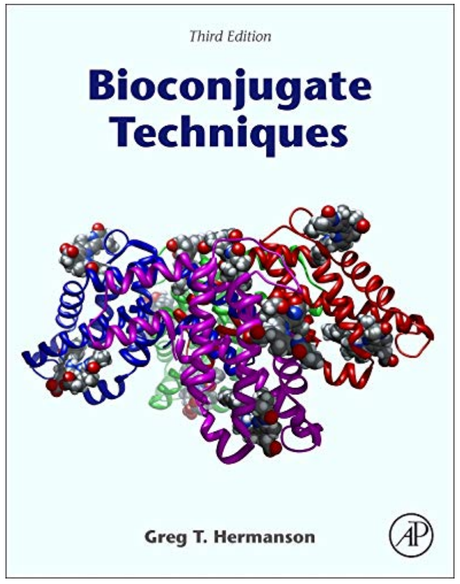

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Bioconjugate Techniques-Greg T. Hermanson 2013-07-25 Bioconjugate Techniques, 3rd Edition, is the essential guide to the modification and cross linking of biomolecules for use in research, diagnostics, and therapeutics. It provides highly detailed information on the chemistry, reagent systems, and practical applications for creating labeled or conjugate molecules. It also describes dozens of reactions, with details on hundreds of commercially available reagents and the use of these reagents for modifying or crosslinking peptides and proteins, sugars and polysaccharides, nucleic acids and oligonucleotides, lipids, and synthetic polymers. Offers a one-stop source for proven methods and protocols for synthesizing bioconjugates in the lab Provides step-by-step presentation makes the book an ideal source for researchers who are less familiar with the synthesis of bioconjugates Features full color illustrations Includes a more extensive introduction into the vast field of bioconjugation and one of the most thorough overviews of immobilization chemistry ever presented

Bioconjugate Techniques-Greg T. Hermanson 2010-07-26 Bioconjugate Techniques, 2nd Edition, is the essential guide to the modification and cross linking of biomolecules for use in research, diagnostics, and therapeutics. It provides highly detailed information on the chemistry, reagent systems, and practical applications for creating labeled or conjugate molecules. It also describes dozens of reactions with details on hundreds of commercially available reagents and the use of these reagents for modifying or cross linking peptides and proteins, sugars and polysaccharides, nucleic acids and oligonucleotides, lipids, and synthetic polymers. A one-stop source for proven methods and protocols for synthesizing bioconjugates in the lab Step-by-step presentation makes the book an ideal source for researchers who are less familiar with the synthesis of bioconjugates More than 600 figures that visually describe the complex reactions associated with the synthesis of bioconjugates Includes entirely new chapters on the latest areas in the field of bioconjugation as follows: Microparticles and nanoparticles Silane coupling agents Dendrimers and dendrons Chemoselective ligation Quantum dots Lanthanide chelates Cyanine dyes Discrete PEG compounds Buckyballs,fullerenes, and carbon nanotubes Mass tags and isotope tags Bioconjugation in the study of protein interactions

Bioconjugation Protocols-Sonny S. Mark 2016-08-23 Contemporary approaches to the synthesis of chemically modified biomacromolecules (proteins, nucleic acids, lipids, and carbohydrates) not only require efficient means to control conjugation and the specific site of attachment of the conjugated moiety but also the effective use of recent developments in the fields of pharmaceutical chemistry, biomolecular/polymer engineering, and nanobiotechnology. In this second edition of Bioconjugation Protocols: Strategies and Methods, expert researchers update the classic methods and introduce valuable new approaches that go beyond basic conjugation techniques to include elements from advanced organic synthesis, molecular biology, surface biotechnology, materials science, and nanobioscience/engineering. These readily reproducible methods cover the preparation of biomolecular conjugates using a variety of labeling techniques and semisynthetic approaches. Additional chapters address the biofunctionalization of surface structures, including organic/inorganic thin films, as well as various types of nanostructures (magnetic nanoparticles, quantum dots, carbon nanotubes, and silicon nanowire devices). All the protocols follow the successful Methods in Molecular BiologyTM series format, each one offering step-by-step laboratory instructions, an introduction outlining the principle behind the technique, lists of the necessary equipment and reagents, and tips on troubleshooting and avoiding known pitfalls. Cutting-edge and highly practical, Bioconjugation Protocols: Strategies and Methods, Second Edition offers both novice and experienced researchers access to the broad array of techniques needed to carry out the semisynthesis of functional biomolecular reagents and/or the biofunctionalization of surfaces and structures of unique interest for a wide variety of applications, ranging from novel biomedical diagnostics to powerful new therapeutics to advanced biomaterials.

Bioconjugation-Sam Massa 2019-07-23 This book explores well-established and emerging conjugation strategies that are relevant for proteins used in the field of precision medicine, focusing on techniques that are suitable for antibodies, antibody-fragments such as Fabs, scFvs, or nanobodies, scaffold proteins such as FN3 or DARPin, peptides, or model proteins. Although centered on the development of bioconjugates rather than their application, most protocols also show the conjugation of the targeting vehicle to a diagnostic or therapeutic entity, with the end-product most often being an antibody-drug conjugate, an optical probe, a nanomedicine, or a radiopharmaceutical. 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. Authoritative and practical, Bioconjugation: Methods and Protocols is an ideal guide for researchers looking toward precision medicine in order to expand the vital field of drug discovery.

Drug-like Properties: Concepts, Structure Design and Methods-Li Di 2010-07-26 Of the thousands of novel compounds that a drug discovery project team invents and that bind to the therapeutic target, typically only a fraction of these have sufficient ADME/Tox properties to become a drug product. Understanding ADME/Tox is critical for all drug researchers, owing to its increasing importance in advancing high quality candidates to clinical studies and the processes of drug discovery. If the properties are weak, the candidate will have a high risk of failure or be less desirable as a drug product. This book is a tool and resource for scientists engaged in, or preparing for, the selection and optimization process. The authors describe how properties affect in vivo pharmacological activity and impact in vitro assays. Individual drug-like properties are discussed from a practical point of view, such as solubility, permeability and metabolic stability, with regard to fundamental understanding, applications of property data in drug discovery and examples of structural modifications that have achieved improved property performance. The authors also review various methods for the screening (high throughput), diagnosis (medium throughput) and in-depth (low throughput) analysis of drug properties. * Serves as an essential working handbook aimed at scientists and students in medicinal chemistry * Provides practical, step-by-step guidance on property fundamentals, effects, structure-property relationships, and structure modification strategies * Discusses improvements in pharmacokinetics from a practical chemist's standpoint

Neurofeedback and Neuromodulation Techniques and Applications-Robert Coben 2010-11-25 The study of neurofeedback and neuromodulation offer a window into brain physiology and function, suggesting innovative approaches to the improvement of attention, anxiety, pain, mood and behavior. Resources for understanding what neurofeedback and neuromodulation are, how they are used, and to what disorders and patients they can be applied are scarce, and this volume serves as an ideal tool for clinical researchers and practicing clinicians in both neuroscience and psychology to understand techniques, analysis, and their applications to specific patient populations and disorders. The top scholars in the field have been enlisted, and contributions offer both the breadth needed for an introductory scholar and the depth desired by a clinical professional. Includes the practical application of techniques to use with patients Includes integration of neurofeedback with neuromodulation techniques Discusses what the technique is, for which disorders it is effective, and the evidence basis behind its use Written at an appropriate level for clinicians and researchers

Massage and Tickling Techniques-Steve A.G. 2020-01-21 Let me introduce you the adorable Nina N. She came to me for a massage therapy to show you how to massage and tickle your girlfriend. Make her an exciting foreplay that she can’t resist. You can eighter practise the massage motions or just lay down on the bed and enjoy Nina’s fascinating body. And of course you can relax and feel the touches as well if you want. In this book you’ll find more than 20 pictures from the video that we set with Nina via an action cam on my head so you can follow the action step by step from the view of the therapist.

Radiopharmaceutical Chemistry-Jason S. Lewis 2019-04-02 This book is a comprehensive guide to radiopharmaceutical chemistry. The stunning clinical successes of nuclear imaging and targeted radiotherapy have resulted in rapid growth in the field of radiopharmaceutical chemistry, an essential component of nuclear medicine and radiology. However, at this point, interest in the field outpaces the academic and educational infrastructure needed to train radiopharmaceutical chemists. For example, the vast majority of texts that address radiopharmaceutical chemistry do so only peripherally, focusing instead on nuclear chemistry (i.e. nuclear reactions in reactors), heavy element radiochemistry (i.e. the decomposition of radioactive waste), or solely on the clinical applications of radiopharmaceuticals (e.g. the use of PET tracers in oncology). This text fills that gap by focusing on the chemistry of radiopharmaceuticals, with key coverage of how that knowledge translates to the development of diagnostic and therapeutic radiopharmaceuticals for the clinic. The text is divided into three overarching sections: First Principles, Radiochemistry, and Special Topics. The first is a general overview covering fundamental and broad issues like “The Production of Radionuclides” and “Basics of Radiochemistry”. The second section is the main focus of the book. In this section, each chapter’s author will delve much deeper into the subject matter, covering both well established and state-of-the-art techniques in radiopharmaceutical chemistry. This section will be divided according to radionuclide and will include chapters on radiolabeling methods using all of the common nuclides employed in radiopharmaceuticals, including four chapters on the ubiquitously used fluorine-18 and a “Best of the Rest” chapter to cover emerging radionuclides. Finally, the third section of the book is dedicated to special topics with important information for radiochemists, including “Bioconjugation Methods,” “Click Chemistry in Radiochemistry”, and “Radiochemical Instrumentation.” This is an ideal educational guide for nuclear medicine physicians, radiologists, and radiopharmaceutical chemists, as well as residents and trainees in all of these areas.

Immobilized Affinity Ligand Techniques-Greg T. Hermanson 1992-09-10 This book is a practical guide to the preparation and use of immobilized affinity ligands for purification, catalysis, and analysis. Special emphasis is given to immunochemical techniques including antibody isolation, preparation of antibody fragments using immobilized enzymes, and immunoaffinity chromatography. The book provides easy-to-follow, well-tested protocols to allow the uninitiated to use these techniques to the maximum advantage with minimum hassle. In addition, it shows researchers how to save money by making their own optimized affinity supports. Matrix activation: Ligand immobilization, Binding and elution of target molecules, Enzyme catalysis on solid supports, Analytical affinity chromatography, Isolation/purification of antibodies, Preparation of antibody fragments, Immunoaffinity chromatography, Immobilization of nucleic acids, Use of immobilized ligands for removal of trace contaminants Practical advice on choosing: Matrices, Spacers, Methods of activation and coupling Background information and insights on: Affinity interactions, The ease and power of affinity chromatography, Attaching molecules to insoluble supports, Matrices currently in use, Over 20 methods of activation, Spacers, Extensive References

Nanomaterials and Environmental Biotechnology-Indu Bhushan 2020-02-22 Nanotechnology is considered as one of the emerging fields of science. It has applications in different biological and technological fields which deal with the science of materials at nanoscale (10-9). On the other hand, biotechnology is another field that deals with contemporary challenges. Nanobiotechnology fills the gap between these two fields. It merges physical, chemical, and biological principles in a single realm. This combination opens up new possibilities. At nanoscale dimensions, it creates precise nanocrystals and nanoshells. Integrated nanomaterials are used with modified surface layers for compatibility with living systems, improved dissolution in water, or biorecognition leading to enhanced end results in biotechnological systems. These nanoparticles can also be hybridized with additional biocompatible substances in order to amend their qualities to inculcate novel utilities. Nanobiotechnology is used in bioconjugate chemistry by coalescing up the functionality of non-organically obtained molecular components and biological molecules in order to veil the immunogenic moieties for targeted drug delivery, bioimaging and biosensing. This book blends the science of biology, medicine, bioinorganic chemistry, bioorganic chemistry, material and physical sciences, biomedical engineering, electrical, mechanical, and chemical science to present a comprehensive range of advancements. The development of nano-based materials has made for a greater understanding of their characterization, using techniques such as transmission electron microscope, FTIR, X-ray diffraction, scanning electron microscope EDX, and so on. This volume also highlights uses in environmental remediation, environmental biosensors and environmental protection. It also emphasizes the significance of nanobiotechnology to a series of medical applications viz., diagnostics, and therapeutics stem cell technology, tissue engineering enzyme engineering, drug development and delivery. In addition this book also offers a distinctive understanding of nanobiotechnology from researchers and educators and gives a comprehensive facility for future developments and current applications of nanobiotechnology.

Chemical Reagents for Protein Modification, Fourth Edition-Roger L. Lundblad 2014-07-22 The use of the chemical modification of proteins has evolved over the past 80 years, benefiting from advances in analytical, physical, and organic chemistry. Over the past 30 years, the use of chemical reagents to modify proteins has been crucial in determining the function and structure of purified proteins. This groundbreaking work is part of the foundation of emerging disciplines of proteomics, chemical biology, structure biology, and chemical proteomics. Chemical Reagents for Protein Modification, Fourth Edition provides a comprehensive review of reagents used for the chemical modification of proteins, representing a major revision of the work presented in previous editions. The completely updated Fourth Edition is substantially larger and includes five new chapters: Alkylating Agents Acylating Agents Nitration and Nitrosylation Oxidation Modification of Proteins with Reducing Agents There is greatly increased coverage of the chemical modification of cysteine, which is critical for bioconjugate synthesis. The chapter on reduction also provides information necessary for bioconjugate synthesis as well as for the processing of inclusion bodies. The book places emphasis on conditions that affect the specificity of the chemical modification of proteins, such as solvent and temperature. The format has been markedly revised, presenting information based on the chemical nature of the modifying material and on the amino acid residue modified. This new version has increased significance to biopharmaceuticals. Much of the information is in tabular form, which enables the rapid location of cited material.

Chemistry of Bioconjugates-Ravin Narain 2013-12-02 Explores bioconjugate properties and applications ofpolymers, dendrimers, lipids, nanoparticles, and nanotubes Bioconjugation has enabled breakthroughs across many areas ofindustry and biomedicine. With its emphasis on synthesis,properties and applications, this book enables readers tounderstand the connection between chemistry and the biologicalapplication of bioconjugated materials. Its detailed descriptionsof methods make it possible for researchers to fabricate and takefull advantage of bioconjugates for a broad range of applications.Moreover, the book sets the foundation for the development of newapplications, including assays, imaging, biosensors, drug delivery,and diagnostics. Chemistry of Bioconjugates features contributions from aninternational team of leading experts and pioneers in the field.These contributions reflect the authors’ firsthand laboratoryexperience as well as a thorough review of the current literature.The book’s six sections examine: General methods of bioconjugation Polymer bioconjugates Organic nanoparticle-based bioconjugates Inorganic nanomaterial bioconjugates, including metals andmetal oxides Cell-based, hydrogel/microgel, and glyco-bioconjugates Characterization, physico-(bio)chemical properties, andapplications of bioconjugates This comprehensive exploration of bioconjugates includesdiscussions of polymers, dendrimers, lipids, nanoparticles, andnanotubes. References at the end of each chapter serve as a gatewayto the most important original research findings and reviews in thefield. By drawing together and analyzing all the latest chemicalmethods and research findings on the physico-chemical andbiochemical properties of bioconjugates, Chemistry ofBioconjugates sheds new light on the significance and potentialof bioconjugation. The book is recommended for organic and polymerchemists, biochemists, biomaterial scientists, carbohydratechemists, biophysicists, bioengineers, and drug and gene deliveryscientists.

Polymer-Protein Conjugates-Gianfranco Pasut 2019-10-30 Polymer–Protein Conjugates: From Pegylation and Beyond helps researchers by offering a unique reference and guide into this fascinating area. Sections cover the challenges surrounding the homogeneity of conjugates, their purity and polymer toxicity on long-term use, and how to deal with the risk of immunogenicity. These discussions help researchers design new projects by taking into account the latest innovations for safe and site selective polymer conjugation to proteins. PEG has been the gold standard and likely will play this role for many years, but alternatives are coming into the market, some of which have already been launched. After five decades of improvements, the ideas in this book are entering into a new era of innovation because of the advances in genetic engineering, biochemistry and a better understanding of the results from clinical use of PEG conjugates in humans. Provides an overview on the state-of-the-art of protein polymer conjugation Presents both the pros and cons of polymer-protein conjugates from the point-of-view of their clinical outcomes Outlines advantages and potential risks of present technology based on PEG Offers new alternatives for PEG and new approaches for on site-selective protein modification Identifies future direction of research in this field

Immunoassay and Other Bioanalytical Techniques-Jeanette M. van Emon 2016-04-19 Taking an interdisciplinary approach that emphasizes the adaptability of immunochemical and related bioanalytical methods to a variety of matrices, Immunoassay and Other Bioanalytical Techniques describes the strength and the versatility of these methods in a wide range of environmental and biological measurement applications. With contribut

Separation Techniques in Chemistry and Biochemistry-Roy A. Keller 1967

Immunosensors-Minhaz Uddin Ahmed 2019-08-21 Immunosensors are widely used and are particularly important for fast diagnosis of diseases in remote environments as well as point-of-care devices. In this book, expert scientists are covering a selection of high quality representative examples from the past five years explaining how this area has developed. It is a compilation of recent advances in several areas of immunosensors for multiple target analysis using laboratory based or point-of-care set-up, for example graphene-, ISFET- and nanostructure-based immunosensors, electrochemical magneto immunosensors and nanoimprinted immunosensors. Filling a gap in the literature, it showcases the multidisciplinary, innovative developments in this highly important area and provides pointers towards commercialisation. Delivering a single, comprehensive work, it appeals to graduate students and professional researchers across academia and industry.

Hardrock Mining on Federal Lands-National Research Council 1999-11-03 This book, the result of a congressionally mandated study, examines the adequacy of the regulatory framework for mining of hardrock minerals--such as gold, silver, copper, and uranium--on over 350 million acres of federal lands in the western United States. These lands are managed by two agencies--the Bureau of Land Management in the Department of the Interior, and the Forest Service in the Department of Agriculture. The committee concludes that the complex network of state and federal laws that regulate hardrock mining on federal lands is generally effective in providing environmental protection, but improvements are needed in the way the laws are implemented and some regulatory gaps need to be addressed. The book makes specific recommendations for improvement, including: The development of an enhanced information management system and a more efficient process to review new mining proposals and issue permits. Changes to regulations that would require all mining operations, other than "casual use" activities that negligibly disturb the environment, to provide financial assurances for eventual site cleanup. Changes to regulations that would require all mining and milling operations (other than casual use) to submit operating plans in advance.

Protein Chromatography-Giorgio Carta 2020-06-02 An all-in-one practical guide on how to efficiently use chromatographic separation methods Based on a training course that teaches the theoretical as well as practical aspects of protein bioseparation to bioprocess professionals, this fully updated and revised new edition offers comprehensive coverage of continuous chromatography and provides readers with many relevant examples from the biopharmaceutical industry. Divided into two large parts, Protein Chromatography: Process Development and Scale-Up, Second Edition presents all the necessary knowledge for effective process development in chromatographic bioseparation, both on small and large scale. The first part introduces chromatographic theory, including process design principles, to enable the reader to rationalize the set-up of a bioseparation process. The second part illustrates by way of case studies and sample protocols how the theory learned in the first part may be applied to real-life problems. Chapters look at: Downstream Processing of Biotechnology Products; Chromatography Media; Laboratory and Process Columns and Equipment; Adsorption Equilibrium; Rate Processes; and Dynamics of Chromatography Columns. The book closes with chapters on: Effects of Dispersion and Rate Processes on Column Performance; Gradient Elution Chromatography; and Chromatographic Column Design and Optimization. -Presents the most pertinent examples from the biopharmaceutical industry, including monoclonal antibodies -Provides an overview of the field along with design tools and examples illustrating the advantages of continuous processing in biopharmaceutical productions -Focuses on process development and large-scale bioseparation tasks, making it an ideal guide for the professional bioengineer in the biotech and pharma industries -Offers field-tested information based on decades of training courses for biotech and chemical engineers in Europe and the U.S. Protein Chromatography: Process Development and Scale-Up, Second Edition will appeal to biotechnologists, analytical chemists, chromatographers, chemical engineers, pharmaceutical industry, biotechnological industry, and biochemists.

Enhanced Cytosolic Delivery of DNA by a Sulfhydryl-activatable Listeriolysin O Bioconjugate-Go Saito 2002

Molecular Imaging-Jie Tian 2013-07-23 "Molecular Imaging: Fundamentals and Applications" is a comprehensive monograph which describes not only the theory of the underlying algorithms and key technologies but also introduces a prototype system and its applications, bringing together theory, technology and applications. By explaining the basic concepts and principles of molecular imaging, imaging techniques, as well as research and applications in detail, the book provides both detailed theoretical background information and technical methods for researchers working in medical imaging and the life sciences. Clinical doctors and graduate students will also benefit from this book. Jie Tian is a professor at the Institute of Automation, Chinese Academy of Sciences, China.

Chemoselective and Bioorthogonal Ligation Reactions-W. Russ Algar 2017-03-17 This timely, one-stop reference is the first on an emerging and interdisciplinary topic. Covering both established and recently developed ligation chemistries, the book is divided into two didactic parts: a section that focuses on the details of bioorthogonal and chemoselective ligation reactions at the level of fundamental organic chemistry, and a section that focuses on applications, particularly in the areas of chemical biology, biomaterials, and bioanalysis, highlighting the capabilities and benefits of the ligation reactions. With chapters authored by outstanding scientists who range from trailblazers in the field to young and emerging leaders, this book on a highly interdisciplinary topic will be of great interest for biochemists, biologists, materials scientists, pharmaceutical chemists, organic chemists, and many others.

Fine Particles in Medicine and Pharmacy-Egon Matijević 2011-09-18 Pharmaceutical manufacture is very exacting – for example, drugs must be uniform in size, shape, efficacy, bioavailability, and safety. The presence of different polymorphs in drug production is a serious problem, since different polymorphs differ in bioavailability, solubility, dissolution rate, chemical and physical stability, melting point, color, filterability, density, and flow properties. Fine Particles in Medicine and Pharmacy discusses particle size, shape, and composition and how they determine the choice of polymorph of a drug.

State-of-the-Art and Emerging Technologies for Therapeutic Monoclonal Antibody Characterization-Oleg Borisov 2014

Methods in Bioengineering-Kaushal Rege 2009 Filling a critical gap in the current literature, this new resource presents practical, step-by-step methods to help you synthesize, characterize, biofunctionalize and apply the nanomaterial that is most suitable for handling a given nanoscale bioengineering problem. Written and presented by leading scientists and engineers in their respective fields, the authors offer a clear and detailed understanding of how to carry out nanoparticle functionalization with biomolecules (including enzymes), nanoparticle analysis and characterization, in vitro evaluation of nanoparticles using different cell lines and in vitro evaluation of nanoparticles as therapeutics and imaging agents.

Surface Modification of Nanoparticles for Targeted Drug Delivery-Yashwant V Pathak 2019-03-21 This unique book is the only one to discuss various new techniques developed to enhance the application of nanoparticulate drug delivery systems using surface modification of nanoparticles. The understanding of the surface characteristics nano-particles is growing significantly with the advent of new analytical techniques. Polymer chemistry is contributing to the development of many new versatile polymers which have abilities to accommodate many different, very reactive chemical groups, and can be used as a diagnostic tool, for better targeting, for more effective therapeutic results as well as for reducing the toxic and side effects of the drugs. Surface modification of such polymeric nanoparticles has been found by many scientists to enhance the application of nanoparticles and also allows the nano particles to carry specific drug molecule and disease /tumor specific antibodies which refine and improve drug delivery. Surface Modification of Nanoparticles for Targeted Drug Delivery is a collection essential information with various applications of surface modification of nanoparticles and their disease specific applications for therapeutic purposes.

Encyclopedia of Molecular Biology, Volume 2-Thomas E. Creighton 1999 Annotation The field of molecular biology has revolutionized the study of biology. The applications to medicine are enormous, ranging from diagnostic techniques for disease and genetic disorders, to drugs, to gene therapy. Focusing on the fundamentals of molecular biology and encompassing all aspects of the expression of genetic information, the Encyclopedia of Molecular Biology will become the first point of reference for both newcomers and established professionals in molecular biology needing to learn about any particular aspect of the field.

Principles of Bacterial Detection: Biosensors, Recognition Receptors and Microsystems-Mohammed Zourob 2008-09-03 Principles of Bacterial Detection: Biosensors, Recognition Receptors and Microsystems will cover the up-to-date biosensor technologies used for the detection of bacteria. Written by the world's most renowned and learned scientists each in their own area of expertise, Principles of Bacterial Detection: Biosensors, Recognition Receptors and Microsystems is the first title to cover this expanding research field.

Handbook of Fluorescent Probes and Research Products-Richard P. Haugland 2002

Dendrimers and Other Dendritic Polymers-Jean M. J. Fréchet 2001 With contributions from many of the world's leading scientists in the field of dendritic research and development, Dendrimers and Other Dendritic Polymers provides a comprehensive review of this rapidly expanding and exciting new field of polymer science. Of interest to academia and industry alike, this book covers the synthesis, characterization, unique properties, potential for novel applications and technical challenges associated with these polymers. * Detailed coverage of all known subclasses of dendritic polymers, including their properties and synthesis * Insight into the potential commercial applications of dendritic polymers, including drug delivery, cancer therapy, coatings and adhesives * Identification of the key trends and perspectives in dendrimer research * Essential reference for polymer chemists, materials scientists and plastics engineers working in academia and industry alike

Pharmaceutical Nanotechnology-Volkmar Weissig 2020-08-14 This volume details protocols on formulation, surface modification, characterization, and application of a variety of pharmaceutical nanocarriers such as micelles, nanoparticles, dendrimers, carbon dots, polymersomes, and others. Chapters are targeted toward investigators working in academic and industrial laboratories conducting research in the broad field of pharmaceutical sciences, with an emphasis on drug delivery. 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, Pharmaceutical Nanotechnology: Basic Protocols aims to be a source of inspiration to all investigators who are interested in the potential of the merger of nanotechnology with pharmaceutical sciences.

Molecular and Cellular Biology of Viruses-Phoebe Lostroh 2019-05-06 Viruses interact with host cells in ways that uniquely reveal a great deal about general aspects of molecular and cellular structure and function. Molecular and Cellular Biology of Viruses leads students on an exploration of viruses by supporting engaging and interactive learning. All the major classes of viruses are covered, with separate chapters for their replication and expression strategies, and chapters for mechanisms such as attachment that are independent of the virus genome type. Specific cases drawn from primary literature foster student engagement. End-of-chapter questions focus on analysis and interpretation with answers being given at the back of the book. Examples come from the most-studied and medically important viruses such as HIV, influenza, and poliovirus. Plant viruses and bacteriophages are also included. There are chapters on the overall effect of viral infection on the host cell. Coverage of the immune system is focused on the interplay between host defenses and viruses, with a separate chapter on medical applications such as anti-viral drugs and vaccine development. The final chapter is on virus diversity and evolution, incorporating contemporary insights from metagenomic research. Key selling feature: Readable but rigorous coverage of the molecular and cellular biology of viruses Molecular mechanisms of all major groups, including plant viruses and bacteriophages, illustrated by example Host-pathogen interactions at the cellular and molecular level emphasized throughout Medical implications and consequences included Quality illustrations available to instructors Extensive questions and answers for each chapter

The Development of Techniques for the Study of Protein-DNA and Protein-protein Interactions-Brian David Schmidt 2001

Fluorescent Probes- 2021-05-14 Fluorescent Probes, Volume 48 in the Methods in Microbiology series, highlights new advances in the field, with this new volume presenting interesting chapters on important topics, including Hydrogel microarray technology as a tool for clinical diagnostics, The use of probes and bacteriophages for bacteria detection, Probes used with point-of-care microfluidic devices for pathogen detection, Methods for combining FIB/SEM with three-dimensional fluorescence microscopy using CLEM approaches, Probes and Microbes, Microbial signatures associated with cancers, Fluorescent Aptamers for Detection and Treatment of Pathogenic Bacteria and Cancer, Labelled and Unlabeled Probes for Pathogen Detection with Molecular Biology Methods and Biosensors, and much more. Provides the authority and expertise of leading contributors from an international board of authors Presents the latest release in the Methods in Microbiology series

Enzyme Immunoassays-S.S. Deshpande 1996-06-30 This unique reference provides a pragmatic approach to the development of successful commercial immunodiagnostic products based on enzyme immunoessay technology. Presenting both the basic and applied principles, Enzyme Immunoassays gathers information on all aspects of this process, from the initial conceptualization to the introduction of the product to the market.

Peptide and Protein Delivery-Chris Van Der Walle 2011-05-12 The growing area of peptide and protein therapeutics research is of paramount importance to medical application and advancement. A needed reference for entry level researchers and researchers working in interdisciplinary / collaborative projects, Peptide and Protein Delivery addresses the current and emerging routes for delivery of therapeutics. Covering cerebral delivery, pulmonary delivery, transdermal delivery, intestinal delivery, ocular delivery, parenteral delivery, and nasal delivery, this resource offers an overview of the main routes in therapeutics. Researchers across biochemistry,

pharmaceutical, molecular biology, cell biology, immunology, chemistry and biotechnology fields will find this publication invaluable for peptide and protein laboratory research. Discusses the most recent data, ideas and concepts Presents case studies and an industrial perspective Details information from the molecular level to bioprocessing Thought provoking, for the novice to the specialist Timely, for today's biopharmaceuticals market

Immobilisation of DNA on Chips: Immobilization of DNA on microarrays-Christine Wittmann 2005 With contributions by numerous experts

Principles of Fluorescence Spectroscopy-Joseph R. Lakowicz 2013-04-17 `In the second edition of Principles I have attempted to maintain the emphasis on basics, while updating the examples to include more recent results from the literature. There is a new chapter providing an overview of extrinisic fluorophores. The discussion of timeresolved measurements has been expanded to two chapters. Quenching has also been expanded in two chapters. Energy transfer and anisotropy have each been expanded to three chapters. There is also a new chapter on fluorescence sensing. To enhance the usefulness of this book as a textbook, most chapters are followed by a set of problems. Sections which describe advanced topics are indicated as such, to allow these sections to be skipped in an introduction course. Glossaries are provided for commonly used acronyms and mathematical symbols. For those wanting additional informtion, the final appendix contains a list of recommended books which expand on various specialized topics.' from the author's Preface

Multifunctional Polymeric Nanocomposites Based on Cellulosic Reinforcements-Debora Puglia 2016-07-11 Multifunctional Polymeric Nanocomposites Based on Cellulosic Reinforcements introduces the innovative applications of polymeric materials based on nanocellulose, and covers extraction methods, functionalization approaches, and assembly methods to enable these applications. The book presents the state-of-the-art of this novel nano-filler and how it enables new applications in many different sectors, beyond existing products. With a focus on application of nano-cellulose based polymers with multifunctional activity, the book explains the methodology of nano-cellulose extraction and production and shows the potential performance benefits of these particular nanostructured polymers, for applications across different sectors, including food active packaging, energy-photovoltaics, biomedical, and filtration. The book describes how the different methodologies, functionalization, and organization at the nano-scale level could contribute to the design of required properties at macro level. The book studies the interactions between the main nano-filler with other active systems and how this interaction enables multi-functionality in the produced materials. The book is an indispensable resource for the growing number of scientists and engineers interested in the preparation and novel applications of nano-cellulose, and for industrial scientists active in formulation and fabrication of polymer products based on renewable resources. Provides insight into nanostructure formation science, and processing of polymeric materials and their characterization Offers a strong analysis of real industry needs for designing the materials Provides a well-balanced structure, including a light introduction of basic knowledge on extraction methods, functionalization approaches, and assembling focused to applications Describes how different methodologies, functionalization, and organization at the nano-scale level could contribute to the design of required properties at macro level

The Immunoassay Handbook-David Wild 2001 Offering a unique mix of practical information on immunoassay technology coupled with a review of clinical applications, the Second Edition of this successful reference work is an invaluable source of information. It describes the underlying principles of immunoassay, evaluates major diagnostic products, provides a complete analysis of practical laboratory management, and concludes with an extensive review of immunoassay technology applications in clinical situations. With almost 90 contributing authors, The Immunoassay Handbook offers an authoritative international analysis of contemporary immunoassay.Each of the book's four sections has been expanded and updated from the previous edition: Principles: An overview of the general theory of immunoassay.Products: Details the major diagnostic machinery currently available, outlining features, background theory and development, objective feedback, and comparison between products.Laboratory Management: Including information on sample preparation, quality, troubleshooting, laboratory automation, and laboratory information systems.Applications: of immunoassay technology in clinical situations (which technologies to use in AIDS testing, for example) with theory and background material, as well as key references.Essential reading for clinical chemists and biochemists in medical and biological research laboratories, the Handbook will also be invaluable for marketing and sales staff, and research and development staff at immunoassay manufacturers and distributors. In addition, the book will be useful for students of immunology, biochemistry and medicine.

Handbook of Nanofibers-Ahmed Barhoum 2019-09-10 This Handbook covers all aspects related to Nanofibers, from the experimental set-up for their fabrication to their potential industrial applications. It describes several kinds of nanostructured fibers such as metal oxides, natural polymers, synthetic polymers and hybrid inorganic-polymers or carbon-based materials. The first part of the Handbook covers the fundamental aspects, experimental setup, synthesis, properties and physico-chemical characterization of nanofibers. Specifically, this part details the history of nanofibers, different techniques to design nanofibers, self-assembly in nanofibers, critical parameters of synthesis, fiber alignment, modeling and simulation, types and classifications of nanofibers, and signature physical and chemical properties (i.e. mechanical, electrical, optical and magnetic), toxicity and regulations, bulk and surface functionalization and other treatments to allow them to a practical use. Characterization methods are also deeply discussed here. The second part of the Handbook deals with global markets and technologies and emerging applications of nanofibers, such as in energy production and storage, aerospace, automotive, sensors, smart textile design, energy conversion, tissue engineering, medical implants, pharmacy and cosmetics. Attention is given to the future of research in these areas in order to improve and spread the applications of nanofibers and their commercialization.