

## Book Reviews

*Editorial Policy.* Recently published books and journals (one copy) are invited by the Editorial Office for announcement and review in ANTICANCER RESEARCH (no fee). Each announcement should include the full title of the publication, authors or editors, the number of pages, price, year of publication, ISBN and publisher. Publishers will be notified upon receipt of books and tear sheets of reviews will be sent after publication. Books will be returned to the sender only if the announcement is rejected. Reviews will be objective and clear regarding the content, quality and usefulness of the publication.

### **Integrin and Cell Adhesion Molecules. Methods and Protocols.**

*Edited by M. Shimaoka.*

2011, pp. 529, Eur 124.95, ISBN: 978-1-61779-165-9.  
Springer Science + Business Media, New York, NY, USA.

Integrins play pivotal roles not only across a wide range of physiological processes including tissue morphogenesis, immune responses, wound healing, and regulation of cell growth and differentiation, but also in numerous pathological phenomena such as autoimmunity, thrombosis, and cancer metastasis/progression. Therefore, investigations on integrins often demand multi-disciplinary approaches for a handy collection of comprehensive and practical protocols that detail experimental methods for studying integrin and related cell adhesion molecule functionality. *Integrin and Cell Adhesion Molecules: Methods and Protocols* aims at providing readers not only with basic protocols in studying integrin functions, but also with summaries on those state-of-the-art technologies that have been utilized for understanding integrin functionality at the cellular, molecular, structural, and organismal levels. Divided into six convenient sections, this detailed volume covers basic protocols for the study of integrin and related cell adhesion molecule functionality *in vitro*, illustrates structural biology approaches for studying integrins and related cell adhesion molecules, focuses on emerging imaging technologies for investigating cell migration, presents strategies to elucidate signaling through cell adhesion molecules, includes experimental techniques to investigate integrin functions at organismal levels in a physiological context, and showcases the most promising methods and technologies for the development of novel therapeutics and diagnostics. Written in the successful *Methods in Molecular Biology*<sup>TM</sup> series format, chapters include introductions to their respective topics, lists of the necessary materials and reagents, step-by-step, readily reproducible protocols, and notes on troubleshooting and avoiding known pitfalls.

Both experts and non-experts in the scientific community who wish to study cell adhesion molecules and diagnostics will find this volume authoritative, easily accessible, and vastly informative.

### **Cancer in Children. Clinical Management. Sixth Edition.**

*Edited by M.C.G. Stevens, H.N. Caron, A.Biondi.*

2012, pp. 400, £85.00, ISBN: 978-0-19-959941-7.  
Oxford University Press, Oxford, UK.

*Cancer in Children* is an established and highly regarded introduction to paediatric oncology. In a clear and concise way, it covers the aetiology, symptoms, and treatment of cancer in children, the complications that can arise during treatment, and the various outcomes of the illness.

Bringing together an international group of highly respected editors and contributors to provide evidence-based information on how to investigate and treat the common cancers in childhood. State-of-the-art descriptions of what is basic and essential for management is included. New to this edition are chapters on clinical trials, evidence based practice, the treatment of cancer in less well-resourced countries, stem cell and immunotherapy, other malignant/borderline haematological conditions (myelodysplasia and myeloproliferative disorders), and imaging. These all reflect important changes in the focus of the speciality in recent years.

Aimed at paediatric oncologists, and trainees in oncology and paediatrics, this leading text will also appeal to paediatric nurses, cancer nurses, and paramedical paediatric staff.

### **Genetically Engineered Mice for Cancer Research. Design, Analysis, Pathways, Validation and Pre-clinical Testing.**

*Edited by J.E. Green, T. Ried.*

2012, pp. 632, Eur 159.95, ISBN: 978-0-387-69803-8.  
Springer Science + Business Media, New York, NY, USA.

Technological advances in manipulating the mouse genome has led to the development of sophisticated genetically-engineered models of human cancer that recapitulate many molecular, biologic and histologic features of human tumors. This book provides an overview of the design considerations and technical approaches used to generate these important models of human cancer. These models are designed to recapitulate molecular aberrations in target organs known to drive human cancers. State-of-the-art methods to analyze genome and transcriptome alterations in these models and particular relationships to human cancers are presented. Mouse-human comparisons of tumor pathologies are exemplified. Criteria for selecting relevant models for preclinical studies that might be translatable to the treatment of human cancers are discussed. The topics presented in this book will be invaluable to both newcomers to the field as well as established investigators who use genetically-engineered mouse models to study the development, progression and treatment of cancer.

### **Stem Cells and Revascularization Therapies.**

*Edited by H. Kong, H.J. Putnam, L.B. Schook.*

2012, pp. 296, £95.00, ISBN: 978-1-4398-0323-3.  
CRC Press, Boca Raton, FL, USA.

In the last few decades, significant advancements in the biology and engineering of stem cells have enabled progress in their clinical application to revascularization therapies. Some strategies involve the mobilization of endogenous stem cell populations, and others employ cell transplantation. However, both techniques have benefited from multidisciplinary efforts to create biomaterials and other biomedical tools that can improve and control the fate of stem cells, and advance our understanding of them.

This volume focuses on the fundamentals and applied studies in stem cell biology, and provides perspectives associated with the development of revascularization strategies.

The book is divided into four sections: Section 1: Explores how to define, isolate, and characterize various stem and progenitor cell populations for neovascularisation; Section 2: Summarizes some especially useful model systems and approaches used to regulate angiogenesis, vasculogenesis, and arteriogenesis, and explores their impact on formation of functional vessels in vivo; Section 3: Focuses on stem cell homing to sites of injury and inflammation, as well as strategies to exploit this mobilization phenomenon; Section 4: Covers stem cell transplantation topics, including recreating features of endogenous stem cell niches to maintain the multipotency of transplanted cells and combinatorial delivery of cells and molecular factors.

Intended to inspire new contributions to improve the therapeutic efficacy, this volume outlines emergent findings and challenges regarding the use of stem cells in revascularization therapies.

### **Targeted Therapeutics in Melanoma.**

*Edited by T.F. Gajewski, F. Stephen Hodi.*

2012, pp. 377, Eur 171.15, ISBN: 978-1-61779-406-3.

Springer Science + Business Media, New York, NY, USA.

Melanoma is an increasingly important public health problem. Although the cause of most malignant melanomas – over-exposure to ultraviolet light – is well known, effective treatment has remained challenging.

The past several years have been marked by extraordinary developments in melanoma treatment in the arena of targeted therapeutics. This book describes these ground-breaking discoveries and their implications for clinical use. As melanoma biology is increasingly understood, so the development of targeted therapies for this disease is spurred ahead. This book covers both established signal transduction inhibitors and the fascinating emerging realm of molecularly-guided immunotherapies.

This book provides the most up-to-date information on the new breed of melanoma therapies. Composed of the works of major researchers and clinicians, this book offers new insights, novel approaches, and promising data for effective treatment planning. Illuminating the latest advances in the field, it is a solid resource for clinical oncologists, translational scientists, and basic cancer researchers.

### **Diagnostic and Prognostic Biomarkers and Therapeutic Targets in Melanoma.**

*Edited by M.J. Murphy.*

2012, pp. 322, Eur 171.15, ISBN: 978-1-60761-432-6.

Springer Science + Business Media, New York, NY, USA.

This book describes both the technologies used in the discovery of melanoma biomarkers and the clinical application of these biomarkers for diagnosis and staging of disease, determination of prognosis, treatment planning, monitoring of response to therapy, identification of novel therapeutic targets and drug development. A broad range of biomarkers (DNA/chromosomal, mRNA, microRNA, mitochondrial DNA, epigenetic and protein) is outlined. As therapies for melanoma become increasingly more target specific, the identification, validation and use of biomarkers will invariably play a greater role in the management of patients with this disease. *Diagnostic and Prognostic Biomarkers and Therapeutic Targets in Melanoma* is an essential resource for oncologists, dermatologists, dermatopathologists, general pathologists with an interest in melanoma, and melanoma researchers.

### **Transplantation Dermatology.**

*Edited by P. Häusermann, J. Steiger, J. Passweg.*

2012, pp. 202, Eur 233.00, ISBN: 978-3-80559-855-2.

S. Karger AG, Basel, Switzerland.

Patients undergoing solid organ and hematopoietic stem cell transplantation frequently develop skin diseases that can be challenging to themselves and their doctors.

In the first part of this volume, prevalent epidemiological, clinical and histological skin problems of solid organ recipients are discussed. Pre- and post-transplant management as well as follow-up programs are presented focusing on European and Swiss guidelines. A special chapter is dedicated to immunosuppressive drugs considering current standards, and new and upcoming medication. The second part starts with a summary of historical aspects of hematopoietic stem cell transplantation, and proceeds with a description of skin manifestations of graft-versus-host disease and their therapy. Covered are early, late and very late periods after transplantation with a focus on recent consensus classification and treatment aspects of chronic graft-versus-host disease. The publication ends with a comprehensive review and practical guidance on photoprotection in transplant recipients.

This book covers all the important dermatological aspects that should be considered in diagnosis and treatment of recipients of solid organ and hematopoietic stem cell transplants. It is intended as a guide for dermatologists, nephrologists, hemat-oncologists and all specialists involved in the field of transplantation.

### **Current and Future Management of Brain Metastasis.**

*Edited by D.G. Kim, L.D. Lunsford.*

2012, pp. 314, Eur 165.00, ISBN: 978-3-8055-9617-6.

S. Karger AG, Basel, Switzerland.

Recent strategies combining multiple modalities have opened up a whole new field of brain metastasis management focusing on disease control. The management of brain metastasis in modern times is no longer confined to palliation but seeks preservation of life quality and not only prolonged survival.

Up-to-date guidelines and the main aspects of brain metastasis management as well as practical points on how to deal with difficult situations in daily clinical practice are presented. Epidemiology and biology and various effective treatment methods such as surgery, radiosurgery, radiation therapy and chemotherapy are well explained. Each chapter encompasses extensive reviews and presents broad perspectives on specific topics by the most renowned personages who have continuously shown their excellence in this rapidly progressing field.

This book contains the most current information on the understanding of brain metastasis management. It is valuable reading for neurosurgeons, neuro-oncologists and radiation oncologists who are searching for the best all-round treatment for their patients.

### **Handbook of Analysis of Oligonucleotides and Related Products.**

*Edited by J.V. Bonilla, G.S. Srivasta.*

2011, pp. 497, £89.00, ISBN: 978-1-4398-1993-7.

CRC Press, Boca Raton, FL, USA.

Oligonucleotides represent one of the most significant pharmaceutical breakthroughs in recent years, showing great promise as diagnostic and therapeutic agents for malignant tumors, cardiovascular disease, diabetes, viral infections, and many other degenerative disorders. The *Handbook of Analysis of Oligonucleotides and Related Products* is an essential reference manual on the practical application of modern and emerging analytical techniques for the analysis of this unique class of compounds. A collaboration among thirty leading analytical scientists from around the world, the book provides readers with a comprehensive overview of the most commonly used analytical techniques and their advantages and limitations in assuring the identity, purity, quality, and strength of an oligonucleotide intended for therapeutic use.

Topics discussed include: Strategies for enzymatic or chemical degradation of chemically modified oligonucleotides toward mass spectrometric sequencing; Purity analysis by chromatographic or electrophoretic methods, including RP-HPLC, AX-HPLC, HILIC, SEC, and CGE; Characterization of sequence-related impurities in oligonucleotides by mass spectrometry and chromatography; Structure elucidation by spectroscopic methods (IR, NMR, MS) as well as base composition and thermal melt analysis (T<sub>m</sub>); Approaches for the accurate determination of molar extinction coefficient of oligonucleotides; Accurate determination of assay values; Assessment of the overall quality of oligonucleotides, including microbial analysis and determination of residual solvents and heavy metals; Strategies for determining the chemical stability of oligonucleotides; The use of hybridization techniques for supporting pharmacokinetics and drug metabolism studies in preclinical and clinical development; Guidance for the

presentation of relevant analytical information towards meeting current regulatory expectations for oligonucleotide therapeutics

This resource provides a practical guide for applying state-of-the-art analytical techniques in research, development, and manufacturing settings.

### **Diagnostic, Prognostic and Therapeutic Value of Gene Signatures.**

*Edited by A. Russo, S. Iacobelli, J. Iovanna.*

2012, pp. 182, Eur 139.95, ISBN: 978-1-61779-357-8.

Springer Science + Business Media, New York, NY, USA.

Gene expression studies have revealed diagnostic profiles and upregulation of specific pathways in many solid tumors. The explosion of new information in gene expression profiling could potentially lead to the development of tailored treatments in many solid tumors. In addition many studies are ongoing to validate these signatures also in predicting response to hormonal, chemotherapeutic and targeted agents in breast cancer as well as in other tumors.

*Diagnostic, Prognostic and Therapeutic Value of Gene Signatures* provides readers a useful and comprehensive resource about the range of applications of microarray technology in oncological diseases. Topics covered include gene signatures and soft tissue sarcomas, prognostic relevance of breast cancer signatures, gene expression profiling of colorectal cancer and liver metastasis, gene signatures in GISTs, CNVs and gene expression profiles in pancreatic cancer, and gene signatures in head/neck, lung and gastric tumors.

This volume will be of great value to resident and fellows, physicians, pathologists and medical oncologists.

### **Rho GTPases. Methods and Protocols.**

*Edited by F. Rivero.*

2012, pp. 707, Eur 117.65, ISBN: 978-1-61779-441-4.

Springer Science + Business Media, New York, NY, USA.

Although initially described as major regulators of cytoskeletal remodeling, Rho GTPases have been implicated in the establishment of polarity, endocytosis, vesicle trafficking, morphogenesis, cytokinesis, transcriptional activation, cell cycle progression, and apoptosis, to mention a few. In addition, Rho GTPases have acquired medical relevance because of their participation in tumorigenesis and metastasis, in cardiovascular conditions, and as targets of infectious agents. The field has broadened even more with the contribution of studies in model organisms (plants, amoebas, fungi, invertebrates), each adding a particular view to the complexity of the family and vastly enriching our perception of these important signaling components. Divided into five convenient sections, *Rho GTPase: Methods and Protocols* provides a historical overview of the field and an account of the phylogenetics of the Rho family, general biochemical methods, and functional assays that allow monitoring the consequences of manipulating Rho GTPases in a variety of contexts. Additionally, the volume devotes a section to advanced imaging methods and to recently developed high throughput

methods, closing with techniques specifically designed for studies in selected non-mammalian model organisms. Written in the successful *Methods in Molecular Biology*<sup>™</sup> series format, chapters include introductions to their respective topics, lists of the necessary materials and reagents, step-by-step, readily reproducible protocols, and notes on troubleshooting and avoiding known pitfalls.

Authoritative and easily accessible, this volume provides techniques that are standard for researchers in the field but also includes protocols for those who, being already familiar with some of the techniques, wish to explore additional aspects.

### **Magnetic Nanoparticles. From Fabrication to Clinical Applications.**

*Edited by N.T.K. Thanh.*

2012, pp. 584, £121.00, ISBN: 978-1-4398-6932-1.

CRC Press, Boca Raton, FL, USA.

Offering the latest information in magnetic nanoparticle (MNP) research, *Magnetic Nanoparticles: From Fabrication to Clinical Applications* provides a comprehensive review, from synthesis, characterization, and biofunctionalization to clinical applications of MNPs, including the diagnosis and treatment of cancers.

This book, written by some of the most qualified experts in the field, not only fills a hole in the literature, but also bridges the gaps between all the different areas in this field.

Translational research on tailored magnetic nanoparticles for biomedical applications spans a variety of disciplines, and putting together the most significant advances into a practical format is a challenging task. Balancing clinical applications with the underlying theory and foundational science behind these new discoveries, this volume supplies a toolbox of solutions and ideas for scientists in the field and for young researchers interested in magnetic nanoparticles.

### **CRC Handbook of Chemistry and Physics. 92nd Edition.**

*Editor-in-Chief: W.M. Haynes.*

2011-2012, pp. 2640, £95.00, ISBN: 978-1-4398-5511-9.

CRC Press, Boca Raton, FL, USA.

A huge volume, of immense significance for all scientists and all laboratories. The 92nd edition of the Handbook includes new tables, major updates and expansions, and a reorganization of several sections.

Table of Sections: 1. Basic constants, units, and conversion factors; 2. Symbols, terminology, and nomenclature; 3. Physical constants of organic compounds; 4. Properties of the elements and inorganic compounds; 5. Thermochemistry, electrochemistry, and solution chemistry; 6. Fluid properties; 7. Biochemistry; 8. Analytical chemistry; 9. Molecular structure and spectroscopy; 10. Atomic, molecular, and optical physics; 11. Nuclear and particle physics; 12. Properties of solids; 13. Polymer properties; 14. Geophysics, astronomy, and acoustics; 15. Practical laboratory data; 16. Health and safety information; Appendix A: Mathematical tables; Appendix B: Source of physical and chemical data; Index.

### **Lymphoma and Leukemia of the Nervous System. 2nd Edition.**

*Edited by T. Batchelor, L.M. DeAngelis.*

2012, pp. 415, Eur 149.75, ISBN: 978-1-4419-7667-3.

Springer Science + Business Media, New York, NY, USA.

Lymphomas and leukemias of the nervous system result in devastating neurological complications and high mortality. These malignancies may arise within the central nervous system or may disseminate to the brain or cerebrospinal fluid from a source elsewhere in the body. Early diagnosis and therapeutic intervention lead to improvement in neurological symptoms and signs and potentially improved survival. The diagnostic evaluation and treatment of lymphoma and leukemia of the nervous system differ from the standard approaches used when the disease is confined outside of the nervous system. This book is a comprehensive review of this challenging group of diseases and should be useful for the practicing neurologist, hematologist, oncologist and for any practitioner involved in the management of these patients.

### **Intra-Operative Neuropathology for the Non-Neuropathologist. A Case-Based Approach.**

*Edited by C.T. Welsh.*

2012, pp. 170, Eur 139.95, ISBN: 978-1-4419-1166-7.

Springer Science + Business Media, New York, NY, USA.

This volume acquaints the non-neuropathologist with the advantages of clinical-radiologic-pathologic correlation in neuropathology specimens, particularly in the intra-operative environment. This volume covers the enormous and sometimes insurmountable artifacts involved with freezing tissue, especially central nervous system tissue and how a good cytology preparation can add to, or even supply in isolation, a diagnosis. The text presents how to perform, and stain the cytologic preparations, and how to interpret them. The advantages and disadvantages of both frozen sections and cytologic preparations of various kinds are discussed. The presentation and format is very visual with diagrams, tables (including pearls and pitfalls), and many figures (therefore easy reading).

An introductory chapter presents the pros and cons of supplemental cytology, the advantages and disadvantages of frozen sections, and the artifacts in both. Also included is an argument for knowing what the scans reveal and the impact of relevant patient history. The volume uses a case-based approach to show correlation between scan, history, frozen section and cytologic preparations. With the combination of extensive correlation of scans, cytology and frozen section with differential diagnosis, and analysis of the information crucial to the neurosurgeon in a case-based approach and with a special chapter written by a neuroradiologist, this volume is unique in presentation and utility and will be of great value to the trainee in pathology (residents/fellows), and practicing pathologists who include neuropathology in their practice, but do not have formal fellowship training in neuropathology.

**Cutaneous Manifestations of Infection in the Immunocompromised Host. Second Edition.**

By M.E. Grossman, L.P. Fox, C. Kovarik, M. Rosenbach.  
2012, pp. 309, Eur 181.85, ISBN: 978-1-4419-1577-1.  
Springer Science + Business Media, New York, NY, USA.

The updated second edition of this volume is an invaluable reference for physicians and ancillary medical professionals involved in the care of patients with impaired immune systems due to cancer, chemotherapy, systemic steroids and other immunosuppressive drugs, HIV/AIDS or organ transplantation. This book will help to recognize skin lesions and diagnose their infectious cause. Textbook features include: Over 350 color images demonstrating pathognomonic, atypical, rare and routine skin lesions; Tables for differential diagnosis of different skin lesions in the immunocompromised host; Complete coverage of infectious pathogens with the patterns of infection and the likely causes in different clinical settings (HIV/AIDS versus solid organ transplantation versus neutropenia post-chemotherapy versus bone marrow recovery post hematopoietic stem cell transplantation); New chapter discussing the role of viruses causing malignancies with cutaneous signs in the immunocompromised patient.

Written by dermatologists, the new edition is an indispensable diagnostic tool intended for use by all clinicians who care for immunocompromised patients.

**Cancer Systems Biology, Bioinformatics and Medicine Research and Clinical Applications.**

Edited by A. Cesario, F. Marcus.  
2011, pp. 484, Eur 106.95, ISBN: 978-94-007-1566-0.  
Springer Science + Business Media, New York, NY, USA.

This teaching monograph on systems approaches to cancer research and clinical applications provides a unique synthesis, by world-class scientists and doctors, of laboratory, computational, and clinical methods, thereby establishing the foundations for major advances not possible with current methods.

Specifically, the book: sets the stage by describing the basis of systems biology and bioinformatics approaches, and the clinical background of cancer in a systems context; summarizes the laboratory, clinical, data systems analysis and bioinformatics tools, along with infrastructure and resources required; demonstrates the application of these tools to cancer research; extends these tools and methods to clinical diagnosis, drug development and treatment applications; and finishes by exploring longer term perspectives and providing conclusions.

This book reviews the state-of-the-art, and goes beyond into new applications. It is written and highly referenced as a textbook and practical guide aimed at students, academics, doctors, clinicians, industrialists and managers in cancer research and therapeutic applications. Ideally, it will set the stage for integration of available knowledge to optimize communication between basic and clinical researchers involved in the ultimate fight against cancer, whatever the field of specific interest, whatever the area of activity within translational research.

**Natural Killer T Cells. Balancing the Regulation of Tumor Immunity.**

Edited by M. Terabe, J.A. Berzofsky.  
2012, pp. 205, Eur 149.75, ISBN: 978-1-4614-0612-9.  
Springer Science + Business Media, New York, NY, USA.

Natural killer T (NKT) cells are CD1d-restricted T cells that respond to lipid, not protein, antigens presented by CD1d, which is a non-classical MHC class I-like molecule. This relatively small but pivotal T cell population bridges the gap between innate and adaptive immunity by rapidly produce large amounts of many kinds of cytokines and by providing the T cell arm of the adaptive immune system a mechanism to detect lipid antigens. NKT cells also have both regulatory and effector functions and have been shown to play critical roles in the regulation of immune responses in many disease settings including cancer. Stimulating the protective functions of NKT cells while inhibiting the negative regulatory activity shows promise for the therapy of cancer and several approaches are in clinical trials.

This book reviews what we have learned about NKT cells during last two decades through functional studies in the context of tumor immunology, including clinical trials of NKT cell targeted therapy. This knowledge should also be informative to understand the role of this underappreciated T cell population in many other fields outside of tumor immunology.

**Oncolytic Viruses. Methods and Protocols.**

Edited by D.H. Kirn, T.-C. Liu, S.H. Thorne.  
2012, pp. 241, Eur 101.60, ISBN: 978-1-61779-339-4.  
Springer Science + Business Media, New York, NY, USA.

Since the first report of an engineered oncolytic virus, there has been a continuing and steady increase of interest in the field, and while bench research remains vital for the translation of research in this field, its success depends on breakthroughs in clinical studies. *Oncolytic Viruses: Methods and Protocols* describes the construction and purification of capsid-modified adenoviruses as well as oncolytic adenoviruses, presents protocols for many individual virus species including engineering and preparation of oncolytic HSV, propagation, purification, and *in vivo* testing of oncolytic VSV, details properties of oncolytic reovirus and NDV, and describes the generation and testing of next generation of oncolytic vaccinia virus. As the host immune system plays a critical role in determining efficacy of oncolytic viruses, two chapters are devoted to the study of immune response. Recent advances in stem cell research have led the field in two distinct directions: the use of stem cells as carrier vehicles for oncolytic viruses and the targeting of cancer stem cells. As such, the volume describes the use of explant tissue samples from patients to potentially provide useful information predicting responses prior to clinical translation. Written in the successful Methods in Molecular Biology™ series format, chapters include introductions to their respective topics, lists of the necessary materials and reagents, step-by-step, readily reproducible protocols, and notes on troubleshooting and avoiding known pitfalls.

Authoritative and easily accessible, this book seeks to serve both professionals and novices with its well-honed methodologies in an effort to further our knowledge of this essential and vital field.

**PAT Applied in Biopharmaceutical Process Development and Manufacturing. An Enabling Tool for Quality-by-Design.**

*Edited C. Undey, D. Low, J.C. Menezes, M. Koch.*  
2012, pp. 299, £99.00, ISBN: 978-1-4398-2945-5.  
CRC Press, Boca Raton, FL, USA.

As with all of pharmaceutical production, the regulatory environment for the production of therapeutics has been changing as a direct result of the US FDA-initiated Quality by Design (QbD) guidelines and corresponding activities of the International Committee for Harmonization (ICH). Given the rapid growth in the biopharmaceutical area and the complexity of the molecules, the optimum use of which are still being developed, there is a great need for flexible and proactive teams in order to satisfy the regulatory requirements during process development.

Process Analytical Technologies (PAT) applied in biopharmaceutical process development and manufacturing have received significant attention in recent years as an enabler to the QbD paradigm. This volume covers technological advances in measurement sciences, data acquisition, monitoring, and control. Technical leaders present real-life case studies in areas including measuring and monitoring raw materials, cell culture, purification, and cleaning and lyophilization processes via advanced PAT. They also explore how data are collected and analyzed using advanced analytical techniques such as multivariate data analysis, monitoring, and control in real-time. Invaluable for experienced practitioners in PAT in biopharmaceuticals, this book is an excellent reference guide for regulatory officials and a vital training aid for students who need to learn the state of the art in this interdisciplinary and exciting area.

**Physics for Clinical Oncology.**

*Edited by A. Sibtain, A. Morgan, N. MacDougall.*  
2012, pp. 263, £44.99, ISBN: 978-0-19-957335-6.  
Oxford University Press, Oxford, UK.

To be able to perform radiotherapy effectively, oncologists and radiographers need to understand the physics behind it. This book is the first on radiation physics that is written specifically for the needs of the practicing oncology team.

Radiotherapy remains the major non-surgical treatment modality for malignant disease, with over 50% of patients receiving radiotherapy at some point during their treatment. The physics behind the administration of radiotherapy is essential to an understanding of how the treatment works, and therefore ensuring optimum practice. However, most oncologists will have been taught little physics since school.

*Physics for Clinical Oncology* combines the expertise of physicists and clinical oncologists making the scientific discipline of physics clinically relevant, and accessible. The

content of this book is mapped against the FRCR curriculum to make it essential reading for the trainee oncologist and the wider radiotherapy team.

**Biotechnology Fundamentals.**

*Edited by F.A. Khan.*  
2012, pp. 576, £48.99, ISBN: 978-1-4398-2009-4.  
CRC Press, Boca Raton, FL, USA.

The focus of this textbook is to educate readers on both classical and modern aspects of biotechnology and to expose them to a range of topics, from basic information to complex technicalities. This text offers a rare topical combination of coverage, using numerous helpful illustrations to explore the information that students and researchers need to intelligently shape their careers.

Topics covered include: How biotechnology products are produced; Differences between scientific research conducted in universities and industry; Which areas of biotechnology offer the best and most challenging career opportunities; Key laboratory techniques and protocols employed in the field.

The contents of this book are derived from discussions between teachers and undergraduate students and designed to address the concepts and methods thought useful by both sides. Starting with the fundamentals of biotechnology, coverage includes definitions, historical perspectives, timelines, and major discoveries, in addition to products, research and development, career prospects, ethical issues, and future trends.

The author explains that even before it had been classified as its own field, biotechnology was already being applied in plant breeding, *in vitro* fertilization, alcohol fermentation, and other areas. He then delves into new developments in areas including stem cell research, cloning, biofuels, transgenic plants, genetically modified food/crops, pharmacogenomics, and nanobiotechnology. Incorporating extensive pedagogy into the content, this book provides plenty of examples, end-of-chapter problems, case studies, and lab tutorials to help reinforce understanding.

**Cancer Prevention and Therapy. The Role of Tumor-Associated Proteins.**

*By I. Zusman.*  
2011, pp. 228, ISBN: 978-81-7895-533-9.  
Transworld Research Network, Kerala, India.

In this volume, the author discusses all aspects of tumor-associated proteins in the prevention or therapy of cancer.

The 29 sections of the book are divided into four chapters:

1. Cancer immunotherapy; 2. Soluble TAAs in cancer immunotherapy; 3. Antibodies in cancer prevention and therapy; 4. Physicochemical and social aspects of cancer. Each chapter is comprehensively written and supported by extensive recent references.

This book will be useful to researchers involved in cancer immunotherapy, vaccines, and cancer prevention.

**Molecular Manipulation with Atomic Force Microscopy.***Edited by A.S. Duwez, N. Willet.*

2012, pp. 265, £95.00, ISBN: 978-1-4398-0966-2.

CRC Press, Boca Raton, FL, USA.

With the invention of scanning probe techniques in the early 1980s, scientists can now play with single atoms, single molecules, and even single bonds. Force, dynamics, and function can now be probed at the single-molecule level. *Molecular Manipulation with Atomic Force Microscopy (AFM)* presents a series of topics that discuss concepts and methodologies used to manipulate and study single (bio)molecules with AFM. The first part is dedicated to the pulling of single molecules with force spectroscopy to investigate molecular interactions, mechanics, and mechanochemical processes, and the second part to the manipulation, repositioning, and targeted delivery of single molecules on substrates.

Features of this volume include: An overview of the use of AFM for manipulating and studying single molecules to gain new insights into fundamental concepts of physics, chemistry, and biology; Description of how AFMs can be used to stretch, bend, position, and deliver single macromolecules on surfaces; Examination of the wide range of AFM-force spectroscopy applications in nanoscience, and the capabilities of AFM beyond imaging.

Single molecule manipulation is an exciting area of research which made important breakthroughs in nanoscience and which could find potential applications in a diverse range of disciplines, including chemistry, biology, physics, material and polymer science, and engineering. New and experienced AFM researchers looking for applications beyond imaging will find a wealth of information in this informative volume.

**Methods for Studying Nucleic Acid/Drug Interactions.***Edited by M. Wanunu, Y. Tor.*

2012, pp. 373, £76.99, ISBN: 978-1-4398-3973-7.

CRC Press, Boca Raton, FL, USA.

Since most therapeutic efforts have been predominantly focused on pharmaceuticals that target proteins, there is an unmet need to develop drugs that intercept cellular pathways that critically involve nucleic acids. Progress in the discovery of nucleic acid binding drugs naturally relies on the availability of analytical methods that assess the efficacy and nature of interactions between nucleic acids and their putative ligands. This progress can benefit tremendously from new methods that probe nucleic acid/ligand interactions both rapidly and quantitatively.

Methods for Studying Nucleic Acid/Drug Interactions highlights new and non-conventional methods for exploring nucleic acid/ligand interactions. Designed to present drug-developing companies with a survey of possible future techniques, the book compares their drawbacks and advantages with respect to commonly used tools. Perhaps more importantly, this book was written to inspire young scientists to continue to

advance these methods into fruition, especially in light of current capabilities for assay miniaturization and enhanced sensitivity using microfluidics and nanomaterials.

**Handbook of Inorganic Compounds. 2nd Edition.***Edited by D.L. Perry.*

2011 pp. 553, £127.00, ISBN: 978-1-4398-1461-1.

CRC Press, Boca Raton, FL, USA.

This updated edition of the *Handbook of Inorganic Compounds* is the perfect reference for anyone that needs property data for compounds, CASRN numbers for computer or other searches, a consistent tabulation of molecular weights to synthesize inorganic materials on a laboratory scale, or data related to physical and chemical properties. Fully revised, the second edition includes new data on inorganic optical materials, radiation detection inorganics, thermochromic compounds, piezochromic compounds, catalysts, superconductors, and luminescent (fluorescent and phosphorescent) inorganics.

The Handbook consists of data for 3,326 selected gas, liquid, and solid compounds, including representative compounds of several different classes of compounds. Choices of compounds were based on criteria such as inclusion of the compounds in various handbooks of laboratory chemicals, discussion in recent research publications, compounds important to inorganic materials chemistry, and comments of the Advisory Committee guiding the production of the first edition of the handbook.

**Scientific Research as a Career.***Edited by F. MacRitchie.*

2011, pp. 117, £19.99, ISBN: 978-1-4398-6965-9.

CRC Press, Boca Raton, FL, USA.

Describing the philosophy of the scientific method and the training and professional characteristics needed for a successful career, *Scientific Research as a Career* is a comprehensive "how-to" guide for the aspiring scientist. Based on the author's experience both as a scientist in a research organization and as a university mentor, the book covers: The interaction between management and leadership principles and scientific research; Qualifications and attributes usually required to become a successful researcher; History, application, and prerequisites of the scientific method and scientific progress; Exploration of the careers of pivotal and influential scientists

The author highlights the importance of networking and the value of forming contacts with colleagues, joining scientific associations, attending conferences, making presentations, and acting as chairs for conference sessions. He also touches on the many areas outside of "the science" that readers are likely to encounter during their career, such as mentoring, supervising research students, and managing a group. The book clearly delineates not only the challenges currently facing scientists, but also how to overcome them and achieve success in their careers.