figure prominently as etiologic and/or progression factors in most types of cancer. Accordingly, they have become attractive therapeutic targets. The oncogenicity of these molecules is underscored by the ability of variant PTKs to dominantly drive tumorigenesis. This book highlights the most commonly occurring TK mutations associated with human neoplasms. Each chapter presents a detailed examination of the molecular pathogenic mechanisms engendered by these mutations, including aberrant triggering of signaling pathways and their manifestation as aggressive biological behavior. Diagrams depicting the relevant pathways are included in each chapter to enhance and reinforce the principal concepts. Additionally, highly specific antibody-based and small molecule PTK inhibitors are the prototypical members of a novel class of rationally-targeted cancer therapeutic agents that have demonstrated much promise. The success of these therapeutics and mechanisms underlying the development of cellular resistance are also discussed.

**Readership:** Researchers in cancer medicine, biochemistry/biological chemistry, cell/molecular biology/structural biology; oncologists; graduate level and advanced undergraduate level courses (years 3 & 4).

**200pp** Jun 2011  
**978-981-270-546-4** US\$111 £76  
**978-981-281-142-4(ebook)** US\$144

**FROM STRUCTURAL GENOMICS TO FUNCTIONAL GENOMICS**

Methods and Applications

by **Ioannis Ragoussis** (*Wellcome Trust Centre for Human Genetics, UK*)

This book aims to present, in a concise manner, the technologies used for DNA, gene expression, and protein research. Recently developed high-throughput techniques — such as single nucleotide polymorphism genotyping, fluorescent *in situ* hybridization, microarray-based expression profiling, quantitative polymerase chain reaction, and MALDI-TOF-based methods — are widely used in many areas of biomedical research today. The book gives an overview of the rationale on which these methods are based, as well as their advantages and disadvantages. It is not meant to include detailed laboratory protocols; rather, the emphasis is on understanding the principles to aid decision making in a period when there is a wide and sometimes bewildering choice of approaches and equipment. Future technical developments and clinical applications are also discussed.

**Readership:** Academics, clinical researchers and scientists, and final-year undergraduates and postgraduates in genetics and genomics, cell and molecular biology, and structural biology.

**300pp** Jun 2011  
**978-1-84816-318-8** US\$88 £58  
**978-1-84816-319-5(ebook)** US\$114

**HUMAN STEM CELLS AND THE LIVER**

Basic Research and Clinical Applications

edited by **Mark A Zern & Christine Jung** (*University of California, Davis, USA*)

This book provides a comprehensive overview of the applicative potential of various types of stem cells, both embryonic and adult, in the treatment of liver diseases. It serves as a primer in the regenerative potential of stem cells by describing in-depth the recent advancement of science and technology in pursuit of methods for directing these cells into the differentiation pathways of hepatocyte-like cells for use in cell transplantation and for the creation of bioartificial liver assist devices.

The overall content of the book is structured with a wide range of readership in mind, from young scientists with minimal exposure to stem cells and liver biology to established clinicians and researchers who are primarily interested in enhancing their understanding of this rapidly growing area of science with far-reaching implications for biology as well as for human health.

**Readership:** Graduate students, post-doctoral fellows, and established researchers interested in stem cell research and its application in liver biology and regenerative medicine; ambitious undergraduates.

**400pp** Jun 2011  
**978-981-283-571-0** US\$111 £76  
**978-981-283-572-7(ebook)** US\$144

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## THE ABC TRANSPORTERS OF HUMAN PHYSIOLOGY AND DISEASE

The Genetics and Biochemistry of ATP Binding Cassette  
edited by **Kenneth J Linton** (*Imperial College London, UK*) &  
**I Barry Holland** (*Université Paris-Sud, France*)

ATP Binding Cassette (ABC) transporters are a family of integral membrane proteins that are likely to be represented in all the cells of all species of archaea, eubacteria and eukaryota. The vast majority of these proteins control the transport of molecules (from small hydrophilic ions to lipids and proteins) across cellular membranes. The human genome encodes 48 ABC transporters and most have been shown to underlie one or more human diseases. This book - that brings together state-of-the-art knowledge on proteins in one volume - will provide students, professors and medical professionals with a background to the human ABC transporters that are known to be relevant to diseases. Each of the 14 chapters is written by a leading researcher in the field and includes contributions from Joe Bryan and Lydia Aguilar-Bryan, Kazu Ueda, Jack Riordan and Robert Tampé. The genetics, structure and function of the proteins, and the future direction of research including the implications for human health are discussed in depth.

**Readership:** Biologists and medical doctors interested in human ABC transporters and the disease related to their malfunction.

**350pp** **Apr 2011**  
**978-981-4280-06-8** **US\$96** **£66**  
**978-981-4280-07-5(ebook)** **US\$125**

## CELLULAR THERAPY OF CANCER

Development of Gene Therapy Based Approaches  
edited by **Robert E Hawkins** (*University of Manchester, UK*)

Cancer research has progressed enormously in recent years. This review volume will address recent findings in the area of T-cell therapy for cancer, including use of tumour infiltrating lymphocytes (TILs) as a therapy for melanoma, choice of target antigens, advances in engineered receptors, methods of gene transfer to T cells, review of cell processing methods and clinical trial design. Written by leading scientists in the field, this up-to-date review on cancer research will be an important reference source to the researchers and healthcare professionals in the field.

**Readership:** Cancer researchers, oncologists and healthcare professionals.

**200pp** **May 2011**  
**978-981-4295-13-0** **US\$96** **£66**  
**978-981-4295-14-7(ebook)** **US\$125**

## GASTROINTESTINAL TUMORIGENESIS

The Relevance of Tumorigenic Mechanisms to Diagnosis and Treatment

edited by **Maesha Deheragoda** (*University College London, UK*) &  
**Nicholas Wright** (*Barts and The London School of Medicine and Dentistry, UK*)

This book explains tumorigenic mechanisms underlying common cancers from different sites of the gut, using illustrations of important mechanisms and pathways. There is emphasis on the importance of stem cells and the spread of mutations during tumorigenesis. Photographs will be used to enable pathologists and other clinicians to relate histological appearances to underlying tumorigenic processes, thereby putting these appearances into context. The volume considers how current management regimes affect tumorigenesis and how an understanding of underlying mechanisms can lead to the development of new strategies for screening, diagnosis and therapy.

**Readership:** Pathologists, oncologists, cancer researchers, molecular and cell biologists, and clinicians.

**500pp** **May 2011**  
**978-981-4322-98-0** **US\$175** **£109**  
**978-981-4322-99-7(ebook)** **US\$228**



## GENOME SCIENCE AND TECHNOLOGY

by **Jingdong Tian** (*Duke University, USA*)

In the rapidly evolving field of genome sciences and technology, it is difficult for professional researchers to keep track of new knowledge and technology developments. This unique book attempts to remedy this situation by presenting the basic principles and technological foundations that support current and future advances in this exciting field. Also, the most state-of-the-art technologies which drive the development of this field are described in detail, with a special focus on genome engineering and synthetic genomics in the field of synthetic biology.

**Contents:** Nucleic Acids Amplification and Detection; Molecular Cloning, DNA and Genome Sequencing; Microarray Technology; Genome Engineering; Synthetic Genomics.

**Readership:** Advanced undergraduates and graduate students in life sciences and engineering. Biomedical researchers, engineers, and non-experts interested in genomics.

**300pp** **May 2011**  
**978-1-84816-435-2(pbk)** **US\$75** **£50**

## NEURONAL CELL SIGNALLING

From Out to In

by **Jon Robbins** (*King's College London, UK*)

This book provides an up-to-date view of the signal transduction pathways in neurones and neuronal cells. It will cover "classical neurotransmission" as well as other signalling pathways such as gaseous signalling and adhesion molecule signalling. Furthermore, global concepts such as signalling crosstalk, spatial and temporal signalling are discussed comprehensively.

The study of cellular signalling is pivotal to understanding cell and tissue function. This book will be a learning aid as well as a source of reference, now that the cell signalling field has matured and made great strides.

**Readership:** Advanced undergraduates and graduate students, scientists and health professionals in neuroscience (neurology), biochemistry, pharmacology, physiology and cell biology.

**300pp** **May 2011**  
**978-1-84816-612-7** **US\$88** **£55**  
**978-1-84816-613-4(ebook)** **US\$114**

## SYSTEMS BIOLOGY

Applications in Cancer-Related Research

edited by **Hsueh-Fen Juan** (*National Taiwan University, Taiwan*) &  
**Hsuan-Cheng Huang** (*National Yang-Ming University, Taiwan*)

This volume presents an overview of recent developments in systems biology and their applications in cancer-related research. The ongoing advances in our understanding of genomics and proteomics, coupled with the development of new and more robust tools, have led to an emphasis on analyzing biological systems at multiple levels. Thus, there is a need to integrate different types of data into a comprehensive "systems" view.

One of the particular emphases of the book is to elucidate the molecular mechanisms in cancer. The discovery of biomarkers and anti-cancer drugs using systems biology approach is also extensively discussed.

**Readership:** This book is an essential source of reference for medical doctors, oncologists, chemists, genome biologists and computational biologists. It is also suitable for senior undergraduate, graduate students and researchers who are interested in systems biology and cancer research.

**350pp** **May 2011**  
**978-981-4324-45-8** **US\$98** **£61**  
**978-981-4324-46-5(ebook)** **US\$127**

## SINGLE-MOLECULE FLUORESCENCE SPECTROSCOPY OF MOLECULAR MACHINES

by **Achillefs Kapanidis** (*University of Oxford, UK*) & **Mike Heilemann** (*University of Bielefeld, Germany*)

This book provides a comprehensive overview of the field of single-molecule fluorescence microscopy and spectroscopy of molecular machines. It is addressed to both physical scientists (who are familiar with the fluorescence methodology but unfamiliar with the biological molecules, mechanisms and questions) and life scientists (who are familiar with the biology but unfamiliar with the large variety of available fluorescence methods). This is possible due to the background of the two authors, Achillefs Kapanidis (ANK) (biochemist) and Mike Heilemann (MH) (biophysicist). The book does not try to address the huge number of applications in non-biological areas; instead it focuses on many celebrated applications of single-molecule fluorescence on molecular machines and functional studies, with special emphasis on real-time studies of kinetics and mechanisms.

**Readership:** Advanced undergraduates, graduate students and researchers in physics and biophysics interested in using and developing single-molecule fluorescence methods. Life scientists (biochemists, molecular biologists and cell biologists) and nanotechnologists interested in using single-molecule fluorescence methods.

**200pp** **Apr 2011**  
**978-1-84816-451-2** **US\$95** **£65**  
**978-1-84816-452-9(ebook)** **US\$124**

## ERYTHROCYTES

Physiology and Pathophysiology  
 edited by **Florian Lang** **Michael Föller** (*University of Tübingen, Germany*)

The book covers the functional significance and properties of erythrocytes, their generation, senescence, and suicidal death. It further summarizes knowledge about hormones influencing erythrocyte formation including erythropoietin as well as disorders affecting and involving erythrocytes such as anemia, malaria, and sepsis.

This seminal work forms a unique reference on the most abundant cell type in mammals and will be an invaluable resource for students in the life sciences.

**Readership:** Students and undergraduates in biology, researchers and professionals involved in clinical hematology, malaria or any erythrocyte related research.

**200pp** **Apr 2011**  
**978-1-84816-619-6** **US\$98** **£61**  
**978-1-84816-621-9(ebook)** **US\$127**

Molecular Medicine and Medicinal Chemistry - Vol. 5

## ANTIBODY DRUG DISCOVERY

edited by **Clive R Wood** (*Bayer Schering Pharma, Germany*)

Antibody-based therapeutics are a central driver for the success of biopharmaceuticals. The discovery technology of this field is isolated to a limited number of centers of excellence in industry and academia. The objective of this volume is to provide a series of guides to those evaluating and preparing to enter particular areas within the field. Each chapter is written with a historical perspective that sets into context the significance of the key developments, and with the provision of "points to consider" for the reader as a value-added feature of the volume. All contributors are experts in their fields and have played pivotal roles in the creation of the technology.

**Readership:** Researchers in the field of antibody technology.

**300pp** **Apr 2011**  
**978-1-84816-628-8** **US\$98** **£61**  
**978-1-84816-629-5(ebook)** **US\$127**

## CHRONIC HEPATITIS B AND C

Basic Science to Clinical Applications  
 edited by **Chiaho Shih** (*Academia Sinica, Taiwan*)

The scope of the book is very broad, covering a wide range of areas in HBV/HDV and HCV research, including both basic and clinical science. The selected topics range from epidemiology, immunology, molecular virology and oncology, to clinical therapy.

Chronic Hepatitis B and C consists of 13 chapters, each being a review of a special topic on HBV or HCV. While review articles on a special topic can be found in periodical journals, they tend to be more restricted in presentation. Therefore, this book will provide more in-depth coverage of what are presented as "unpublished results" and "data not shown" in journal articles. Furthermore, several authors in this book do not write review articles regularly. Some authors wrote reviews on a specific topic regularly, but they tried a new topic in this book (e.g., Dr. YF Liaw on "natural course," Dr. Shih on "virion release," Dr. Michael Lai on "lymphotropism of HCV," etc. ...). Overall, the book will offer useful information at the cutting edge.

**Readership:** Researchers in virology, infectious diseases and cancer medicine.

**300pp** **Apr 2011**  
**978-981-4299-78-7** **US\$99** **£68**  
**978-981-4299-79-4(ebook)** **US\$129**

## Study Guide

Manuals in Biomedical Research - Vol. 8

## A MANUAL FOR CURRENT THERAPIES IN REGENERATIVE MEDICINE

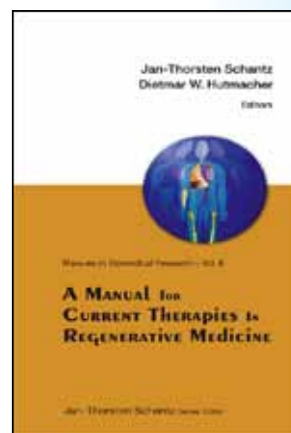
edited by **Jan-Thorsten Schantz** (*Technische Universitaet Muenche, Germany*) & **Dietmar Huttmacher** (*Queensland University of Technology, Australia*)

This manual aims to provide an overview on a variety of clinically applied strategies in the current field of regenerative medicine, and it also contains concise key data for a rapidly growing industry. As such, both patients and doctors will find the information contained within this manual to be useful and relevant. The editors are both international leaders in the field of regenerative medicine, and both possess a broad spectrum of experience from basic research to clinical application and commercialization.

**Contents:** The History of Regenerative Medicine and Current State of the Art; Stem Cell Based Therapies; Biomaterial Based Therapies; Bioactive Factor Based Therapies; From Regeneration to Rejuvenation: Therapeutic Approaches in Anti-Ageing and Aesthetic Medicine.

**Readership:** Scientists and engineers in the field of regenerative medicine; clinicians and specialists; and patients or the general public who wish to know about specific treatment options.

**150pp** **Apr 2011**  
**978-981-4299-53-4(pbk)** **US\$43** **£30**



 Sample Chapters Available  
[www.worldscibooks.com/sca\\_pdf.shtml](http://www.worldscibooks.com/sca_pdf.shtml)

## STEM CELLS

From Mechanisms to Technologies  
 edited by **Michal K Stachowiak & Emmanuel S Tzanakakis** (*State University of New York at Buffalo, USA*)

Advances in stem cell biology and biotechnology have sparked hopes that therapies will soon be available for maladies which were considered incurable before. However, realization of the clinical potential of stem cells will require better understanding of stem cell physiology and the development of advanced technologies for their efficient differentiation in medically relevant quantities. Resolving these issues necessitates synergistic approaches from multiple fields. Systems biology can be employed to dissect the mechanisms regulating the genome and proteome of stem cells during self-renewal and commitment. Microfluidic platforms can be used to recreate aspects of the stem cell niche and obtain a better understanding of the interactions among stem cells and with their environment. The milieu of stem cells and their progeny can be shaped with appropriately designed biomaterials for the engineering of tissues to replace, reconstitute or regenerate damaged organs. To that end, enabling bioreactor technologies will be necessary for the generation of large quantities of stem cells and their derivatives in a robust and cost-efficient manner.

**Readership:** Advanced undergraduates, postgraduates, and researchers in cell and molecular biology, systems biology and tissue engineering; biologists, biophysicists, bioengineers, and medical professionals.

**300pp** **Apr 2011**  
**978-981-4317-70-2** **US\$102 £63**  
**978-981-4317-93-1(ebook)** **US\$133**

## HIGH PERFORMANCE LIQUID CHROMATOGRAPHY FINGERPRINTING TECHNOLOGY OF THE COMMONLY-USED TRADITIONAL CHINESE MEDICINE HERBS

by **Seng Poon Ong** (*Temasek Polytechnic, Singapore*) & **Baochang Cai** (*Nanjing University of Chinese Medicine*)

This book provides a comprehensive and up-to-date account of the HPLC technology and fingerprints of commonly-used Chinese herbs. It contains HPLC fingerprints of over 40 traditional Chinese medicinal herbs and details their sources, production and quality control. The book provides a practical review of techniques, relevant materials, and the particular demands for using HPLC in traditional Chinese medicinal herb applications. It also covers HPLC methods used to analyze the herbs.

This is the first book in English devoted to providing readers with state-of-the-art information on HPLC applied in the analysis of traditional Chinese medicinal herbs.

**Readership:** Students, researchers in life science, researchers and practitioners in TCM, TCM companies and pharmaceutical companies, interested lay readers.

**280pp** **Jan 2011**  
**978-981-4291-09-5** **US\$85 £58**  
**978-981-4291-10-1(ebook)** **US\$111**

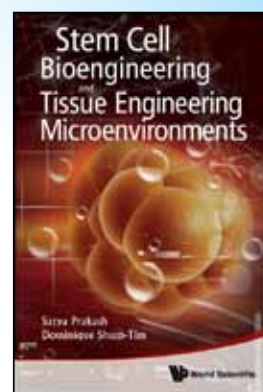
## STEM CELL BIOENGINEERING AND TISSUE ENGINEERING MICROENVIRONMENT

edited by **Satya Prakash** (*McGill University, Canada*) & **Dominique Shum-Tim** (*McGill University, Canada*)

This is a comprehensive review of the current state of stem cell bioengineering from authorities in the field. The first part of the book includes the basic research work on stem cells and bioengineering carried out by various laboratories. The second part consists of a review of the current development of various microcapsules in stem cell therapy. The last part will summarize the overall clinical trials on stem cell therapy and myocardial regeneration as well as the most updated personal experience recently completed by well-known experts in this field.

**Readership:** Graduate students, upper level undergraduate students, academics and researchers in medicine, cell biology, biochemistry, genetics, developmental biology, and animal science; life science scientists; medical doctors; surgeons; biotechnology and pharmaceutical industry professionals.

**450pp** **Jan 2011**  
**978-981-283-788-2** **US\$102 £67**  
**978-981-283-789-9(ebook)** **US\$133**



Molecular Medicine and Medicinal Chemistry - Vol. 3

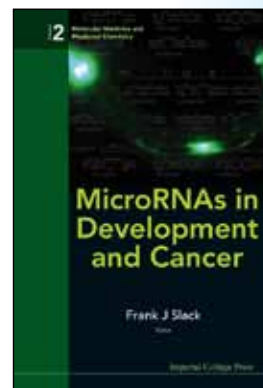
## MICRORNAs IN DEVELOPMENT AND CANCER

edited by **Frank J Slack** (*Yale University, USA*)

MicroRNAs have recently emerged as key regulators of gene expression during development and are frequently misexpressed in human disease states, in particular cancer. These 22-nucleotide-long transcripts act to promote or repress cell proliferation, migration and apoptosis during development, all of which are processes that go awry in cancer. Thus, microRNAs have the ability to behave like oncogenes or tumor suppressors. In addition, their small size and molecular properties make them amenable as targets and therapeutics in cancer treatment. This book goes into detail on how microRNAs represent a paradigm shift in thinking about gene regulation during development and disease, and provide the oncologist with a potentially powerful new battery of agents to diagnose and treat cancer.

**Readership:** Cancer researchers, geneticists, molecular biologists and cell biologists.

**300pp** **Nov 2010**  
**978-1-84816-366-9** **US\$85 £56**  
**978-1-84816-367-6(ebook)** **US\$111**



## UMBILICAL CORD BLOOD

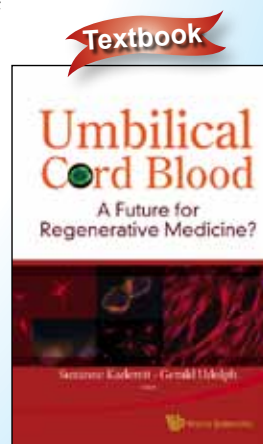
A Future for Regenerative Medicine

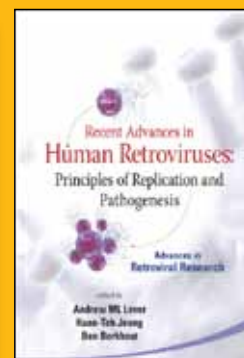
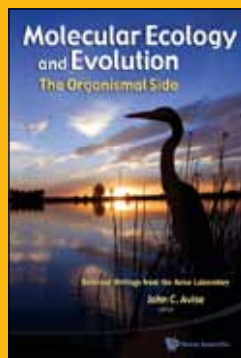
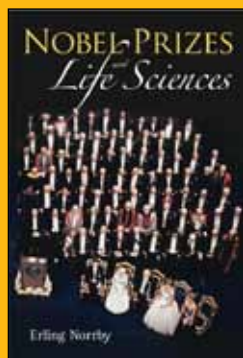
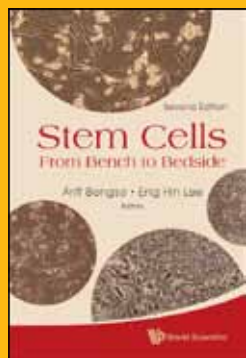
edited by **Suzanne Kadereit** (*University of Konstanz, Germany*) & **Gerald Udolph** (*National University of Singapore*)

**Contents:** **Hematopoietic Stem Cells (HSC):** Hematopoietic Stem and Progenitor Cells in Umbilical Cord Blood (*C Lengerke & S Kadereit*); Cord Blood and Cancer (*M J Laughlin & P Weitzel*); HSC and Asymmetric Division (*A Gorgens & B Giebel*); Expansion of Cord Blood HSC (*I McNiece*); **Mesenchymal Stem Cells (MSC):** Biology of MSC (*M Pittenger*); MSC and Orthopedic Regeneration (*J C Reichert et al.*); MSC and Neurological Regeneration (*G Udolph et al.*); MSC for Cardiac Repair (*D Spitkovsky et al.*); Immune Properties of MSC (*M Pittenger & K LeBlanc*); Expansion of MSC for Clinical Use (*M Prat-Lepesant et al.*); **Other Stem and Progenitor Cells in Cord Blood and Surrounding Tissue:** The Unrestricted Somatic Stem Cell (USSC) (*G Kögler et al.*); Endothelial Precursor Cells (EPC) (*M Finney & M Laughlin*); Stem Cells of the Cord and Wharton Jelly (*M Weiss & K Seshareddy*); **Future Outlook:** Banking of Cord Blood (*S Y Ong & W Hwang*); Commercialization of Cord Blood (*V Tanavde*).

**Readership:** Academics and researchers in non-embryonic stem cell research, undergraduate and graduate biology students, professionals in pharmaceutical and biotechnology sector, anyone interested in stem cells research.

**400pp** **Aug 2010**  
**978-981-283-329-7** **US\$85 £58**





## STEM CELLS

From Bench to Bedside  
(2nd Edition)

edited by **Ariff Bongso & Eng Hin Lee** (National University of Singapore)

This book deals with the basic and clinical aspects of stem cell research and involves work on the full spectrum of stem cells isolated today. It also covers the conversion of stem cell types into a variety of useful tissues which may be used in the future for transplantation therapy.

This book is important as it is comprehensive and covers all aspects of stem cell biology, from basic research to clinical applications. It will have 33 chapters written by renowned stem cell scientists worldwide. It will be up-to-date and all the chapters include self-explanatory figures, color photographs, graphics and tables.

**Readership:** Graduate students, upper level undergraduate students and researchers in cell biology, biochemistry, genetics, developmental biology, and animal science; stem cell researchers, medical doctors, veterinarians and dentists

**650pp** **Sep 2010**  
**978-981-4289-38-2** **US\$186 £128**  
**978-981-4289-39-9(ebook)** **US\$242**

## NOBEL PRIZES AND LIFE SCIENCES

by **Erling Norrby** (The Royal Swedish Academy of Sciences, Sweden)

This book discusses the most important prize in the world of science and gives unique historical insights into how the laureate selection process has developed to secure optimal choice.

No other book has been published which draws from previously classified archival materials to the extent that this book does. It indirectly deals with factors that foster scientific discoveries viz. the role of both individuals and institutions and thus provides invaluable insights for researchers, institutions and anyone interested in science.

**300pp** **Aug 2010**  
**978-981-4299-36-7** **US\$68 £45**  
**978-981-4299-37-4(pbk)** **US\$38 £25**  
**978-981-4299-38-1(ebook)** **US\$88**

## THE QUANTAL THEORY OF IMMUNITY

The Molecular Basis of Autoimmunity and Leukemia  
by **Kendall A Smith** (Cornell University, USA)

This book explains in detail how the immune system, cells and molecules work for the first time. With this understanding as a basis, the pathogenesis of autoimmunity can now be understood as a mutational usurpation of the genes encoding molecules that participate in a sensitive feedback regulatory control of the immune reaction. By comparison, malignant transformation is understood as a mutational usurpation of the genes encoding the molecules that control the quantal decision to proliferate, so that normal ligand/receptor cell growth control is circumvented.

**Readership:** Undergraduates, graduate students and academics in medicine (immunology, hematology, HIV/AIDS, oncology and infectious diseases) and life sciences (molecular biology).

**224pp** **Aug 2010**  
**978-981-4271-75-2** **US\$88 £61**  
**978-981-4271-76-9(ebook)** **US\$114**

## MOLECULAR ECOLOGY AND EVOLUTION: THE ORGANISMAL SIDE

Selected Writings from the Avise Laboratory  
edited by **John Avise** (University of California, Irvine, USA)

This volume is a reprinted collection of 69 "classics" from the Avise laboratory, chosen to illustrate a trademark brand of research that harnesses molecular markers to scientific studies of natural history and evolution in the wild. Spanning the early 1970s through the late 2000s, these articles trace how the author and his colleagues have used molecular genetics techniques to address multifarious conceptual topics in genetics, ecology, and evolution, in a fascinating menagerie of creatures with oft-peculiar lifestyles. The organisms described in this volume range from blind cavefish to male-pregnant pipefishes and sea spiders, from clonal armadillos to natal-homing marine turtles, from hermaphroditic sea snails to hybridizing monkeys and tree frogs, from clonal marine sponges to pseudohermaphroditic mollusks to introgressing oysters, and from endangered pocket gophers, terrapins, and sparrows to unisexual (all-female) fish species to "living-fossil" horseshoe crabs, and even to a strange little fish that routinely mates with itself.

**Readership:** Ecologists, evolutionists, molecular biologists, and natural historians ranging from beginning graduate students to seasoned professionals.

**500pp** **Sep 2010**  
**978-981-4317-75-7** **US\$128 £79**  
**978-981-4317-76-4(ebook)** **US\$166**

## RECENT ADVANCES IN HUMAN RETROVIRUSES: PRINCIPLES OF REPLICATION AND PATHOGENESIS

Advances in Retroviral Research  
edited by **Andrew M.L. Lever** (University of Cambridge, UK), **Kuan-Teh Jeang** (National Institutes of Health, USA), & **Ben Berkhout** (University of Amsterdam, The Netherlands)

There are three major types of human retroviruses, namely HIV, HTLV, and endogenous human retroviruses. This book presents the latest findings on the replication of these human retroviruses.

An accomplished international team of contributing authors have combined their expertise to provide cutting-edge findings in this important field. The book will be a valuable reference for students, researchers and medical professionals.

**Readership:** Students and researchers in microbiology, virology, molecular biology and cancer medicine specialists.

**500pp** **Jul 2010**  
**978-981-4295-30-7** **US\$135 £93**  
**978-981-4295-31-4(ebook)** **US\$176**

Science, Engineering, and Biology Informatics - Vol. 4

## MACHINE LEARNING APPROACHES TO BIOINFORMATICS

by Zheng Rong Yang (University of Exeter, UK)

This book covers a wide range of subjects in applying machine learning approaches for bioinformatics projects. The book succeeds on two key unique features. First, it introduces the most widely used machine learning approaches in bioinformatics and discusses, with evaluations from real case studies, how they are used in individual bioinformatics projects. Second, it introduces state-of-the-art bioinformatics research methods. The theoretical parts and the practical parts are well integrated for readers to follow the existing procedures in individual research.

**Readership:** Final-year undergraduate students, master students, PhD students and researchers in bioinformatics.

336pp **May 2010**  
 978-981-4287-30-2 **US\$107 £74**  
 978-981-4287-31-9(ebook) **US\$139**



## HOW NEW HUMANS ARE MADE

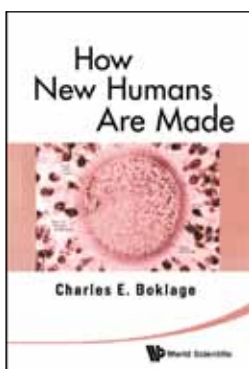
Cells and Embryos, Twins and Chimeras, Left and Right, Mind/Self/Soul, Sex, and Schizophrenia

by Charles E Boklage (East Carolina University, USA)

This book defines its own new field. We cannot claim to understand how anything [human] works [as human], with no effort at understanding the emergence of its form and functions. Old and new unanswered questions are waiting to be dug out from under old unquestioned answers about how becoming human unfolds. We will also address some popular and weighty, but deeply empty assertions about the circumstances and mechanisms of our beginnings and our ceaseless becoming. We will find fundamental questions from 'the humanities' unanswerable except from biology. Human developmental biology is a foundational discipline within the humanities.

**Readership:** For intelligent people who want to understand the biology of the usual and some unusual ways of becoming human.

516pp **Mar 2010**  
 978-981-283-513-0(pbk) **US\$55 £36**  
 978-981-283-514-7(ebook) **US\$72**



## HANDBOOK OF PORPHYRIN SCIENCE

With Applications to Chemistry, Physics, Materials Science, Engineering, Biology and Medicine edited by **Karl M Kadish** (University of Houston, USA), **Kevin M Smith** (Louisiana State University, USA) & **Roger Guilard** (Université de Bourgogne, France)

“Vivid testimony to the continuing broad interest and deep impact of the chemistry of these Pigments of Life.”

**Jean-Marie Lehn**

Nobel Laureate, Chemistry, College de France, France

“Everyone interested in the biological and chemical properties of porphyrins and related macrocycles will want to own the Handbook. The editors have done a terrific job in linking together the volumes in this very valuable resource for investigators in the chemical and biological sciences.”

**Harry B Gray**

Wolf Laureate, Chemistry, California Institute of Technology, USA

**Readership:** Chemists, physicists, material scientists, polymer scientists, spectroscopists, electrochemists, electronics and photonics engineers, biochemists, biophysicists, medicinal chemists and clinicians.

**Vol. 1-5**  
 2440pp **Mar 2010**  
 978-981-4280-16-7(set) **US\$1850 £1221**  
 978-981-4280-22-8(ebook) **US\$2405**

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**Vol. 6-10**  
 2000pp **Jun 2010**  
 978-981-4307-18-5(set) **US\$1480 £977**  
 978-981-4307-24-6(ebook) **US\$2405**

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**Vol 11-15**  
 2000pp **Dec 2010**  
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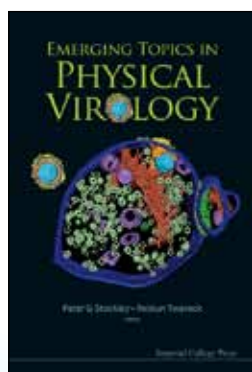
## EMERGING TOPICS IN PHYSICAL VIROLOGY

edited by **Peter G Stockley** (University of Leeds, UK) & **Reidun Twarock** (University of York, UK)

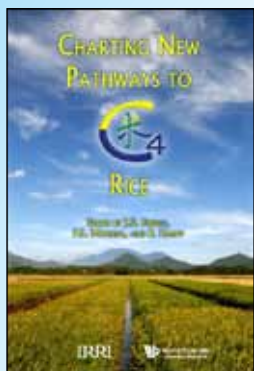
*Emerging Topics in Physical Virology* is a state-of-the-art account of recent advances in the experimental analysis and modeling of structure, function and dynamics of viruses. It is the first interdisciplinary book that integrates a review of relevant experimental techniques, such as cryo-electron microscopy, atomic force microscopy and mass spectrometry with the latest results on the biophysical and mathematical modeling of viruses. The book comprehensively covers the structure and physical properties of the protein envelopes that encapsulate and hence protect the delicate viral genome, their assembly and disassembly, the organization of the viral genome, infection, evolution, as well as applications of viruses in Biomedical Nanotechnology.

**Readership:** Biologists, biophysicists, chemists, clinicians and mathematical biologists interested in virus structure, function and dynamics.

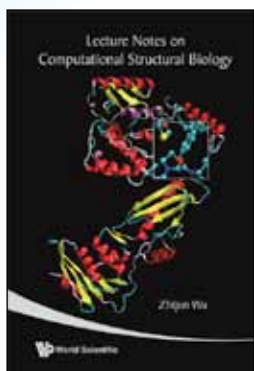
332pp **Mar 2010**  
 978-1-84816-464-2 **US\$80 £53**  
 978-1-84816-466-6(ebook) **US\$104**



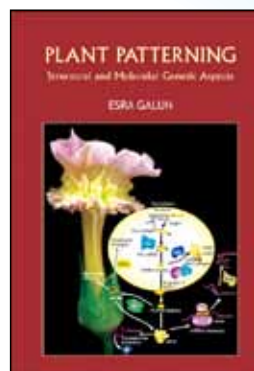
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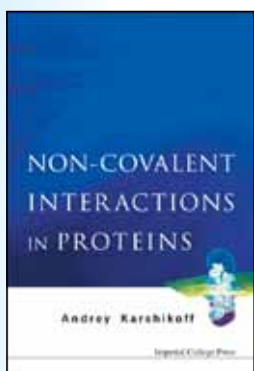
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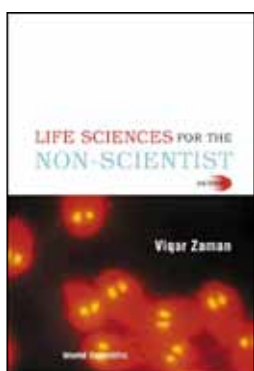
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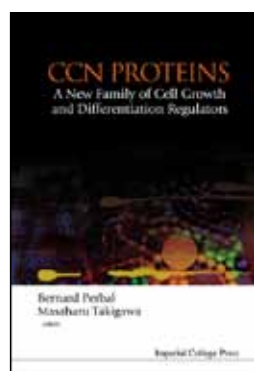
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US\$98 £68



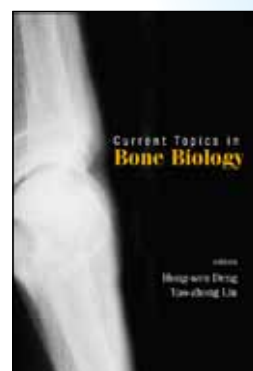
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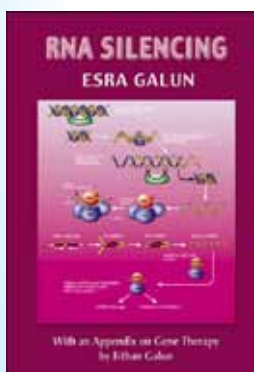
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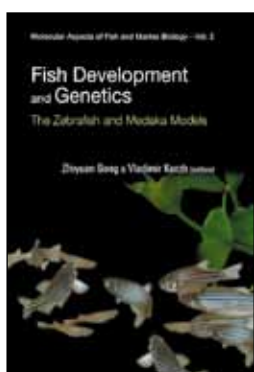
978-186-094-552-6  
US\$146 £100



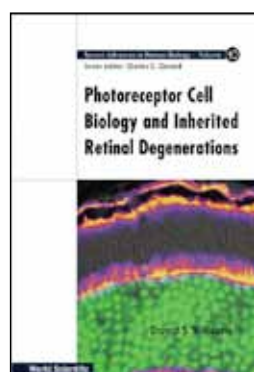
978-981-256-209-8  
US\$159 £110



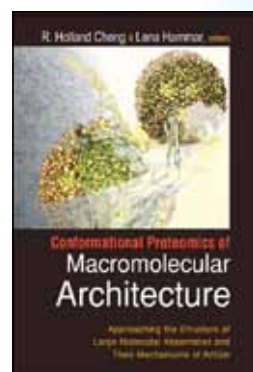
978-981-256-206-7  
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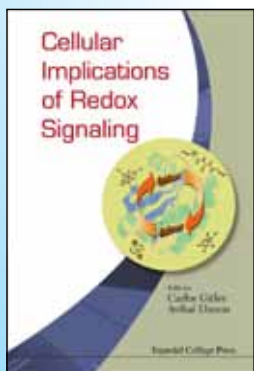
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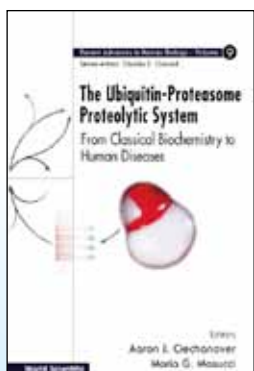
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978-186-094-331-7  
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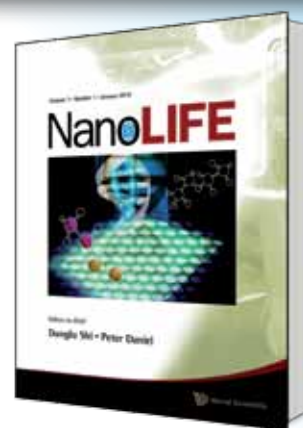
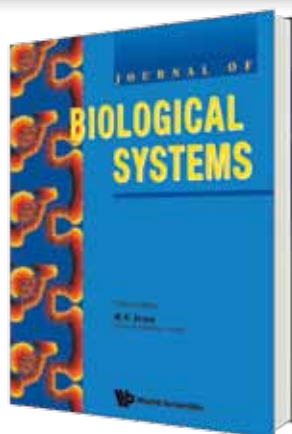
## Journals

**Journal of Biological Systems (JBS)**<http://www.worldscinet.com/jbs>

Volume: 17, Issue: 3 (September 2009)

**Paper Highlights:**

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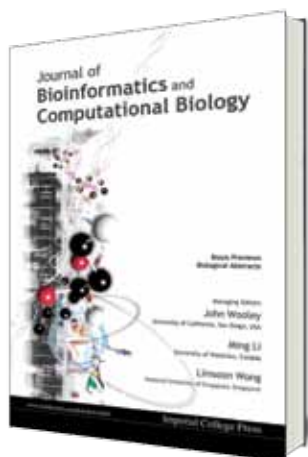
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- Mechanics of biological and bioinspired materials
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- Magnetic nanomaterials for hyperthermia applications
- Using biological building blocks to create novel materials and devices
- Smart nanomaterials for sensors and transducers
- Using materials to probe, alter, and control biological responses
- Understanding biological responses to implanted :or injected materials
- Quantum dots/nanocrystals in biolabeling, marking, etc.
- Scintillation crystal materials for medical PET imaging devices
- Early cancer diagnosis and treatment
- Nanomedicine - General
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- Subcellular targeting

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