

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.

Functional Analysis of DNA and Chromatin.

Edited by J.C. Stockert, J. Espada, A. Blázquez-Castro.
2014, pp. 365, Eur 101.64, ISBN: 978-1-62703-705-1.
Springer Science + Business Media, New York, NY, USA.

In this volume, expert researchers in the field provide an overview of standard and more recent methods for the functional analysis of the genetic material. These include methods on DNA-dye binding modes, chromatin staining, nuclear dispersion assays, DNA labeling *in vivo*, sister chromatid exchanges, FISH, DNA and chromatin imaging by fluorescence, electron and atomic force microscopy, detection of apoptotic DNA, cytosine methylation and hydroxy-methylation, DNA thermophoresis, improved methods for histone analysis, chromatin immunoprecipitation, and analysis of rDNA genes and chromatin-associated RNA. 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 key tips on troubleshooting and avoiding known pitfalls.

Authoritative and practical, *Functional Analysis of DNA and Chromatin* seeks to aid scientists in the further study of cellular and molecular biology of the nucleus.

Percutaneous Image-Guided Biopsy.

Edited by K. Ahrar, S. Gupta.
2014, pp. 375, Eur 181.89, ISBN: 978-1-4614-8216-1.
Springer Science + Business Media, New York, NY, USA.

This book is a state-of-the art reference to all aspects of percutaneous image-guided biopsy. It highlights various approaches to specific anatomic sites, describes potential complications of the procedure, and outlines management strategies. Featuring an extensive collection of radiological images as well as clinical case studies, illustrative diagrams, and tables, the book synthesizes the rationale, technique, and patient outcomes of percutaneous image-guided biopsy. In light of the growing number of indications for targeted tissue acquisition, it is a valuable guide for interventional and diagnostic radiologists who perform image-guided biopsies.

The book includes coverage of these topics: Biopsy devices and techniques; Fundamentals of CT-, ultrasound-, MRI-, and fluoroscopy-guided biopsy; Specific anatomical approaches to

lesions in difficult locations including the head and neck, mediastinum, spine and pelvis; Biopsy of solid organs including liver, kidney, adrenal gland, spleen, pancreas and others; Biopsy of musculoskeletal lesions.

Animal Models for the Study of Human Disease.

Edited by P.M. Conn.
2013, pp. 1089, Eur 235.00, ISBN: 978-0-12-415894-8.
Academic Press / Elsevier, San Diego, CA, USA.

This comprehensive textbook identifies important animal models and assesses the advantages and disadvantages of each model for the study of human disease. The first section addresses how to locate resources, animal alternatives, animal ethics and related issues, much needed information for researchers across the biological sciences and biomedicine. The next sections of the work offer models for disease-oriented topics, including cardiac and pulmonary diseases, aging, infectious diseases, obesity, diabetes, neurological diseases, joint diseases, visual disorders, cancer, hypertension, genetic diseases, and diseases of abuse.

Key Features: Covers a broad range of animal models used in research for human disease; Organized by disease orientation for ease of searchability; Provides information on locating resources, animal alternatives and animal ethics.

Stem Cells and Cancer Stem Cells. Vol. 11 in the Series Therapeutic Applications in Disease and Injury.

Edited by M.A. Hayat.
2014, pp. 280, Eur 160.49, ISBN: 978-94-007-7328-8.
Springer Science + Business Media, Dordrecht, The Netherlands.

Volume 11 in this series discusses therapeutic applications of stem cells in disease and tissue injury. Coverage includes pluripotent stem cells, which can give rise to the endodermal, ectodermal, and mesodermal lineages; multipotent stem cells, which can generate all cells in a particular lineage and unipotent stem cells, which can give rise to only one cell type. This volume also examines cancer stem cells, tumor-initiating cells which possesses the capacity of self-renewal and can give rise to the heterogeneous lineages of cancer cells that comprise the tumor.

Coverage extends to molecular mechanisms underlying the derivation and expansion of human embryonic stem cells, the role of specific proteins in the maintenance and inhibition of extraembryonic differentiation of these cells and the role of signaling responsible for the self-renewal of mouse embryonic stem cells.

Nine chapters discuss the clinical importance of cancer stem cells, encompassing glioma, leukemia, ovarian cancer, pediatric sarcomas and head and neck squamous cell carcinoma. The role of cancer stem cells is also elucidated in epithelial-to-mesenchymal transition in spreading head and neck squamous cell carcinoma.

The book goes on to survey therapeutic application of stem cells of hematopoietic and non-hematopoietic origin for regeneration of bones, including in osteoporotic bone disease; to illuminate the application of hematopoietic stem cells in bone

regeneration and to discuss their use as a biomarker to facilitate determination of a treatment. The contributors review stem cells as biomarkers for pediatric solid tumors, and weigh the advantages and limitations of hematopoietic stem cell transplantation. Also included are details of neural stem cell engraftment in the injured spinal cord; the regenerative potential of neural stem/progenitor cells of newborns and cancer gene therapy potential using neural stem cells.

As in the preceding volumes in the series, this book is distinguished for its comprehensive approach, its distinguished roster of 58 contributors representing 10 different countries and its thorough review of leading-edge technology and methods.

Stem Cells and Cell Therapy.

Edited by M. Al-Rubeai, M. Naciri.

2014, pp. 189, Eur 149.79, ISBN: 978-94-007-7195-6.
Springer Science + Business Media, Dodrecht, The Netherlands.

With the discovery of stem cells capable of multiplying indefinitely in culture and differentiating into many other cell types in appropriate conditions, new hopes were born in repair and replacement of damaged cells and tissues. The features of stem cells may provide treatment for some incurable diseases with some therapies already in clinics, particularly those from adult stem cells. Some treatments will require large number of cells and may also require multiple doses, generating a growing demand for generating and processing large numbers of cells to meet the need of clinical applications. With this in mind, the aim is to provide a book on the subject of stem cells and cell therapy for researchers and students of cell biotechnology, bioengineering and bioproduction. This book is exceptional as it teaches researchers stem cells and cell therapy in that it covers the concepts and backgrounds necessary so that readers get a good understanding of the production of stem cells. The book covers three topics: The basics of stem cells and cell therapy, the use of stem cells for the treatment of human diseases, and stem cell processing. It includes chapters on neural and vascular stem vascular stem cell therapy, expansion engineering of embryonic stem cells, stem cell based production of blood cells and separation technologies for stem cells and cell therapy products. It is an informed and informative presentation of what modern research, science and engineering have learned about stem cells and their production and therapies. Addressing both the medical and production issues, this book is an invaluable contribution to having an academic and industrial understanding with respect to R&D and manufacturing of clinical grade stem cells.

Angiogenesis, Lymphangiogenesis and Clinical Applications.

Edited by G. Marone, F. Granata.

2014, pp. 244, Eur 157.00, ISBN: 978-3-318-02480-7.
S. Karger AG, Basel, Switzerland.

Angiogenesis, the formation of new blood vessels, is fundamental for physiological processes such as embryonic and

postnatal development, wound repair, and reproductive functions. Angiogenesis plays a major role in tumor growth and in several autoimmune and allergic disorders. Lymphangiogenesis, the formation of new lymphatic vessels, is also important for tumor growth, the formation of metastasis, and chronic inflammatory diseases. Judah Folkman, a pioneer in the study of angiogenesis, first proposed that macrophages and mast cells could be a relevant source of angiogenic factors. Since then, much effort has gone into the elucidation of the role of immune cells in the modulation of angiogenesis and lymphangiogenesis. There is now compelling evidence that several components of the innate and adaptive immune system are implicated in inflammatory and neoplastic angiogenesis and lymphangiogenesis. Articles in this volume deal with the emerging, intriguing possibility that immune cells are both a source and a target of angiogenic and lymphangiogenic factors. Therefore, cells of the immune system might play a role in inflammatory and neoplastic angiogenesis/lymphangiogenesis through the expression of several angiogenic factors and their receptors and co-receptors.

This volume will be of broad interest to scientists interested in vascular biology, basic and clinical immunologists, oncologists and to specialists in allergic and immune disorders.

Controversies in Pediatric and Adolescent Hematology.

Edited by A.E. Thomas, C. Halsey.

2014, pp. 177, Eur 157.00, ISBN: 978-3-318-02422-7.
S. Karger AG, Basel, Switzerland.

Hematological disorders in children and adolescents pose a wide range of management challenges and treatment dilemmas. In this book an internationally acclaimed panel of authors, have produced a state-of-the-art collection of review articles focusing on the very latest advances and controversies in the management of pediatric and adolescent hematological problems. The whole range of benign and malignant, congenital and acquired, acute and chronic conditions is discussed in detail. Individual chapters cover hematologic problems on the pediatric intensive care unit, treatments for iron deficiency and ITP; advances in stem cell transplantation, gene therapy, novel pharmaceuticals and molecular diagnostics, as well as transition from child to adult are also explored.

Providing an up-to-date look at both specific hematologic disorders in the pediatric and adolescent population and also hematologic problems that arise in association with systemic disease, this book is essential reading not only for pediatric and adult hematologists but also for pediatricians, pediatric or hematologic specialist nurse practitioners and pediatric pharmacologists.

Cytokine Frontiers. Regulation of Immune Responses in Health and Disease.

Edited by Takayuki Yoshimoto, Tomohiro Yoshimoto.

2014, pp. 396, Eur 160.49, ISBN: 978-40431-54441-8.
Springer Science + Business Media, Tokyo, Japan.

This book guides the reader through the latest research on the cytokine network, covering signaling pathways, control of the immune response, and potential therapeutics. Different cytokines stimulate diverse responses in various phases of inflammation and immunity, including the innate immune response, the generation of effector T cells, and the development of antibodies by the humoral immune system. It is now clear that the pathophysiology of many infectious, autoimmune, allergic, and malignant diseases can be largely explained by which cytokines are induced and subsequently regulate the cellular responses. In clinical medicine, cytokines are involved in a wide spectrum of diseases. This book describes in three parts the properties and roles of 15 key cytokines under physiological and pathological conditions. Part I presents nine cytokines associated with inflammatory disorders, pro-inflammatory cytokines, and the recently identified new helper T (Th) subset: Th17 cells. Part II gives details of three cytokines associated with allergic disorders, including Th2 responses and recently identified types of innate cells. Part III describes three cytokines that are associated with immunological tolerance and anti-inflammation, including regulatory T (Treg) cells, IL-10-producing Treg (Tr1) cells, and inducible IL-35-producing Treg (iTreg) cells. Cytokines are considered to be important as therapeutic targets for specific agonists or antagonists in numerous immune and inflammatory diseases.

The ultimate goal of this book is to facilitate the development of therapeutic treatments for such diseases which has been limited by an insufficient understanding of the biology of cytokines and the complicated network that they create.

Metastasis Research Protocols. Second Edition.

Edited by M. Dwek, U. Schumacher, S.A. Brooks.

2014, pp. 250, Eur 101.64, ISBN: 978-1-4614-8243-7.

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

The second edition of *Metastasis Research Protocols* brings together updated versions of the seminal techniques that were presented in the first edition and also includes new techniques that have recently been shown to be important in illuminating the processes underlying this important area of biology. Volume 2 presents techniques applicable at the level of living cells and tissues, and presents methodologies applicable to cell behaviour *in vitro*, in animal models and in mathematical constructs. The aim is the study of the interaction between cancer cells and their host/environment. The focus throughout is on the tools that have been shown to be helpful in unravelling the processes important in cancer metastasis. 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 key tips on troubleshooting and avoiding known pitfalls.

Authoritative and practical, this volume seeks to aid scientists in the further study of new methods in the area of metastasis research.

Cytopathology in Oncology.

Edited by R. Nayar.

2014, pp. 282, Eur 106.99, ISBN: 978-3-642-38849-1.

Springer Science + Business Media, Berlin, Germany.

In recent decades, cytopathology has assumed an increasing role in the primary diagnosis of mass lesions owing to its ability to deliver rapid, non-invasive, and timely information. With cytopathology at the forefront of diagnosis and prognostication of neoplastic lesions, it is essential that physicians involved in the diagnosis and treatment of precancerous lesions and cancer have a clear understanding of specimen collections techniques, terminology for reporting, and outcomes in various diagnostic categories.

This book provides a comprehensive overview of the role of cytology at various body sites. The diagnostic details covered are abbreviated in comparison with those in pathology texts. Instead, a more clinical approach is taken, with the focus on the advantages and limitations of techniques and the key features of entities that are important to clinicians. Pathological-clinical correlation is highlighted throughout the book, ensuring that it will be highly relevant for clinicians. In particular, physicians who deal with oncology patients will find it to be a rich source of guidance on how to use and understand cytopathology in the diagnosis and exclusion of malignancy.

Molecular Pathogenesis of Colorectal Cancer.

Edited by K.M. Haigis.

2014, pp. 316, Eur 149.79, ISBN: 978-1-4614-8411-0.

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

For more than two decades, colorectal cancer has served as the paradigm for the cooperative activity of oncogenes and tumor suppressor genes in cancer initiation and progression. The depth of molecular characterization for this disease is unparalleled, with specific mutations correlated to each histologic stage of progression from normal colon to malignant colorectal cancer. We are now entering a time when molecular classification, rather than histologic classification, of cancer subtypes is driving the development of clinical trials with emerging targeted therapies.

This book explores the past, present, and future of colorectal cancer genetics, with particular emphasis on how knowledge of the molecular pathogenesis of the disease leads to the development of novel therapeutic strategies. Individual chapters discuss general topics, such as genomic instability and inflammation, or else specific pathways, for example RAS, PI3K, and TGF- β , that play a role in colorectal cancer progression.

Oncologic Breast Surgery.

Edited by C. Mariotti.

2014, pp. 283, Eur 149.70, ISBN: 978-88-470-5437-0.

Springer Science + Business Media, Milan, Italy.

This book presents the most recent developments in oncologic breast surgery and takes full account of diagnostic, pathologic,

and radiologic inputs. It is divided into three parts, the first of which discusses the premises underlying the modern surgical approach to breast cancer. The second part is devoted to what might be termed the conservative program, i.e., breast conservation and oncoplastic surgery, conservative mastectomy, and sentinel node biopsy and axillary dissection. The final part of the book covers different forms of surgery and other treatments in particular settings. Topics include plastic and reconstructive surgery, DCIS surgery, radio-guided surgery, adjuvant systemic therapy, intraoperative radiotherapy, and the role of surgery in locally advanced and metastatic disease.

A conscious effort has been made not only to offer a comprehensive account of current oncologic breast surgery, but also to discuss a range of other relevant issues and their implications. The detailed descriptions of techniques are accompanied by numerous high-quality illustrations. This handy volume will be of value to both experienced practitioners and surgical trainees; general practitioners will also find much of interest.

Breast Cancer. A New Era in Management.

Edited by D.S. Francescatti, M.J. Silverstein.

2014, pp. 432, Eur 160.49, ISBN: 978-1-4614-8062-4.
Springer Science + Business Media, New York, NY, USA.

Breast Cancer: A New Era in Management provides a compendium of succinct analysis of the many facets involved in the present day management of the breast cancer patient. The text provides the clinician or student with basic foundational knowledge in the rapidly expanding areas of expertise that are required for both the diagnosis and treatment of the breast cancer patient. Each topic, whether diagnostic or therapeutic, is presented in a straightforward fashion incorporating as part of each topic a description of the historical clinical landmarks leading to the present day, their present day position in the care of the breast patient, and finally, an assessment of possible future application and adaptation in clinical practice. Emphasis is placed on clear and concise explanations of each topic presented in stepwise fashion from fundamental elements to the more complex.

This volume will act as a ready reference for the practicing surgeon and students seeking practical information on a particular clinical topic or scenario.

Multiple Myeloma. Diagnosis and Treatment.

Edited by M.A. Gertz, S. Vincent Rajkumar.

2014, pp. 311, Eur 149.79, ISBN: 978-1-4614-8520-9.
Springer Science + Business Media, New York, NY, USA.

This is a comprehensive, state-of-the-art guide to the diagnosis, treatment, and biology of multiple myeloma and related plasma disorders. Edited and written by a multidisciplinary group of recognized authorities from the Mayo Clinic, it presents clear guidelines on diagnosis and therapy and covers all aspects of

multiple myeloma, from molecular classification and diagnosis, to risk stratification and therapy. Closely related plasma cell disorders such as solitary plasmacytoma, Waldenstrom macroglobulinemia, and light chain amyloidosis are discussed in detail as well. The book addresses often overlooked topics, including the role of radiation therapy, vertebral augmentation, and supportive care.

Our understanding of this group of disorders is developing at an unprecedented rate, and *Multiple Myeloma* meets the need among oncologists and hematologists for a clear, timely, and authoritative resource on their biology, diagnosis, and treatment.

Laboratory Animals. Regulations and Recommendations for Global Collaborative Research.

Edited by J. Guillén.

2014, pp. 401, Eur 38.21, ISBN: 978-0-12-397856-1.
Academic Press / Elsevier, San Diego, CA, USA.

This is the only publication to offer a compilation of standards across the world in the care, welfare and use of animals in research, testing, and education. Offering needed clarity and insight into legislation from numerous regions of the world, this book provides the information in easily accessible, readable language.

For professionals across laboratory animal science and biomedical research, *Laboratory Animals: Regulations and Recommendations for Global Collaborative Research* provides a broad picture of the implementing regulations and guidelines in other areas of the world, essential to supporting collaborative projects involving animal research and appropriately managing laboratory animal care and use programs.

Key Features: Offers a worldwide view and global compilation of regulations, guidelines and recommendations for laboratory animal research; Saves valuable time researching different regional legislation and regulations; Provides insight into factors that play roles in the regulatory framework for countries and geographic regions.

Laboratory Animal Welfare.

Edited by K. Bayne, P.V. Turner.

2014, pp. 318, Eur 107.25, ISBN: 978-0-12-385103-1.
Academic Press / Elsevier, San Diego, CA, USA.

This volume is a pivotal and authoritative resource sponsored by the American College of Laboratory Animal Medicine (ACLAM) as part of the ACLAM textbook series. *Laboratory Animal Welfare* provides a comprehensive, up-to-date look into the science of animal welfare within research settings. Among fundamental welfare topics for species of animals commonly used in research, including rodents, rabbits, birds, fish, nonhuman primates, dog, cats, and agricultural animals.

The information contained in this volume is useful to veterinary clinicians, veterinary behaviorists, colony managers,

welfare specialists, ethical review committees or IACUCs, and residents or graduate students training to specialize in laboratory animal medicine and animal welfare.

Key features: Organized for quick and easy access to specific species used in research; Offers focused, expert information on all aspects of laboratory animal welfare, including chapters on contemporary and international issues; Provides the gold standard of publications and training for veterinarians and those working with laboratory animals.

Perspectives in Cancer Prevention – Translational Cancer Research.

Edited by P.R. Sudhakaran, O.V. Oommen, M. Radhakrishna Pillai.

2014, pp. 168, Eur 149.79, ISBN: 978-8-132201532-5. Springer Science + Business Media, New Delhi, India.

Being a complex disease that affects millions of people world over, cancer research has assumed great significance. Translational cancer research transforms scientific discoveries in the laboratory or population studies into clinical application to reduce incidence of cancer, morbidity and mortality. It is becoming increasingly evident that cancer is a preventable disease. The IVth International Symposium on Translational Cancer Research held in Udaipur, India in December 2011, discussed various aspects of the biological processes in cancer cells and approaches to cancer prevention. A few contributions from this meeting are presented in this book, providing an in depth analysis of data on cancer prevention and therapeutics. These contributions are either critical reviews or research reports. The topics discussed include evidence-based nutritional recommendations for cancer patients and survivors, risk factors such as stress, enrichment of tumour stem cells by anticancer drug treatment contributing to tumour recurrence and the mechanism of anticancer effects of various natural products. Chemosensitizing effect of curcumin, anti-cancer effect of products from neem, action of sulforaphane and cytotoxic effect of a number of novel synthetic coordination complexes of trace metals have been discussed. Novel molecular targets of angiogenesis and molecular basis of the gender bias to thyroid cancer have also been discussed.

This book provides useful information on translational cancer research to clinicians and biomedical scientists.

Functional Brain Tumor Imaging.

Edited by J.J. Pillai.

2014, pp. 250, Eur 139.09, ISBN: 978-1-4419-5857-0. Springer Science + Business Media, New York, NY, USA.

This book presents a comprehensive overview of current state-of-the-art clinical physiological imaging of brain tumors. It focuses on the clinical applications of various modalities as they relate to brain tumor imaging, including techniques such as blood oxygen level dependent functional magnetic

resonance imaging, diffusion tensor imaging, magnetic source imaging/magnetoencephalography, magnetic resonance perfusion imaging, magnetic resonance spectroscopic imaging, amide proton transfer imaging, high angular resolution diffusion imaging, sodium imaging, and molecular imaging. Featuring contributions from renowned experts in functional imaging, this book examines the diagnosis and characterization of brain tumors, details the application of functional imaging to treatment planning and monitoring of therapeutic intervention, and explores future directions in physiologic brain tumor imaging.

Intended for neuro-oncologists, neurosurgeons, neuro-radiologists, residents, and medical students, this volume is a unique resource that serves to advance patient care and research in this rapidly developing field.

Advances in Tumor Immunology and Immunotherapy.

Edited by J.D. Rosenblatt, E.R. Podack, G.N. Barber, A. Ochoa.

2014, pp. 371, Eur 160.49, ISBN: 978-1-4614-8808-8. Springer Science + Business Media, New York, NY, USA.

This volume explores recent advances in understanding of fundamental immunology and insights into the dynamic interactions between tumors and the immune system, that provide new opportunities for therapeutic intervention in cancer. Chapter topics include evolving paradigms in the innate and adaptive response, newly appreciated immunosuppressive mechanisms, and novel preclinical strategies for manipulation of the immune system for therapeutic benefit in cancer. In addition, recent successes in the clinic, and emerging opportunities are covered. Future possibilities, such as the use of antibody engineering, fusion proteins, and the retargeting of immune cells through T-cell receptor engineering are discussed by leaders in the field, focusing on recent clinical experience, promising technologies, and challenges to clinical success.

Homeostasis – Tumor - Metastasis.

Edited by G. Banfalvi.

2014, pp. 279, Eur 149.79, ISBN: 978-94-007-7334-9. Springer Science + Business Media, Dordrecht, The Netherlands.

Human homeostasis refers to complex interactions to regulate and maintain the internal conditions of the organism under stable condition. In spite of the progress made on cell growth and division, the circuits that coordinate these processes and maintain the homeostatic balance between cell growth and cell death have not been clarified. Deregulation of homeostatic processes results in different forms of imbalances that can turn to diseases including hepatitis, cirrhosis and tumor formation. Abnormal growth of tissues can lead to a broad spectrum of neoplastic diseases from tissue swelling, primary

tumor formation, cancer and ultimately to secondary tumors known as metastases. Tumor formation is a complex process, that develops through many steps. The discussion of balance and its loss in cell growth, primary and secondary tumor formation necessitate basic information in chemistry (carcinogenesis), biochemistry (metabolism), physics (instrumentation), cell biology (compartments), anatomy, physiology, clinical experience (screening, medical imaging, therapy). The focus of this book has been placed on: a) balance of cell growth, b) tumor formation, c) development of cancer and metastasis, e) diagnosis and treatment of cancer. The steps of the lymphatic type of metastatic tumor spread are described.

Due to the interdisciplinary nature, the book gives information for a wide audience including biology, biotechnology, molecular, ecology, medical, pharmacist, chemist students. Additional information is provided for biomedical, pharma, medical and life scientists, physicians and health care professionals.

Next Generation Sequencing Technologies in Medical Genetics.

Edited by C.A. Valencia, M.A. Pervaiz, A. Husami, Y. Qian, K. Zhang.

2014, pp. 94, Eur 53.49, ISBN: 978-1-4614-9031-9.

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

This book introduces readers to Next Generation Sequencing applications in medical genetics. The authors discuss the direct application of next-generation sequencing to medicine, specifically, laboratory medicine or molecular diagnostics. The first part of the book contains chapters on Sanger sequencing, NGS technologies, targeted-amplification and capture, and exome sequencing. The second part of the book focuses on genetic disorders diagnoses by NGS, prenatal diagnosis, muscular dystrophies, mitochondrial disorders diagnosis, and challenges in molecular diagnosis. Recent developments and potential future trends in NGS sequencing applications are highlighted, as well.