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Cancer - Between Glycolysis and Physical Constraint The Endocannabinoid System in Local and Systemic Inflammation Feedback Control in Systems Biology The Welfare of Cattle Bioactive Essential Oils and Cancer Handbook of Burns Volume 2 Inclusions in Prokaryotes Regulation of Implantation and Establishment of Pregnancy in Mammals Pharmaceutical Biotechnology New Therapeutic Strategies for Type 2 Diabetes Pediatric Anesthesia Oceanography and Marine Biology Handbook of Networked and Embedded Control Systems Practical Watch Repairing Advanced Calculations for Defects in Materials 36th AIAA/ASME/SAE/ASEE Joint Propulsion Conference & Exhibit: 2000-3700 - 2000-3749 Toll-Like Receptors (TLRs) and Innate Immunity A Dictionary of Books Relating to America, from Its Discovery to the Present Time The Design of Animal Experiments Applied Physiology in Intensive Care Medicine 2 Maternal

Recognition of Pregnancy Control Theory and Systems Biology Magnetic Resonance in Biological Systems Metals, Microbes, and Minerals - The Biogeochemical Side of Life Japanese Secret Projects Acidity and Basicity Bioinorganic Chemistry Introduction to Basics of Pharmacology and Toxicology The Auditory Cortex Chromosomal Translocations and Oncogenic Transcription Factors Mortality in the United States, 2013 Time Domain Electromagnetics Principles of Bioinorganic Chemistry The PMO Theory of Organic Chemistry EAES Guidelines for Endoscopic Surgery Transverse Disciplines in Metrology Congenital Neurotransmitter Disorders Advances in Catalysis The Chemistry of Catalytic Hydrocarbon Conversions Biological NMR Spectroscopy

This book gathers recommendations of the European Association for Endoscopic Surgery (EAES), as compiled by leading European laparoscopic surgeons. The book offers an overview of current surgical research. All recommendations precisely describe the proven benefit of each surgical procedure and technique. Chapters follow a structured format to allow quick identification of recommendations. This work provides a highly usable and practice-oriented overview of the achievements in laparoscopic surgery throughout the last decade. A survey of how engineering techniques from control and systems theory can be used tohelp biologists understand the

behavior of cellular systems. Where there is no alternative to the use of animals in biomedical research, it is important that experiments are well designed and correctly analysed in order to minimise pain and maximize the chance of getting scientifically valid results. Experiments that use too few animals may fail to pick up biologically important effects, while those who use them incorrectly or wastefully may get invalid results while subjecting the animals to unnecessary pain, distress or lasting harm. The Design of Animal Experiments is intended for all research scientists who use laboratory animals, with the aim of helping them to design their own experiments more effectively and/or to improve their ability to communicate with professional statisticians when necessary. It covers all randomised controlled experimental designs likely to be needed in laboratory animal research, with worked examples showing how they can be statistically analysed. It suggests the more widespread use of randomised block designs and shows how both males and females can be included in an experiment without the need to increase the total number of animals by using factorial designs. It also includes guidance on the choice of experimental animals. The book covers the learning outcomes of Module 10 and part (ii) of Module 11 of education and training under Directive 2010/63/EU. Congenital neurotransmitter disorders are nowadays recognized as important causes of severe, progressive encephalopathies mostly of early onset. They

are ultraorphan diseases and numerous experiences confirm again and again that diagnosis and treatment of patients is often almost regularly delayed for many years, if ever at all. Specific therapeutic approaches which can lead to excellent outcomes, especially if instituted early, are thereby withheld from patients and their families. The diagnosis of these disorders is almost exclusively based on clinical signs and symptoms leading to measurement of metabolites in CSF, specifically the quantitative determination of the neurotransmitters or their metabolites, that is the amino acids glutamate, glycine and GABA, the acidic metabolites of the biogenic monoamines, and tetrahydrobiopterin metabolites. Important relationships have emerged in disturbances of folate- and vitamin B6-metabolism. Whilst the majority of the identified disorders are due to inherited enzyme deficiencies, defects in transport of active compounds (transpotopathies) have been reported very recently. There is however still widespread uncertainty about when to perform specialized CSF investigations and what to investigate, and these services are unavailable in most countries. The main focus of this book is the clinical approach to these disorders. We wanted to provide as much detailed information and recommendations on therapy, monitoring and follow-up as possible and hope for quicker and improved therapy for affected individuals. A further growing awareness of these disorders is needed to allow increased and earlier diagnosis of patients.

Neuropediatricians and neurologists must become more familiar with the broad clinical spectrum of monogenic neurometabolic diseases, the role and place of specialised CSF investigations, and the available therapeutic approaches. Hopefully this publication will play its part in and expedite this process. The Chemistry of Catalytic Hydrocarbon Conversions ... This book focuses on the role of the endocannabinoid system in local and systemic inflammation, with individual chapters written by experts in the field of cannabinoid research and medicine. The topics explore the actions of the endocannabinoid system on the immune system, including neuroinflammation in autoimmune disorders such as multiple sclerosis, and in neurodegenerative disorders such as Huntington's and Alzheimer's, as well as local and systemic inflammatory conditions affecting organs including the eye (uveitis and corneal inflammation), the bladder (interstitial cystitis), pancreas (diabetes), cardiovascular system (stroke), joints (arthritis), and sepsis. The objective of this book is to provide knowledge transfer on the use of cannabinoids in inflammatory disease by critically examining preclinical and clinical research on the immunomodulatory actions of the endocannabinoid system, with specific emphasis on the actions of cannabinoids in diseases where inflammation is a prominent component. By drawing these results together, we seek to provide further understanding of the complexities of endocannabinoid system modulation of immune function and identify

potential uses and limitations for cannabinoid-based therapeutics. The vast majority of control systems built today are embedded; that is, they rely on built-in, special-purpose digital computers to close their feedback loops. Embedded systems are common in aircraft, factories, chemical processing plants, and even in cars–a single high-end automobile may contain over eighty different computers. The design of embedded controllers and of the intricate, automated communication networks that support them raises many new questions—practical, as well as theoretical—about network protocols, compatibility of operating systems, and ways to maximize the effectiveness of the embedded hardware. This handbook, the first of its kind, provides engineers, computer scientists, mathematicians, and students a broad, comprehensive source of information and technology to address many questions and aspects of embedded and networked control. Separated into six main sections—Fundamentals, Hardware, Software, Theory, Networking, and Applications—this work unifies into a single reference many scattered articles, websites, and specification sheets. Also included are case studies, experiments, and examples that give a multifaceted view of the subject, encompassing computation and communication considerations. Written by major contributors to the field, Bioinorganic Chemistry provides students with an introduction and overview of the subject and gives them the background required to read and

follow the current research literature. This book presents a critical assessment of progress on the use of nuclear magnetic resonance spectroscopy to determine the structure of proteins, including brief reviews of the history of the field along with coverage of current clinical and in vivo applications. The book, in honor of Oleg Jardetsky, one of the pioneers of the field, is edited by two of the most highly respected investigators using NMR, and features contributions by most of the leading workers in the field. It will be valued as a landmark publication that presents the state-of-the-art perspectives regarding one of today's most important technologies. This book explains the pharmacological relationships between the various systems in the human body. It offers a comprehensive overview of the pharmacology concerning the autonomic, central, and peripheral nervous systems. Presenting up-to-date information on chemical mediators and their significance, it highlights the therapeutic aspects of several diseases affecting the cardiovascular, renal, respiratory, gastrointestinal, endocrinal, and hematopoietic systems. The book also includes drug therapy for microbial and neoplastic diseases. It also comprises sections on immunopharmacology, dermatological, and ocular pharmacology providing valuable insights into these emerging and recent topics. Covering the diverse groups of drugs acting on different systems, the book reviews their actions, clinical uses, adverse effects, interactions, and subcellular mechanisms

of action. It is divided into 11 parts, subdivided into several chapters that evaluate the basic pharmacological principles that govern the different types of body systems. This book is intended for academicians, researchers, and clinicians in industry and academic institutions in pharmaceutical, pharmacological sciences, pharmacy, medical sciences, physiology, neurosciences, biochemistry, molecular biology and other allied health sciences. This volume provides a general overview of the therapeutic potential of the essential oils in cancer and highlights some promising future directions. It integrates chemistry, pharmacology, and medicine while discussing bioactive essential oils in experimental models and clinical studies of cancer. The book is a valuable resource for all engaged in the study of natural products and their synthetic derivatives, particularly for those interested in academic research and pharmaceutical and food industries dedicated in the discovery of useful agents for the therapy or prevention of cancer. Overall recent research on TLRs has led to tremendous increase in our understanding of early steps in pathogen recognition and will presumably lead to potent TLR targeting therapeutics in the future. This book reviews and highlights our recent understanding on the function and ligands of TLRs as well as their role in autoimmunity, dendritic cell activation and target structures for therapeutic intervention. The diabetes mellitus epidemic is unfolding across the globe with the World Health Organization

(WHO) reporting a worldwide prevalence of 177 million patients with diabetes. Type 2 diabetes accounts for approximately ninety percent of all diabetes cases. Long-term complications of type 2 diabetes include atherosclerosis, heart disease, stroke, end-stage renal disease, retinopathy leading to blindness, nerve damage, sexual dysfunction, frequent infections, and difficult-to-treat foot ulcers, sometimes resulting in lower limb amputation. Diabetics are twice as likely to develop cardiovascular disease or have a stroke, two to six times more likely to have transient ischemic attacks, and fifteen to forty times more likely to require lower-limb amputation compared with the general population. In 2002, the total economic cost of diabetes was estimated to be $132 billion accounting for one in every ten health care dollars spent in the United States. As a direct consequence of this economic impact and in light of the fact that current approved therapies fail to provide adequate therapeutic advantage in preventing hyperglycemia, industry has been heavily focused on addressing new fundamental cellular mechanisms that will potentially address this unmet need. New Therapeutic Strategies for Type 2 Diabetes provides the reader with the most comprehensive survey to-date of the most innovative small molecule research strategies targeted at treating the burgeoning type 2 diabetes epidemic. Each chapter is written by a recognised thought-leader in this field. The book will be an invaluable reference for researchers and

medicinal chemists that concisely explains the biological mechanisms underpinning each cutting-edge therapeutic strategy along with key medicinal chemistry rationales and up-to- date clinical findings. As one of the most dynamic fields in contemporary science, bioinorganic chemistry lies at a natural juncture between chemistry, biology, and medicine. This rapidly expanding field probes fascinating questions about the uses of metal ions in nature. Respiration, metabolism, photosynthesis, gene regulation, and nerve impulse transmission are a few of the many natural processes that require metal ions, and new systems are continually being discovered. The use of unnatural metals - which have been introduced into human biology as diagnostic probes and drugs - is another active area of tremendous medical significance. This introductory text, written by two pioneering researchers, is destined to become a landmark in the field of bioinorganic chemistry through its organized unification of key topics. Accessible to undergraduates, the book provides necessary background information on coordination chemistry, biochemistry, and physical methods before delving into topics that are central to the field: What metals are chosen and how are they taken up by cells? How are the concentrations of metals controlled and utilized in cells? How do metals bind to and fold biomolecules? What principles govern electron transfer and substrate binding and activation reactions? How do proteins fine-tune the properties of metals for specific

functions? For each topic discussed, fundamentals are identified and then clarified through selected examples. An extraordinarily readable writing style combines with chapter-opening principles, study problems, and beautifully rendered two-color illustrations to make this book an ideal choice for instructors, students, and researchers in the chemical, biological, and medicalcommunities. Here is a unique book. It describes the theories and processes of repairing and adjusting the modern watch in precise and meticulous detail: a thing which has never been done so completely before in the many books on the same subject. As a text book it is a revelation. Taking nothing for granted, except the ability to read and comprehend a simple description of mechanical processes, de Carle takes his reader through every stage and every operation of watch repairing ...and to deal with them thoroughly is quite a programme - it takes 300 pages containing 24 chapters, two appendices and 553 illustrations. The fine draughtsmanship and accurate technical detail of the illustrations set a new standard. Practical Watch Repairing can justifiably claim to be the best illustrated book on practical horology yet issued, and one of the best of its kind on any subject. The publication of the book marks the beginning of a new epoch in the study of the mechanics of horology. The new series "Microbiology Monographs" begins with two volumes on intracellular components in prokaryotes. In this first volume, "Inclusions in Prokaryotes", the

components, labeled inclusions, are defined as discrete bodies resulting from synthesis of a metabolic product. Research on the biosynthesis and reutilization of the accumulated materials is still in progress, and interest in the inclusions is growing. This comprehensive volume provides historical background and comprehensive reviews of eight well-known prokaryotic inclusions. No longer merely a subspecialty, pediatric anesthesia is now a professional entity in its own right, as is amply demonstrated in this comprehensive addition to the medical and surgical literature. Pediatric Anesthesia: Basic Principles-State of the Art-Future comprises the contributions of 150 experts in the field from all over the world, providing this book with a truly global perspective. This textbook will help anesthesiologists already interested in pediatric anesthesia to the knowledge and skills inherent to the safe practice of anesthesia for infants and children. There has been substantial progress in understanding the contributions of the auditory forebrain to hearing, sound localization, communication, emotive behavior, and cognition. The Auditory Cortex covers the latest knowledge about the auditory forebrain, including the auditory cortex as well as the medial geniculate body in the thalamus. This book will cover all important aspects of the auditory forebrain organization and function, integrating the auditory thalamus and cortex into a smooth, coherent whole. Volume One covers basic auditory neuroscience. It complements The Auditory

Cortex, Volume 2: Integrative Neuroscience, which takes a more applied/clinical perspective. Pharmaceutical Biotechnology is a unique compilation of reviews addressing frontiers in biologicals as a rich source for innovative medicines. This book fulfills the needs of a broad community of scientists interested in biologicals from diverse perspectives—basic research, biotechnology, protein engineering, protein delivery, medicines, pharmaceuticals and vaccinology. The diverse topics range from advanced biotechnologies aimed to introduce novel, potent engineered vaccines of unprecedented efficacy and safety for a wide scope of human diseases to natural products, small peptides and polypeptides engineered for discrete prophylaxis and therapeutic purposes. Modern biologicals promise to dramatically expand the scope of preventive medicine beyond the infectious disease arena into broad applications in immune and cancer treatment, as exemplified by anti-EGFR receptors antibodies for the treatment of breast cancer. The exponential growth in biologicals such as engineered proteins and vaccines has been boosted by unprecedented scientific breakthroughs made in the past decades culminating in an in-depth fundamental understanding of the scientific underpinnings of immune mechanisms together with knowledge of protein and peptide scaffolds that can be deliberately manipulated. This has in turn led to new strategies and processes. Deciphering the human, mammalian and numerous

pathogens' genomes provides opportunities that never before have been available—identification of discrete antigens (genomes and antigenomes) that lend themselves to considerably improved antigens and monoclonal antibodies, which with more sophisticated engineered adjuvants and agonists of pattern recognition receptors present in immune cells, deliver unprecedented safety and efficacy. Technological development such a nanobiotechnologies (dendrimers, nanobodies and fullerenes), biological particles (viral-like particles and bacterial ghosts) and innovative vectors (replication-competent attenuated, replication-incompetent recombinant and defective helper-dependent vectors) fulfill a broad range of cutting-edge research, drug discovery and delivery applications. Most recent examples of breakthrough biologicals include the human papilloma virus vaccine (HPV, prevention of women genital cancer) and the multivalent Pneumoccocal vaccines, which has virtually eradicated in some populations a most prevalent bacterial ear infection (i.e., otitis media). It is expected that in the years to come similar success will be obtained in the development of vaccines for diseases which still represent major threats for human health, such as AIDS, as well as for the generation of improved vaccines against diseases like pandemic flu for which vaccines are currently available. Furthermore, advances in comparative immunology and innate immunity revealed opportunities for innovative

strategies for ever smaller biologicals and vaccines derived from species such as llama and sharks, which carry tremendous potential for innovative biologicals already in development stages in many pharmaceutical companies. Such recent discoveries and knowledge exploitations hold the promise for breakthrough biologicals, with the coming decade. Finally, this book caters to individuals not directly engaged in the pharmaceutical drug discovery process via a chapter outlining discovery, preclinical development, clinical development and translational medicine issues that are critical the drug development process. The authors and editors hope that this compilation of reviews will help readers rapidly and completely update knowledge and understanding of the frontiers in pharmaceutical biotechnologies. A fascinating insight into the largely untouched world of Japanese secret projects, many of which actually took to the skies in amidst the chaos of World War II. This book covers all aspects of research into the welfare of dairy, veal and beef cattle, covering behavior, nutrition and feeding, housing and management, stockmanship, and stress physiology, as well as transport and slaughter. It also offers a detailed and critical analysis of the main indicators of animal welfare and covers the main threats to animal welfare in modern cattle production systems. Based on The International Metrology Congress meeting, this reference examines the evolution of metrology, and its applications in industry,

environment and safety, health and medicine, economy and quality, and new information and communication technologies; details the improvement of measurement procedures to guarantee the quality of products and processes; and discusses the development of metrology linked to innovating technologies. The themes of the Congress (quality and reliability of measurement, measurement uncertainties, calibration, verification, accreditation, sensory metrology, regulations and legal metrology) are developed either in a general way or applied to a specific economic sector or to a specific scientific field. Time Domain Electromagnetics deals with a specific technique in electromagnetics within the general area of electrical engineering. This mathematical method has become a standard for a wide variety of applications for design and problem solving. This method of analysis in electromagnetics is directly related to advances in cellular and mobile communications technology, as well as traditional EM areas such as radar, antennas, and wave propagation. Most of the material is available in the research journals which is difficult for a non-specialist to locate, read, understand, and effectively use for the problem at hand. Only book currently available to practicing engineers and research scientists exclusively devoted to this subject Includes contributions by the world's leading experts in electromagnetics Presents the most popular methods used in time domain analysis are included at one place with thorough

discussion of the methods in an easily understandable style In each chapter, many simple and practical examples are discussed thoroughly to illustrate the salient points of the material presented All chapters are written in a consistent style that allows the book to be of use for self-study by professionals as well as for use in a graduate-level course in electrical engineering This textbook introduces the perturbation molecular orbital (PMO) th,eory of organic chemistry. Organic chemistry encompasses the largest body of factual information of any of the major divisions of science. The sheer bulk of the subject matter makes many demands on any theory that attempts to systematize it. Time has shown that the PMO method meets these demands admirably. The PMO method can provide practicing chemists with both a pictorial description of bonding and qualitative theoretical results that are well founded in more sophisticated treatments. The only requirements for use of the theory are high school algebra and a pencil and paper. The treatment described in this book is by no means new. Indeed, it was developed as a complete theory of organic chemistry more than twenty years ago. Although it was demonstrably superior to resonance theory and no more complicated to use, it escaped notice for two very simple reasons. First, the original papers describing it were very condensed, perhaps even obscure, and contained few if any examples. Second, for various reasons, no general account appeared in book form until 1969,* and this was

still relatively inaccessible, being in the form of a monograph where molecular orbital (MO) theory was treated mainly at a much more sophisticated level. The generality of the PMO method is illustrated by the fact that all the new developments over the last two decades can be accommodated in it. This is the first handbook on zeolites and other microporous materials. It is an up-to-date, highly sophisticated collection of information for those who deal with zeolites in industry or at academic institutions as well as being a guide for newcomers. Regulation of gene expression at the level of transcription is one of the major determinants of proper cellular proliferation and differentiation. The key players in these processes are sequence-specific DNA binding transcription factor proteins which coordinate programs of gene expression in the nucleus. The articles in this volume document the myriad of genetic and biochemical alterations sustained by human proto-oncogenic transcription factors which result in diverse neoplastic processes. This volume gives insights into how normal programs of gene expression can be subverted by the action of single transcription factors resulting in a specific tumor type. The book provides inspiration for exploiting these tumor-specific alterations as diagnostic, prognostic tools, or as selective therapeutic targets. Like engineering systems, biological systems must also operate effectively in the presence of internal and external uncertainty—such as genetic mutations or temperature changes, for example.

It is not surprising, then, that evolution has resulted in the widespread use of feedback, and research in systems biology over the past decade has shown that feedback control systems are widely found in biology. As an increasing number of researchers in the life sciences become interested in control-theoretic ideas such as feedback, stability, noise and disturbance attenuation, and robustness, there is a need for a text that explains feedback control as it applies to biological systems. Written by established researchers in both control engineering and systems biology, Feedback Control in Systems Biology explains how feedback control concepts can be applied to systems biology. Filling the need for a text on control theory for systems biologists, it provides an overview of relevant ideas and methods from control engineering and illustrates their application to the analysis of biological systems with case studies in cellular and molecular biology. Control Theory for Systems Biologists The book focuses on the fundamental concepts used to analyze the effects of feedback in biological control systems, rather than the control system design methods that form the core of most control textbooks. In addition, the authors do not assume that readers are familiar with control theory. They focus on "control applications" such as metabolic and gene-regulatory networks rather than aircraft, robots, or engines, and on mathematical models derived from classical reaction kinetics rather than classical mechanics. Another significant feature of the

book is that it discusses nonlinear systems, an understanding of which is crucial for systems biologists because of the highly nonlinear nature of biological systems. The authors cover tools and techniques for the analysis of linear and nonlinear systems; negative and positive feedback; robustness analysis methods; techniques for the reverse-engineering of biological interaction networks; and the analysis of stochastic biological control systems. They also identify new research directions for control theory inspired by the dynamic characteristics of biological systems. A valuable reference for researchers, this text offers a sound starting point for scientists entering this fascinating and rapidly developing field. This book investigates the possible ways of improvement by applying more sophisticated electronic structure methods as well as corrections and alternatives to the supercell model. In particular, the merits of hybrid and screened functionals, as well as of the +U methods are assessed in comparison to various perturbative and Quantum Monte Carlo many body theories. The inclusion of excitonic effects is also discussed by way of solving the Bethe-Salpeter equation or by using time-dependent DFT, based on GW or hybrid functional calculations. Particular attention is paid to overcome the side effects connected to finite size modeling. The editors are well known authorities in this field, and very knowledgeable of past developments as well as current advances. In turn, they have selected respected scientists as chapter authors

to provide an expert view of the latest advances. The result is a clear overview of the connections and boundaries between these methods, as well as the broad criteria determining the choice between them for a given problem. Readers will find various correction schemes for the supercell model, a description of alternatives by applying embedding techniques, as well as algorithmic improvements allowing the treatment of an ever larger number of atoms at a high level of sophistication. Oceanography and Marine Biology: An Annual Review remains one of the most cited sources in marine science and oceanography. The ever increasing interest in work in oceanography and marine biology and its relevance to global environmental issues, especially global climate change and its impacts, creates a demand for authoritative reviews summarizing the results of recent research. This volume covers topics that include resting cysts from coastal marine plankton, facilitation cascades in marine ecosystems, and the way that human activities are rapidly altering the sensory landscape and behaviour of marine animals. For more than 50 years, OMBAR has been an essential reference for research workers and students in all fields of marine science. From Volume 57 a new international Editorial Board ensures global relevance, with editors from the UK, Ireland, Canada, Australia and Singapore. The series volumes find a place in the libraries of not only marine laboratories and institutes, but also universities. Previous volume Impact Factors include:

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preservation process, and thank you for being an important part of keeping this knowledge alive and relevant. The two previous editions of Applied Physiology in Intensive Care Medicine proved extremely successful, and the book has now been revised and split into two volumes to enhance ease of use. In this second volume some of the most renowned experts in the field offer detailed reviews on measurement techniques and physiological processes of crucial importance in intensive care medicine. Throughout, a key aim is to help overcome the fundamental unevenness in clinicians' understanding of applied physiology, which can lead to suboptimal treatment decisions. Applied Physiology in Intensive Care has been written by some of the most renowned experts in the field and provides an up-to-date compendium of practical bedside knowledge essential to the effective delivery of acute care medicine. It will serve the clinician as an invaluable reference source on key issues regularly confronted in everyday practice. One of the biggest questions in today's biochemistry is how biological molecules became essential for the processes that occur within living cells. This new book from outstanding Metal Ions in Life Science series gives an overview about biochemical evolution of organic molecules and metabolic pathways in living systems and outlines the vital biochemical processes in microbial cells in which metals are involved. The Novartis Foundation Series is a popular collection of the proceedings from Novartis

Foundation Symposia, in which groups of leading scientists from a range of topics across biology, chemistry and medicine assembled to present papers and discuss results. The Novartis Foundation, originally known as the Ciba Foundation, is well known to scientists and clinicians around the world. Considerable effort has gone into the research of common cancers - lung, bowel, ovarian, cervical, and prostate cancer. In recent years, however, there has been a lack of breakthroughs in therapeutic advances. By challenging many established beliefs, Cancer explores these issues by offering new perspectives on the study of cancer and exploring the areas of mathematics, physics and chemistry in cancer research. This book is for cancer specialists, clinicians, and researchers interested in an innovative view in cancer research. The second edition of this volume has been updated with chapters on scar treatment using laser, microneedling, tissue engineering, adipose tissue and lipofilling. It compiles the perspectives of a multi-author team, examining the entire spectrum of burn reconstruction and long-term treatment. Individual updated chapters cover basic aspects of wound healing and scarring, and plastic surgery relating to tissue rearrangement and the use of flaps, as well as the long-term use of skin and skin substitutes. Furthermore, it addresses topics such as rehabilitation and scar management in detail. It provides comprehensive reconstruction guidelines organized by anatomic region

(e.g. face, hands, ...) as well as future trends and prospects in burn reconstruction, such as allotransplantation and bionics. Please also have a look at the volume "Handbook of Burns Volume 1 - Acute Burn Care 2nd edition" Over the past few decades technological advances in transcriptomics, proteomics, metabolomics, and glycomics along with the ability to selectively knockout genes of interest has greatly advanced our understanding of maternal-conceptus interactions that are essential for the establishment and maintenance of a successful pregnancy. This knowledge provides a foundation from which to build research endeavors to help resolve infertility, embryonic loss and recurrent abortion in humans, captive wild animals and important farm species. The present volume on “Regulation of Implantation and Establishment of Pregnancy in Mammals” brings together current reviews from leading experts to address the diversity of mechanisms by which species establish and maintain pregnancy. Implantation in rodents, dogs, pigs, cattle, sheep, horses, primates, humans and embryonic diapause in wild species are discussed. Reviews will provide current knowledge on the role of endometrial steroid receptors, adhesion factors, cytokines, interferons, steroids, prostaglandins, growth factors and immune cells involved with regulation of conceptus development.