

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.

The Surgery of Childhood Tumors. Third Edition.

Edited by R. Carachi, J.L. Grosfeld.

2016, pp 770, Eur 197.59, ISBN: 978-3-662-48588-0.

Springer Verlag, Berlin, Germany.

Beginning with the scientific basis of tumors, this book provides up-to-date information on epidemiology, cytogenetics, and molecular biology, before examining current treatments for the full range of pediatric tumors. Integration of surgery, neoadjuvant and adjuvant chemotherapy, and radiation therapy is a dominant theme. In addition, chapters on supportive care, palliative care, and the role of parents' associations reflect the book's holistic approach.

All chapters are written by world-renowned international authorities on pediatric cancer from major children's cancer groups. Excellent full-color pictures and line drawings illustrate all aspects of managing childhood tumors, including details of operative techniques neglected in many other texts. This comprehensive book, expanded and updated to encompass the very latest developments and strategies, provides a contemporary approach for pediatric, general, and urological surgeons dealing with childhood tumors.

Oxford Textbook of Oncology. Third Edition.

Edited by D.J. Kerr, D.G. Haller, C.J.H. van de Velde, M. Baumann.

2016, pp 1007, GBP 245.00, ISBN: 978-0-19-965610-3.

Oxford University Press, Oxford, UK.

Written and edited by internationally recognised leaders in the field, the new edition of the Oxford Textbook of Oncology has been fully revised and updated, taking into consideration the advancements in each of the major therapeutic areas, and representing the multidisciplinary management of cancer.

Structured in six sections, the book provides an accessible scientific basis to the key topics of oncology, examining how cancer cells grow and function, as well as discussing the aetiology of cancer, and the general principles governing modern approaches to oncology treatment. The book examines the challenges presented by the treatment of cancer on a larger scale within population groups, and the importance of recognising and supporting the needs of individual patients, both during and after treatment.

A series of disease-oriented, case-based chapters, ranging from acute leukaemia to colon cancer, highlight the various approaches available for managing the cancer patient, including the translational application of cancer science in order to personalise treatment. The advice imparted in these cases has relevance worldwide, and reflects a modern approach to cancer care.

This volume provides a comprehensive account of the multiple aspects of best practice in the discipline, making it an indispensable resource for oncologists of all grades and subspecialty interests.

The Nuclear Envelope. Methods and Protocols.

Edited by S. Shackleton, P. Collas, E.C. Schirmer.

2016, pp 523, Eur 114.39, ISBN: 978-1-4939-3528-4.

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

This volume provides a wide range of protocols used in studying the nuclear envelope, with special attention to the experimental adjustments that may be required to successfully investigate this complex organelle in cells from various organisms. The book is divided into five sections: Part I – Nuclear Envelope Isolation; Part II – Nuclear Envelope Protein Interactions, Localization, and Dynamics; Part III – Nuclear Envelope Interactions with the Cytoskeleton; Part IV – Nuclear Envelope-Chromatin Interactions; and Part V – Nucleo-Cytoplasmic Transport. Many of the modifications discussed in this book have only been circulated within laboratories that have conducted research in this field for many years. Written in the highly 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 laboratory protocols, and tips on troubleshooting and avoiding known pitfalls.

Cutting edge and thorough, this volume is a timely resource for researchers who have joined this dynamic and rapidly growing field.

The Mitotic Spindle. Methods and Protocols.

Edited by P. Chang, R. Ohi.

2016, pp 424, Eur 114.39, ISBN: 978-1-4939-3540-6.

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

This volume includes a series of protocols focused on mitotic spindle assembly and function. The methods covered in this book feature a broad range of techniques from basic microscopy to the study of spindle physiologies relevant to cancer. These methods can be applied to diverse model systems that range from the cell-free *Xenopus* egg extract system to the moss *Physcomitrella patens*, in an effort to demonstrate the key contributions made by researchers using multiple model organisms. Chapters in this volume integrate cutting-edge technologies that have only become available due to the cross-disciplinary efforts, such as ATP analogue sensitive inhibition of mitotic kinases. Written in the highly 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 laboratory protocols, and tips on troubleshooting and avoiding known pitfalls.

Thorough and informative, this volume is a valuable resource for researchers who are new to mitosis or are already experts in the field.

Synthetic mRNA. Production, Introduction Into Cells, and Physiological Consequences.

Edited by R.E. Rhoads.

2016, pp 320, Eur 98.79, ISBN: 978-1-4939-3623-6.
Springer Science+Business Media, New York, NY, USA.

This volume presents detailed laboratory protocols for *in vitro* synthesis of mRNA with favorable properties, its introduction into cells by a variety of techniques, and the measurement of physiological and clinical consequences such as protein replacement and cancer immunotherapy. Synthetic techniques are described for structural features in mRNA that provide investigational tools such as fluorescence emission, click chemistry, photo-chemical crosslinking, and that produce mRNA with increased stability in the cell, increased translational efficiency, and reduced activation of the innate immune response. Protocols are described for clinical applications such as large-scale transfection of dendritic cells, production of GMP-grade mRNA, redirecting T cell specificity, and use of molecular adjuvants for RNA vaccines. Written in the highly successful *Methods in Molecular Biology* series format, chapters include introductions to their respective topics, lists of the necessary materials and reagents, step-by-step laboratory protocols, and tips on troubleshooting and avoiding known pitfalls.

This volume is a valuable and cutting-edge resource for both laboratory investigators and clinicians interested in this powerful and rapidly evolving technology.

Angiogenesis Protocols. Third Edition.

Edited S.G. Martin, P.W. Hewett.

2016, pp 404, Eur 114.39, ISBN: 978-1-4939-3626-7.
Springer Science+Business Media, New York, NY, USA.

In addition to updating important core techniques this third edition presents new chapters on assessing leukocyte involvement in angiogenesis, lymphatic cell and pericyte isolation techniques, spheroid and arterial ring based *in vitro* assays, and on pericyte involvement in angiogenesis. This book also guides readers through new protocols on chorioallantoic membrane models, corneal pocket assays to assess angio- and lymphangiogenesis, models of muscle angiogenesis, and use of zebrafish embryos to study vascular angiogenesis and senescence. Written in the highly 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 laboratory protocols, and tips on troubleshooting and avoiding known pitfalls.

Authoritative and practical, this volume provides not only a practical handbook for key techniques, but also an informative and enjoyable read for all those interested, no matter how directly, in angiogenesis.

Dendritic Cell Protocols. Third Edition.

Edited by E. Segura, N. Onai.

2016, pp 322, Eur 98.79, ISBN: 978-1-4939-3604-5.
Springer Science+Business Media, New York, NY, USA.

The third edition of this volume is aimed at providing both beginners and more experienced researchers a choice of methods to isolate and analyze dendritic cells (DC). An introductory review provides an overview of recent advances in the characterization of DC subsets in mouse and human. While additional chapters provide methods to culture human and mouse dendritic cells, protocols for the isolation of dendritic cells, the isolation of dendritic cell progenitors from mouse, and the purification of dendritic cells from human blood. Written in the highly 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 laboratory protocols, and tips on troubleshooting and avoiding known pitfalls.

Authoritative and cutting-edge, this volume aims to ensure successful results in the further study of this vital field.

Natural Killer Cells. Methods and Protocols.

Edited by S.S. Somanchi.

2016, pp 365, Eur 98.79, ISBN: 978-1-4939-3682-3.
Springer Science+Business Media, New York, NY, USA.

This volume contains collection of Natural Killer Cell methodologies relevant for both basic and translational research. These methodologies present new developments in the natural killer (NK) cell field, such as understanding the influence of NK cells metabolism on its function, identifying complexity of NK cell subsets through mass cytometry, and determining the emergence of memory NK cells in murine model of MCMV infection. Methods that study NK cell migration and cytotoxicity through endpoint analysis or live single cell imaging are also discussed. Chapters also describe methods pertaining to translational application of NK cells, such as *ex vivo* expansion of NK cells on K562 cell lines genetically modified to express either membrane bound IL-15 or membrane bound IL-21, large scale NK cell culture, current techniques for engineering NK cells to express chimeric antigen receptors or chemokine receptors using retroviral vectors, electroporation of mRNA, and the natural phenomenon of trogocytosis. Written in the highly successful *Methods in Molecular Biology* series format, these chapters include introductions to their respective topics, lists of the necessary materials and reagents, step-by-step readily reproducible laboratory protocols, and tips on troubleshooting and avoiding known pitfalls.

Cutting edge and thorough, this book is a valuable resource for researchers who not only want to understand mechanisms

that govern NK cell behavior and diversity, but also for those who want to understand how to systematically evaluate NK cells for adoptive immunotherapy applications.

Mesenchymal Stem Cells. Methods and Protocols.

Edited by M. Gneccchi.

2016, pp 570, Eur 129.99, ISBN: 978-1-4939-3582-6.
Springer Science+Business Media, New York, NY, USA.

This volume aims to outline the current status of the Mesenchymal Stem Cells (MSC) field in regenerative medicine and to propose clear and reproducible protocols to better define the identity, function and use of these cells that are today, more than ever, “under the spotlight”. *Mesenchymal Stem Cells: Methods and Protocols, Second Edition* is organized into four sections. The first guides the reader through a series of state-of-the-art reviews summarizing the use of MSC for the treatment of various diseases. The other three sections are a collection of methodological chapters covering several aspects: isolation and characterization of MSC; expansion of MSC for clinical use; production and characterization of the MSC secretome. Written in the highly successful *Methods in Molecular Biology* series format, the method chapters include introductions to their respective topics, complete lists of the necessary materials and reagents, step-by-step, readily reproducible laboratory protocols, and tips on troubleshooting which will help the researcher to avoid known pitfalls.

Authoritative and cutting-edge, this book aims to ensure successful results in the further study of this vital field.

Mouse Models for Drug Discovery. Methods and Protocols. Second Edition.

By G. Proetzel, M.V. Wiles.

2016, pp 436, Eur 114.39, ISBN: 978-1-4939-3659-5.
Springer Science+Business Media, New York, NY, USA.

With genetic engineering, systems explored in this book now exist allowing for the simple, efficient, and near universally precise genetic manipulation directly in any organism, including the mouse. Herein, these models are applied to a wide field of disease areas, including diabetes, cardiovascular disease, skin disorders, cancer, neurodegenerative and neuromuscular diseases, retinal disorders, as well as various behavioral models. Written for the highly successful *Methods in Molecular Biology* series, chapters include introductions to their respective topics, lists of the necessary materials and reagents, step-by-step, readily reproducible laboratory protocols, and tips on troubleshooting and avoiding known pitfalls.

Practical and fully updated, this volume serves to equip the reader with an extensive overview of techniques to utilize the many possibilities of mice in the drug development process.

Atlas of Animal Anatomy and Histology.

By P. Löw, K. Molnár, G. Kriska.

2016, pp 413, Eur 145.59, ISBN: 978-3-319-25170-7.
Springer International Publishing, Cham, Switzerland.

This atlas presents the basic concepts and principles of functional animal anatomy and histology thereby furthering our understanding of evolutionary concepts and adaptation to the environment. It provides a step-by-step dissection guide with numerous colour photographs of the animals featured. It also presents images of the major organs along with histological sections of those organs. A wide range of interactive tutorials gives readers the opportunity to evaluate their understanding of the basic anatomy and histology of the organs of the animals presented.

Induction Chemotherapy. Systemic and Locoregional. Second Edition.

Edited by K.R. Aigner, F.O. Stephens.

2016, pp 506, Eur 145.59, ISBN: 978-3-319-28771-3.
Springer-Verlag, Berlin, Germany.

This book presents the full range of management techniques and practices used in induction chemotherapy – both systemic and locoregional - by experienced international groups within one accessible volume. It provides the latest information on the pioneering and cutting-edge practices employed in different institutions and documents the advantages of integrated treatment schedules. All those responsible for treating patients with locally advanced cancers may find new, interesting aspects of locoregional cancer management and will find this book to be an invaluable source of up-to-date information.

Throughout the world, induction chemotherapy is being used as part of an integrated plan of management for locally advanced, solid tumors, while systemic chemotherapy is most commonly used to shrink primarily non-operable tumors. In cases of poorly or nonresponsive tumors, attempts have been made to administer chemotherapeutics via the arterial route in order to achieve higher localized drug exposure and response rates. Such therapies are being practiced worldwide in independent, remote departments in universities, teaching hospitals and clinical schools. Frequently, however, these teams remain relatively unaware of the work being done in other institutions, which may slow further progress.

Oncologic Emergency Medicine. Principles and Practice.

Edited by K.H. Todd, C.R. Thomas, Jr.

2016, pp 538, Eur 155.99, ISBN: 978-3-319-26385-4.
Springer International Publishing, Cham, Switzerland.

This is the first comprehensive clinical reference on cancer emergencies. It is edited and written by world-renowned experts in emergency medicine and oncology and covers the diagnosis and management of the full range of emergencies caused directly by cancer or by its treatment. It shows how the entire spectrum of clinical medicine is brought to bear in the care of cancer patients in the unique setting of the emergency department (ED), from health promotion and prevention, to treatment and palliative care. Recognizing the multiple, overlapping contexts in which emergency care of cancer patients occurs, the book addresses clinically crucial

interdisciplinary topics such as the ethics of ED cancer care, the interface with palliative social work, substance abuse, and more. Finally, perspective on care system and social forces that shape ED cancer care, such as cancer care disparities and care models, and on how ED cancer care is delivered outside of the United States, frame the book as a whole. Against the backdrop of rising numbers of cancer patients and survivors as the United States population ages and a forecast shortage of oncologists, this book is designed to serve as the authoritative, single-source clinical reference on cancer emergencies. The intended audience includes emergency physicians, oncologists, internists, family physicians, emergency nurses, nurse practitioners, physician assistants, policy makers as well as pre- and postgraduate trainees.

Head and Neck Pathology.

Edited by M. Volavšek.

2016, pp 510, Eur 269.36, ISBN: 978-3-319-28617-4.
Springer International Publishing, Cham, Switzerland.

This book covers the complete field of head and neck pathology – from Abscess to Wegener’s Granulomatosis, Sinusal. The alphabetically arranged entries, each of which provides a detailed description of a specific pathological disease pattern, allow readers to quickly and easily find the information they need.

Dermatopathology.

Edited by D. Massi.

2016, pp 367, Eur 269.36, ISBN: 978-3-319-30005-4.
Springer International Publishing, Cham, Switzerland.

This book covers the complete field of dermatopathology - from Acantholysis to *Xeroderma pigmentosum*. The alphabetically arranged entries, each of which provides a detailed description of a specific pathological disease pattern, allow readers to quickly and easily find the information they need.

Salivary Gland Neoplasms.

Edited by P.J. Bradley and D.W. Eisele.

2016, pp 205, Eur 214.00, ISBN: 978-3-318-05801-7.
S. Karger AG, Basel, Switzerland.

This volume in the book series 'Advances in Oto-Rhino-Laryngology' summarizes the current scientific knowledge of salivary gland neoplasms and illustrates recent advances in this clinical area. Chapters are authored by world renowned experts who cover the full breadth of salivary gland neoplasms, from benign to malignant, primary to secondary, and pediatric to adult. This comprehensive review highlights the outcome of treatments as well as the classification, diagnosis, and management of salivary gland neoplasms. It also includes commentary on the future perspective necessary for improvement.

All clinicians, both surgical and non-surgical, involved in the diagnosis and treatment of patients with symptoms and diseases of the salivary gland, will find this book indispensable reading.

It is also a beneficial educational resource for clinicians, students, and experts in the field.

Ocular Tumors.

Edited by A.D. Singh, S. Seregard.

2016, pp 112, Eur 92.00, ISBN: 978-3-318-05618-1.
S. Karger AG, Basel, Switzerland.

Rapid advances in the field of oncology have made the diagnosis and treatment of intraocular tumors more and more complex, therefore requiring equally advanced training and expertise. Early detection and specialized care can have a profound impact on the final outcome, so it is crucial to manage them appropriately.

In this 7th volume of the 'ESASO Course Series', the focus is on ocular tumors, including diagnosis and management. With a strong emphasis on diagnostic aspects, chapters cover and illustrate a variety of intraocular tumors, such as retinoblastoma and uveal melanoma, encountered in children and adults.

This book includes contributions by renowned experts from Europe and the United States. It is a valuable resource for primary care ophthalmologists as well as residents and fellows in the field of ophthalmology.

Surgical Oncology Manual. Second Edition.

Edited by F.C. Wright, J. Escallon, M. Cukier, M.E. Tsang, U. Hameed.

2016, pp. 341, Eur 69.54, ISBN: 978-3-319-26274-1.
Springer International Publishing, Cham, Switzerland.

In 2011, the General Surgical Oncology Fellowship Program at the University of Toronto sought to develop a practical approach to common oncology problems faced by general surgeons. This was a collaboration between current and previous fellows, as well as staff at the University of Toronto, including experts from Princess Margaret Cancer Centre, Odette Cancer Centre (at Sunnybrook Health Sciences Centre), Mount Sinai Hospital, Toronto General Hospital, St. Michael’s Hospital, and St. Joseph’s Hospital. This effort culminated in the publication by the program of the Surgical Oncology Manual in March, 2012.

The first edition of the Manual has received excellent feedback on its utility from both trainees and practicing surgeons alike. With the ever-changing landscape of surgical oncology, this edition is updated with new evidence and topics in the field, including three new chapters: "Desmoid Fibromatosis and Dermafibrosarcoma Protuberans", "Merkel Cell Carcinoma", and "Non-melanoma Skin Cancers".

The Manual provides a succinct review of surgical oncology with a summary of key evidence in the work-up, treatment, and follow-up for each cancer site. A clear, concise format has proven invaluable to the intended audience: surgical oncology fellows, practicing general surgeons, and general surgery residents. In addition, each chapter contains a section of "Pearls", derived from the wide breadth of experience, skills, and abilities of the contributors.

Nanomedicine.

Edited by K.A. Howard, T. Vorup-Jensen, D. Peer.
2016, pp 378, Eur 181.89, ISBN: 978-1-4939-3632-8.
Springer Science+Business Media, New York, NY, USA.

This title is a comprehensive text that addresses key aspects of nanomedicine such as properties occurring at the nanoscale that have unique medical effects, great molecular knowledge of the human body and disease processes, and apparent clinical translation as opposed to narrow insufficient texts that address only a few topics and attempt to “rebrand” established drug delivery. It will clearly define the field which is needed due to the immaturity and broad nature of the field. The book is aligned with both the USA and European roadmaps for nanomedicine and will address initiatives taken in Asia that ensures timely and relevant content. In-depth chapters ensure each section is adequately covered. The nanopharmaceutical section focuses on novel drug delivery systems relevant to nanomedicine and the book has an extensive section on immune recognition at the nanoscale which has implications for in vivo applications of nanomedicines.

Pharmaceutical Nanotechnology. Fundamentals and Practical Applications.

By C. Demetzos.
2016, pp 203, Eur 69.54, ISBN: 978-981-10-0790-3.
Springer Science+Business Media, Singapore.

This textbook explains the fundamental aspects of nanotechnology and fills the gap between bio-inspired nanotechnological systems and functionality of living organisms, introducing new insights to their physicochemical, biophysical and thermodynamic behaviour.

Addressed to all those involved in recent advances in pharmaceuticals, this book is divided in three major parts: Part A refers to the physicochemical and thermodynamics aspects of nanosystems, wherein their biophysical behaviour is correlated with that of the cells of living organisms; Part B refers to the application of nanotechnology in imaging, diagnostics and therapeutics; Part C is focused on issues regarding safety and nanotoxicity of nanosystems, and the regulatory framework that surrounds these. The text promotes the concept that biophysics, thermodynamics and nanotechnology are considered to be emerging tools that, when approached within regulatory boundaries, provide new and integrated knowledge for the production of new medicines.

Perspectives in Translational Research in Life Sciences and Biomedicine.

By E.R. Banerjee.
2016, pp 270, Eur 167.98, ISBN: 978-981-10-0988-4.
Springer Science+Business Media, Singapore.

The present book addresses the multi-disciplinary nature of Translational Outcomes Research, which is a watershed for nearly all the disciplines of Life and Health Sciences, along

with the Materials Sciences including but not limited to Zoology, Botany, Microbiology, Biochemistry, Physiology, Nanotechnology, the Medical Sciences, Bioengineering, Biophysics, Medicinal Chemistry, Structural Biology, Biostatistics and Bioinformatics. This book, for the first time, addresses the basic premises of fundamental research in facilitating drug discovery. One chapter is dedicated to a novel generation of platforms with novel camelid antibodies and their technological extensions, while another focuses on functional food and nutraceuticals. The book begins with a thorough overview of what translational outcomes research connotes and what the current status of research in the area is, and goes on to elucidate various pertinent preclinical disease models and their uses in basic and application based research in the Life Sciences. How basic approaches to screening and characterization vis-à-vis their role in amelioration of the two cardinal problems of inflammation and degeneration involved in most diseases is elucidated. The book ends with a discussion of the relevance and importance of using Bio Green technology in Translational Outcomes, addressing the need to fill the gap between academia and industry and clinics that can arise through direct or indirect collaboration between the stakeholders and emphasizing the need for an eco-friendly approach so as not to jeopardize the fine balance that holds life on earth in harmony.

Protein Targeting Compounds. Prediction, Selection and Activity of Specific Inhibitors.

Edited by T. Böldicke.
2016, pp 288, Eur 165.84, ISBN: 978-3-319-32804-1.
Springer International Publishing, Cham, Switzerland.

This book presents an overview of the most relevant protein knockdown techniques. Readers will find a description of the generation and use of recombinant human antibodies, ER intrabodies and peptides as well as a description of the working mechanism and potential of the inhibitory action of each of these molecules. The book will also describe the selection and activity of a number of phosphatases, aptamers and allosteric modulators, focusing on A G protein coupled receptors. The book starts with a chapter on the in silico prediction of target-inhibitor interactions.

Key aspects of this book are:

- Selection strategies for monoclonal and recombinant human antibodies
- Selection strategies for ER intrabodies, peptides and aptamers
- Examples of the most efficient inhibitors and their applications in protein biochemistry and cell biology
- Antibodies for cancer therapy and inhibitors of angiogenesis.

The book will be of great interest to scientists and students working in the life sciences on all areas related to protein biology. The variety of methods to modulate the activities of specific proteins which are introduced here will be of great benefit to the reader who is interested in general protein research or to readers who have very specific protein related questions.

System Engineering Approach to Planning Anticancer Therapies.

By A. Świerniak, M. Kimmel, J. Smieja, K. Puszynski, K. Psiuk-Maksymowicz.
2016, pp 235, Eur 88.39, ISBN: 978-3-319-28093-6.
Springer International Publishing, Cham, Switzerland.

This book focuses on the analysis of cancer dynamics and the mathematically based synthesis of anticancer therapy. It summarizes the current state-of-the-art in this field and clarifies common misconceptions about mathematical modeling in cancer. Additionally, it encourages closer cooperation between engineers, physicians and mathematicians by showing the clear benefits of this without stating unrealistic goals. Development of therapy protocols is realized from an engineering point of view, such as the search for a solution to a specific control-optimization problem. Since in the case of cancer patients, consecutive measurements providing information about the current state of the disease are not available, the control laws are derived for an open loop structure. Different forms of therapy are incorporated into the models, from chemotherapy and antiangiogenic therapy to immunotherapy and gene therapy, but the class of models introduced is broad enough to incorporate other forms of therapy as well.

The book begins with an analysis of cell cycle control, moving on to control effects on cell population and structured models and finally the signaling pathways involved in carcinogenesis and their influence on therapy outcome. It also discusses the incorporation of intracellular processes using signaling pathway models, since the successful treatment of cancer based on analysis of intracellular processes, might soon be a reality. It brings together various aspects of modeling anticancer therapies, which until now have been distributed over a wide range of literature. Written for researchers and graduate students interested in the use of mathematical and engineering tools in biomedicine with special emphasis on applications in cancer diagnosis and treatment, this self-contained book can be easily understood with only a minimal basic knowledge of control and system engineering methods as well as the biology of cancer. Its interdisciplinary character and the authors' extensive experience in cooperating with clinicians and biologists make it interesting reading for researchers from control and system engineering looking for applications of their knowledge. Systems and molecular biologists as well as clinicians will also find new inspiration for their research.

Epigenetic Advancements in Cancer.

Edited by M.K. Mishra, K.S. Bishnupuri.
2016, pp 246, Eur 145.59, ISBN: 978-3-319-24949-0.
Springer International Publishing, Cham, Switzerland.

This volume explores the epigenetic alterations and their association with various human cancers. Considering one of human cancer as an example, individual chapters are focused on defining the role of epigenetic regulators and underlying mechanisms in cancer growth and progression. Epigenetic

alteration including DNA methylation, histone modification, nucleosome positioning and non-coding RNAs expression are involved in a complex network of regulating expression of oncogenes and tumor suppressor genes and constitute an important event of the multistep process of carcinogenesis. Recent advances in the understanding of the epigenetic regulation and detailed information of these epigenetic changes in various cancers provide new avenues of advancements in diagnostics, prognostics, and therapies of this highly fatal disease.

Genetics of Melanoma.

Edited by C.A. Torres-Cabala, J.L. Curry.
2016, pp 288, Eur 155.99, ISBN: 978-1-4939-3552-9.
Springer Science+Business Media, New York, NY, USA.

This book discusses the molecular, biological, pathological, and clinical aspects of melanoma, with special emphasis in the new concepts of melanoma genetics. A multidisciplinary group of experts in Genetics, Dermatology, Pathology, and Melanoma Medical Oncology contribute state-of-the-art knowledge in melanoma research and clinical management, not only exposing the current status of knowledge of the topics but also providing their personal experiences and ideas about the future and potential practical application of the genetic aspects of melanoma. During the last few years we have witnessed an impressive amount of discoveries in the field of melanoma genetics which have changed our approach in understanding the pathogenesis and treatment of this lethal disease. *Genetics of Melanoma* is a practical approach to melanoma genetic mechanisms and their application in the diagnosis and treatment of this malignancy. It is an essential source of updated information and a powerful tool for clinicians, pathologists, and basic scientists who wish to understand, apply, and investigate the multiple new aspects of melanoma genetics.

Fetal Stem Cells in Regenerative Medicine. Principles and Translational Strategies.

Edited by D.O. Fauza, M. Bani.
2016, pp 453, Eur 155.99, ISBN: 978-1-4939-3481-2.
Springer Science+Business Media, New York, NY, USA.

This book explores the regenerative properties of fetal stem cells, from fetomaternal cell traffic through perinatal stem cells, with a discussion of key topics including stem cell banking, drug screening, in utero stem cell transplantation and ethical considerations. The expertly authored chapters also delve into embryonic, amniotic membrane, and umbilical cord blood stem cells; fetal development models; fetal cell reprogramming; culture methods; disease models; perinatal gene therapy, and more. These chapters are grouped into four sections, each discussing a separate prenatal stem cell population and providing fascinating historical contexts for our knowledge of these systems.

Featuring a foreword written by the renowned Dr. Joseph Vacanti of the Harvard Stem Cell Institute, this volume is a welcome and timely contribution to the Stem Cell Biology and

Regenerative Medicine series. It is essential reading for scientists and researchers, clinicians and residents, and advanced students involved in stem cells, regenerative medicine, tissue engineering, and related disciplines such as embryology.

Host Defense Peptides and Their Potential as Therapeutic Agents.

Edited by R.M. Eband.

2016, pp 321, Eur 163.27, ISBN: 978-3-319-32947-5. Springer International Publishing, Cham, Switzerland.

This book offers an overview of our current understanding of host defense peptides and their potential for clinical applications as well as some of the obstacles to this. The chapters, written by leading experts in the field, detail the number and diversity of host defense peptides, and discuss the therapeutic potential not only of antibacterial, but also of antifungal, antiviral, plant antimicrobial and anticancer host defense peptides. The authors provide new insights into their mechanisms of action and their immunomodulatory properties, and review recent advances in the design of novel therapeutic molecules. Lastly, their potential to prevent preterm births and *Staphylococcus aureus* infections is highlighted. The book is of interest to researchers, industry and clinicians alike.

Advanced Technologies for Protein Complex Production and Characterization.

Edited by M.C. Vega.

2016, pp 382, Eur 155.99, ISBN: 978-3-319-27214-6. Springer International Publishing, Cham, Switzerland.

This book presents advanced expression technologies for the production of protein complexes. Since complexes lie at the heart of modern biology, the expression, purification, and characterization of large amounts of high-quality protein complexes is crucial for the fields of biomedicine, biotechnology, and structural biology. From co-expression in *E. coli*, yeast, mammalian and insect cells to complex reconstitution from individual subunits, this book offers useful insights and guidance for successful protein expressionists.

Across several sections readers will discover existing opportunities for the production of protein complexes in bacterial systems (including membrane proteins and cell-free co-expression), methylotrophic and non-methylotrophic yeasts, protozoa (*Leishmania tarentolae* and *Dictyostelium discoideum*), baculovirus-infected insect cells, mammalian cells, plants and algae. Complex reconstitution from individually purified subunits or subcomplexes is discussed as a complementary strategy. A last section introduces briefly some of the biophysical and structural characterization techniques for macromolecular complexes using state-of-the-art solution scattering and nuclear magnetic resonance.

This work is a guided tour over some of the most powerful and successful protein expression technologies, with a focus on co-expression and high-throughput applications. It is addressed to everyone interested in the production and characterization of macromolecular complexes, from university students who want

an accessible description of the major co-expression systems to researchers in biomedicine and the life sciences seeking for an up-to-date survey of available technologies.

Cellular Ageing and Replicative Senescence.

Edited by S.I.S. Rattan, L. Hayflick.

2016, pp 364, Eur 155.99, ISBN: 978-3-319-26237-6. Springer International Publishing, Cham, Switzerland.

This book covers the origins and subsequent history of research results in which attempts have been made to clarify issues related to cellular ageing, senescence, and age-related pathologies including cancer. The book revisits more than fifty-five years of research based on the discovery that cultured normal cells are mortal and the interpretation that this phenomenon is associated with the origins of ageing. The mortality of normal cells and the immortality of cancer cells were also reported to have in vivo counterparts. Thus began the field of cytoogerontology.

Cellular Ageing and Replicative Senescence is organized into five sections: history and origins; serial passaging and progressive ageing; cell cycle arrest and senescence; system modulation; and recapitulation and future expectations. These issues are discussed by leading thinkers and researchers in biogerontology and cytoogerontology. This collection of articles provides state-of-the-art information, and will encourage students, teachers, health care professionals and others interested in the biology of ageing to explore the fascinating and challenging question of why and how our cells age, and what can and cannot be done about it.

High-Risk Cutaneous Squamous Cell Carcinoma. A Practical Guide for Patient Management.

Edited by C.D. Schmults.

2016, pp 255, Eur 103.99, ISBN: 978-3-662-47080-0. Springer-Verlag, Berlin, Germany.

This book is a cutting-edge resource that provides clinicians with the up-to-date practical knowledge required in order to manage SCC patients optimally. It summarizes newly available information relating to the definition of high-risk SCC, its pathophysiologic underpinnings, and its management. New prognostic information and staging systems are summarized that enable high-risk tumors to be defined more precisely than ever before. Many helpful tips are provided on the practical management of challenging cases, including multiple tumors/field cancerization, high-risk tumors, nodal metastases, and unresectable disease. The authors are all acknowledged experts in the emerging field of high-risk and advanced SCC.

PET/CT in Neuroendocrine Tumors.

Edited by V. Ambrosini, S. Fanti.

2016, pp 76, Eur 69.67, ISBN: 978-3-319-29202-1. Springer International Publishing, Cham, Switzerland.

This pocket book provides up-to-date descriptions of the most relevant features of neuroendocrine tumors (NETs) and the imaging modalities currently available to assist specialists (clinicians, pathologists, radiologists, nuclear medicine physicians) in selecting optimal patient management based on interdisciplinary collaboration. As the title indicates, the focus is particularly on PET/CT, with coverage of basic principles, the available radiopharmaceuticals, indications, typical and atypical appearances, normal variants and artifacts, advantages, limitations, and pitfalls. In addition, succinct information is provided on the use of other imaging modalities, including SPECT, CT, and MRI, and on pathology and treatment options. Imaging teaching cases are presented, and key points are highlighted throughout. The book is published as part of a series on hybrid imaging that is specifically aimed at referring clinicians, nuclear medicine/radiology physicians, radiographers/technologists, and nurses who routinely work in nuclear medicine and participate in multidisciplinary meetings.

Advances in Respiratory Cancerogenesis.

Edited by M. Pokorski.

2016, pp 87, Eur 114.39, ISBN: 978-3-319-35097-4.
Springer International Publishing, Cham, Switzerland.

Lung cancer is the leading cause of mortality worldwide, with a low survival rate. Carcinogenesis generally requires a constellation of entwined steps, involving both innate cellular and environmental factors. This book shares the updated knowledge on the origin and development of cancer through genotypic changes which upset the physiological balance between cell proliferation, differentiation, growth control, and apoptosis. The emphasis is put on the role of microRNA proteins involved in the cellular processes above outlined. Cognitive changes, related to dysregulated cellular mechanisms in cancer cells, as yet uncharted area of research, also are tackled. A better understanding of the molecular and cellular biology of lung cancer is the key source of breakthroughs in the diagnosis and prognosis, and finding more effective therapies that target specific mutations. The book provides a source of current facts and trends in clinical research and practice. It will be of interest to clinicians, researchers, and other medical professionals.

Breast Disease. Management and Therapies.

Edited by A. Aydiner, A. İgci, A. Soran.

2016, pp 934, Eur 238.16, ISBN: 978-3-319-26010-5.
Springer International Publishing, Cham, Switzerland.

This second volume of the handbook on breast disease provides a comprehensive overview of its clinical management and current therapies. It brings readers up to speed with the latest guidelines and therapeutic regimens in breast cancer and provides an in-depth account of current and new therapeutic approaches.

Divided in themed parts, the book examines invasive breast cancer, pre-operative systemic therapy surgical management and recurrence among others, thus providing an in-depth account of

breast cancer at the clinical stage. Among the themed parts are a section dedicated to special therapeutic problems, such as breast cancer in older women, Paget's disease and phyllodes tumors, and a section on supportive and follow-up care.

By adopting a multidisciplinary approach to breast cancer, this book is a must-have for breast cancer practitioners. With a high number of colored illustrations and edited by highly experienced clinicians, this work enables readers to gain an interdisciplinary perspective on breast diseases. Contributions from an international team of experts present invaluable insight into clinical practice across different settings. Covering both theoretical and practical aspects of breast cancer, this is a highly informative and carefully presented book which will appeal to an international audience of medical, radiation and surgical oncologists.

Analytical Ultracentrifugation. Instrumentation, Software, and Applications.

Edited by S. Uchiyama, F. Arisaka, W.F. Stafford, T. Laue.

2016, pp 532, Eur 155.99, ISBN: 978-4-431-55983-2.
Springer, Japan.

This book introduces analytical ultracentrifugation (AUC) as a whole, covering essential theoretical and practical aspects as well as its applications in both biological and non-biological systems. Comprehensive characterizations of macromolecules in a solution are now routinely required not only for understanding the solution system but also for producing a solution with better properties. Analytical ultracentrifugation is one of most powerful and reliable techniques for studying the biophysical behavior of solutes in solution. In the last few years, there have been steady advances made in hardware, software, and applications for AUC.

This book provides chapters that cover everything essential for beginners to the most advanced users and also offer updated knowledge of the field on advances in hardware, software, and applications. Recent development of hardware described in this book covers new detection systems that give added dimensions to AUC. Examples of data analysis with essential theoretical explanations for advanced and recently updated software are also introduced. Besides AUC of biological systems including membrane proteins and biopharmaceuticals, AUC applications for non-biological questions are included. AUC studies under non-ideal conditions such as highly concentrated solutions and solutions with high salt concentration are also included.

The contributors to this book are leading researchers in the fields of solution biophysics and physical chemistry who extensively employ AUC analysis for their research. From this published work, one can gain new and comprehensive knowledge of recent AUC analysis.

Ethics and Governance of Biomedical Research. Theory and Practice.

Edited by D. Strech, M. Mertz.

2016, pp 225, Eur 103.99, ISBN: 978-3-319-28729-4.
Springer International Publishing, Cham, Switzerland.

In this book, scholars with different disciplinary and national backgrounds argue for possible answers and analyse case studies on current issues of governance in biomedical research. These issues comprise among others the research-care distinction, risk evaluation in early human trials, handling of incidental findings, nocebo effects, cluster randomized trials, publication bias, or consent in biobank research. This book demonstrates how new technologies and research possibilities multiply or intensify already known governance challenges, leaving room for ethical analysis and complex moral choices. Clinical researchers, research ethics committee members and research ethicists have all to deal with such challenges on a daily basis. While general reflection on core concepts of research ethics is seldom pointless, those confronted with hard moral choices do need more practical and contextualized reflection on the said issues. This book particularly provides such contextualized reflections and aims to inform all those who study, conduct, regulate, fund, or participate in biomedical research.

Melanoma.

Edited by J.S. Zager, R.R. Kudchadkar, V.K. Sondak.
2016, pp 166, GBP 27.99, ISBN: 978-0-19-997101-5.
Oxford University Press, UK.

Melanoma is a concise handbook that identifies best-practice guidelines and presents the most current procedures for the diagnosis and management of melanoma in a succinct and easy-to-read manner. Chapters cover melanoma pathology, biopsy techniques, staging and risk stratification, surgical treatment of localized melanoma, immunotherapy, radiation therapy, and guidelines for resected melanoma, targeted therapy, cytotoxic chemotherapy, and management of brain metastases, mucosal and ocular melanoma, and pediatric melanoma patients. This handbook is a must-have tool for clinicians directly involved in the care of patients with melanoma, including surgical oncologists, medical oncologists, and radiation oncologists.

An Intraoperative Beta-Probe for Cancer Surgery.

Edited by F. Collamati.
2016, pp 100, Eur 103.99, ISBN: 978-3-319-33698-5.
Springer International Publishing, Cham, Switzerland.

This thesis focuses on a novel radio-guided surgery technique for complete tumor resections. It describes all aspects of the intraoperative probe, as well as testing and simulation of the novel technique. The presentation develops the technique from

the initial idea to realistic feasibility studies that have been the subject of a press release of the American Society of Nuclear Medicine. Just a year after completing this work, the technique has now been tested for the first time on a meningioma patient, confirming all of the predictions made in this thesis.

Handbook of HER2-Targeted Agents in Breast Cancer.

Edited by R.H. Alvarez, J. Cortés, M. Falzon, M. Gandy, L. Gianni, N. Harbeck, M. Piccart.
2016, pp 110, Eur 41.59, ISBN: 978-3-319-28214-5.
Springer International Publishing, Cham, Switzerland.

This concise handbook provides oncologists and other healthcare providers with crucial updates in the field, including an updated review of the current understanding of the biology of the HER2 pathway, an overview of HER2-testing, and evidence-based discussions of available and emerging HER2-targeted treatment options. An essential clinical text for physicians that screen and treat patients with breast cancer and require an accessible, up-to-date survey of the dynamic treatment landscape.

Interleukin-27: Biological Properties and Clinical Application.

Edited by M. Jankowski, T. Wandtke.
2016, pp 86, Eur 51.99, ISBN: 978-3-319-39662-0.
Springer International Publishing, Cham, Switzerland.

This volume focuses on various aspects of interleukin-27 (IL-27), especially its potential for clinical applications. The authors discuss the downstream signaling from the IL-27 receptor and its molecular targets in immune cells including Th1, Th2, Th17, Treg, Tr1, Tfh, B cells, DCs and macrophages. The inhibition of Th17 cells by IL-27 is vital for the maintenance of the fetomaternal tolerance and the prevention of lupus, multiple sclerosis, autoimmune uveitis, immune thrombocytopenia and atherosclerosis. However, the same inhibitory capabilities compromise the immune response to bacterial pathogens, and IL-27 is a pathogenic factor in sepsis and tuberculosis. Also covered are the conflicting reports on the role of IL-27 in rheumatoid arthritis, the effect of IL-27 on epithelia, which seems to play a role in asthma, psoriasis and inflammatory bowel diseases, and the direct cytotoxic and anti-vascular effects of IL-27, which make it a promising agent for the treatment of cancer. Accordingly, this volume will be of interest to researchers and clinicians alike.