
Macromolecular Biorecognition

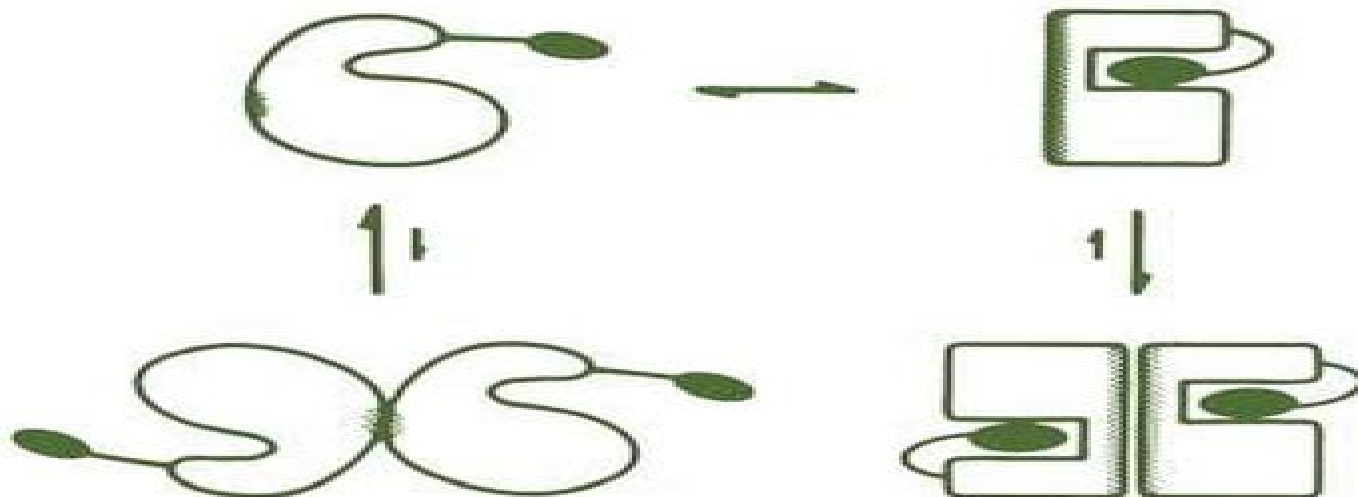
Principles and Methods

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Macromolecular Biorecognition

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Mirzabekov**

Macromolecular Biorecognition:

Macromolecular Biorecognition Irwin Chaiken, Emilia Chiancone, Angelo Fontana, Paolo Neri, 2012-12-06 **National Library of Medicine Current Catalog** National Library of Medicine (U.S.), 1988 **Comprehensive Biomaterials II** Kevin Healy, Dietmar W. Hutmacher, David W. Grainger, C. James Kirkpatrick, 2017-05-18 **Comprehensive Biomaterials II** Second Edition Seven Volume Set brings together the myriad facets of biomaterials into one expertly written series of edited volumes Articles address the current status of nearly all biomaterials in the field their strengths and weaknesses their future prospects appropriate analytical methods and testing device applications and performance emerging candidate materials as competitors and disruptive technologies research and development regulatory management commercial aspects and applications including medical applications Detailed coverage is given to both new and emerging areas and the latest research in more traditional areas of the field Particular attention is given to those areas in which major recent developments have taken place This new edition with 75% new or updated articles will provide biomedical scientists in industry government academia and research organizations with an accurate perspective on the field in a manner that is both accessible and thorough Reviews the current status of nearly all biomaterials in the field by analyzing their strengths and weaknesses performance and future prospects Covers all significant emerging technologies in areas such as 3D printing of tissues organs and scaffolds cell encapsulation multimodal delivery cancer vaccine biomaterial applications neural interface understanding materials used for in situ imaging and infection prevention and treatment Effectively describes the many modern aspects of biomaterials from basic science to clinical applications Encyclopedia of Microfluidics and Nanofluidics Dongqing Li, 2008-08-06 Covering all aspects of transport phenomena on the nano and micro scale this encyclopedia features over 750 entries in three alphabetically arranged volumes including the most up to date research insights and applied techniques across all areas Coverage includes electrical double layers optofluidics DNC lab on a chip nanosensors and more Design of Polymeric Platforms for Selective Biorecognition Juan Rodríguez-Hernández, Aitziber L. Cortajarena, 2015-08-21 This book addresses in an integrated manner all the critical aspects for building the next generation of biorecognition platforms from biomolecular recognition to surface fabrication The most recent strategies reported to create surface nano and micropatterns are thoroughly analyzed This book contains descriptions of the types of molecules immobilized at surfaces that can be used for specific biorecognition how to immobilize them and how to control their arrangement and functionality at the surface Small molecules peptides proteins and oligonucleotides are at the core of the biorecognition processes and will constitute a special part of this book The authors include detailed information on biological processes biomolecular screening biosensing diagnostic and detection devices tissue engineering development of biocompatible materials and biomedical devices □□□□□□□□□□□□□□□□□□□□□□□□, 1989 **Macromolecular Anticancer Therapeutics** L. Harivardhan Reddy, Patrick Couvreur, 2010-03-20 In spite of the development of various anticancer drugs the therapy of cancer has remained challenging

for decades The current therapy of cancer is overwhelmed because of the inability to deliver therapeutics to all regions of a tumor in effective therapeutic concentrations intrinsic or acquired resistance to the treatment with currently available agents via genetic and epigenetic mechanisms and toxicity As a result cancer therapy using conventional therapeutics and different types of treatment regimens using this therapeutics has not led to a convincing survival benefit of the patients In this context Macromolecular therapeutics offer several advantages over conventional low molecular therapeutics by various ways such as enable the use of larger doses of these agents by limiting the toxicity by enhanced permeability and retention into tumors by tumor targeting using tumor specific antibodies by specific inhibition of oncogenes using anticancer oligonucleotides etc Cancer treatment using this macromolecular therapeutics has considerably improved the survival benefit for patients As a result various macromolecular therapeutics are already commercialized or are under clinical development Although we are far from a real magic bullet today looking at the pace of research and current success in this field of macromolecular therapeutics it appears that we are approaching a magic bullet for the efficient treatment of cancer Thus we believe that the subject of this book is very timely and that the book will fill an unmet need in the market This book is unique and assembles various types and aspects of macromolecular anticancer therapeutics for cancer therapy in one shell and conveys the importance of this interdisciplinary field to the broad audience Thus in a nutshell this book details the basics of cancer and various therapeutic strategies such as those based on macromolecular therapeutics hence can become an important reference for practitioners oncologists medical pharmacologists medicinal chemists biomedical scientists experimental pharmacologists pharmaceutical technologists and particularly it can essentially become a handbook of macromolecular therapeutics for cancer therapy for graduates post graduates and Ph D students in these fields

Current Catalog
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Smart Nanosensors Imran Uddin, 2025-04-21 This book serves as a comprehensive compilation of contemporary research conducted in the domain of nanosensors The amalgamation of many elements within the emerging field contributes to the development of a useful collection specifically designed for inexperienced researchers in the domain of smart materials and nanosensor technologies An adequate range of subjects has been incorporated into the present book It includes enzyme mimetic use of smart nanomaterials for enhanced biosensing applications theranostic utilization of smart nanomaterials for targeted drug delivery sensors for pollutant detection and the utilization of smart nanomaterials in the development of biosensors for studying host microbe interactions Nanosensors have emerged as a promising avenue for various applications including sensing in the fields of medicine packaging and heavy metal ion detection Recent developments in the field of smart nanomaterials have led to significant advancements in the application of intelligent switches and sensors within the domains of agriculture food production and water treatment The primary emphasis of this book is the study of the synthesis and fabrication processes involved in the production of smart materials together with their application within the domain of sensor technology The

existing body of literature has two main categories introductory textbooks that provide fundamental knowledge about the field and specialized publications that focus exclusively on certain subtopics within the domain of sensor technology The existing material of the book makes it a complete reference resource that is well suited for researchers in the area It especially caters to advanced graduate students who are seeking senior graduate MTech and MS degrees in the subject of sensor technology Additionally this publication would function as an essential resource for researchers across diverse disciplines within the area of materials science who are aiming to propel the development of smart materials

Macromolecules in the Functioning Cell Aleksandr Aleksandrovich Baev,A. D. Mirzabekov,1991 **Lactoferrin** T. William Hutchens,Bo Lönnerdal,2012-12-06 The number of investigators focusing their attention on lactoferrin has increased dramatically in recent years Lactoferrin is a protein with more than one known structure and a number of proposed biological functions including several with important regulatory consequences In many ways it has been an easy protein to investigate however there have been difficulties understanding specific structure function relationships particularly as it functions in vivo Research funding dedicated to this protein has previously been limited but is now increasing As lactoferrin begins to emerge formally as a protein of significance to the medical and industry it is more important than ever to coordinate and integrate research efforts whenever possible and to share the results of these efforts within the expanding array of medical and scientific disciplines involved It was our intention to provide a forum to summarize and disseminate the most recent advances in this field Included in Lactoferrin Interactions and Biological Functions are selected presentations representing the many disciplines involved in defining lactoferrin function in terms of its known structural features including its carbohydrate side chains receptor binding sites its capacity to bind different metal ions and other newly discovered bioactive domains Several of the possible physiological functions of lactoferrin are described and summarized in detail including the role of lactoferrin in bacterial killing its involvement in cell growth and proliferation in the modulation of immune function and in iron absorption *Analytical Affinity Chromatography* Irwin M. Chaiken,2018-01-10 This volume presents discussions of theoretical and experimental considerations that have led to the analytical affinity chromatography field as well as current efforts to use this methodology to characterize the interaction mechanisms of biological macromolecules and to establish conditions for employing bioaffinity chromatographic systems as preparative tools The chapters include a comprehensive discussion of interactive chromatography theory DeLisi and Hethcote a review of experimental data obtained for biological macromolecules and the relevant theoretical considerations of affinity chromatography which led to them Swaisgood and Chaiken an evaluation of rate processes in affinity chromatography and the potential to determine biologically meaningful chemical rate constants Walters and the use of quantitative and molecular considerations to design affinity chromatographic systems Stellwagen and Liu **Current Catalog** ,1988 First multi year cumulation covers six years 1965 70 **Surface Engineering of Polymeric Biomaterials**

Todorka G Vladkova, 2013-01-10 Biomaterials work in contact with living matter and this gives a number of specific requirements for their surface properties such as bioinertness or bioactivity antibiofouling and so on Surface engineering based on physical chemical physical chemical biochemical or biological principles is important for the preparation of biomaterials with the desired biocontact properties This book helps the reader gain the knowledge to enable them to work in such a rapidly developing area with a comprehensive list of references given for each chapter Strategies for tailoring the biological response through the creation of biomaterial surfaces resistant to fouling are discussed Methods of eliciting specific biomolecular interactions that can be further combined with patterning techniques to engineer adhesive areas in a noninteractive background are also covered The theoretical basis of surface engineering for improvement of biocontact properties of polymeric biomaterials as well as the current state of the art of the surface engineering of polymeric biomaterials are presented The book also includes information on the most used conventional and advanced surface engineering methods The book is targeted at researchers post doctorates graduate students and those already working in the field of biomaterials with a special interest in the creation of polymeric materials with improved biocontact properties via surface engineering

Metal-Organic Frameworks-Based Hybrid Materials for Environmental Sensing and Monitoring Ram K. Gupta, Tahir Rasheed, Tuan Anh Nguyen, Muhammad Bilal, 2022-06-22 With an unprecedented population boom and rapid industrial development environmental pollution has become a severe problem for the ecosystem and public health Classical techniques for sensing and determining environmental contaminants often require complex pretreatments expensive equipment and longer testing times Therefore new and state of the art sensing technologies possessing the advantages of excellent sensitivity rapid detection ease of use and suitability for in situ real time and continuous monitoring of environmental pollutants are highly desirable Metal Organic Frameworks based Hybrid Materials for Environmental Sensing and Monitoring covers the current state of the art hybrid nanomaterials based on metal organic frameworks for electrochemical monitoring purposes Accomplished authors cover various synthetic routes methods and theories behind enhancing the electrochemical properties and applications of metal organic frameworks based hybrid nanomaterials for electrochemical sensing of environmental pollutants under one roof This book is essential reading for all academic and industrial researchers working in the fields of materials science and nanotechnology

Molecular Mechanisms of Alcohol Grace Y. Sun, P. Kevin Rudeen, W. Gibson Wood, Yau Huei Wei, Albert Y. Sun, 2012-12-06 Alcohol abuse throughout the world is associated with serious social and medical implications Problems such as intoxication tolerance and development of physical dependence have been well recognized The central nervous system and the liver are especially affected There is little doubt that alcohol abuse can result in organ damage which in turn leads to deleterious health consequences to the individual Understanding ethanol action presents a special and functional diver challenge because of its molecular simplicity In fact the ability for alcohol to disrupt cellular function is attributed to its cellular injury without

regard to an apparent specific mechanism of action Nevertheless the key to an effective treatment to this problem is through research into understanding the mechanisms underlying how ethanol interacts with cells and membranes This book is the result of a cooperative effort among scientists from many nations who met in a symposium in Taipei Taiwan ROC July 1988 The focus of this book is on experimental approaches to better understand the molecular mechanisms of ethanol on the biological system These recent advances in the examination of the alcohol effects on cellular function are divided into four sections The first section addresses specific actions of ethanol on the central nervous system The second section is directed to the use of cell cultures in ethanol research and the usefulness of cell cultures in examination of the effects of ethanol in vitro

Immobilised Macromolecules: Application Potentials U.B. Sleytr, P. Messner, D. Pum, M. Sara, 2013-06-29 Immobilized functional biomolecules particularly enzymes are important tools in biotechnology biochemistry biochemical engineering biomedicine and biosensor research This book provides an introduction and overview of selected major areas of the science and technology of immobilized systems The chapters are intended as an introduction and overview to these interdisciplinary areas as well as a source of practical details and of new research trends This book will be useful for scientists technologists academics and students in direct and related fields

Advanced Molecularly Imprinting Materials Ashutosh Tiwari, Lokman Uzun, 2016-11-02 Molecularly imprinted polymers MIPs are an important functional material because of their potential implications in diverse research fields The materials have been developed for a range of uses including separation environmental biomedical and sensor applications In this book the chapters are clustered into two main sections Strategies to be employed when using the affinity materials and rational design of MIPs for advanced applications In the first part the book covers the recent advances in producing MIPs for sample design preparation and characterizations In the second part the chapters demonstrate the importance and novelty of creation of recognition imprinted on the materials and surfaces for a range of microbial detection sensors in the biomedical environmental and food safety fields as well as sensing human odor and virus monitoring systems Part 1 Strategies of affinity materials Molecularly imprinted polymers MIP nanomaterials Micro and nanotraps for solid phase extraction Carbonaceous affinity nanomaterials Fluorescent MIPs MIP based fiber optic sensors Part 2 Rational design of MIP for advanced applications MIP based biomedical and environmental sensors Affinity adsorbents for environmental biotechnology MIP in food safety MIP based virus monitoring MIP based drug delivery and controlled release Biorecognition imprints on the biosensor surfaces MIP based sensing of volatile organic compounds in human body odour MIP based microcantilever sensor system

Neoplastic Transformation in Human Cell Culture John S. Rhim, Anatoly Dritschilo, 2012-12-06 The role of carcinogenic agents in the development of human cancers is now being defined using a variety of human cells as experimental model systems A workshop on neoplastic transformation in human cell systems in vitro mechanisms of carcinogenesis was held at the Georgetown University Medical Center Washington DC on April 25 26 1991 The aims of the workshop were to present the

state of the art in the transformation of human cells in culture as well as to provide insight into the molecular and cellular changes involved in the conversion of normal cells to a neoplastic state of growth The following topics were closely related to the theme of the workshops 1 Derivation of in vitro model systems epithelial fibroblastic and hematopoietic 2 Factors modulating cellular transformation 3 Usefulness of defined in vitro model systems for viral chemical and radiation carcinogenesis 4 Multistep nature of human cell carcinogenesis 5 Role of activated and suppressor oncogenes in neoplastic transformation The workshop was organized by J S Rhim and A Dritschilo cochairmen G Jay J little M McCormick R Tennant and R R Weischelbaum There were 32 speakers 30 poster presentations and about 190 participants

Microbial and Natural Macromolecules Surajit Das, Hirak Ranjan Dash, 2020-09-15 Microbial and Natural Macromolecules Synthesis and Applications brings together active scientists and academicians in the field who share updated information and research outcomes from global experts Microbial macromolecular diversity molecular composition genetics usability of advanced molecular tools and techniques for their study as well as their applicability are discussed with detailed research perspectives Illustrates fundamental discoveries and methodological advancements Discusses novel functional attributes of macromolecules Updates progress on microbial macromolecular research

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Table of Contents Macromolecular Biorecognition

1. Understanding the eBook Macromolecular Biorecognition
 - The Rise of Digital Reading Macromolecular Biorecognition
 - Advantages of eBooks Over Traditional Books
2. Identifying Macromolecular Biorecognition
 - Exploring Different Genres
 - Considering Fiction vs. Non-Fiction
 - Determining Your Reading Goals
3. Choosing the Right eBook Platform
 - Popular eBook Platforms
 - Features to Look for in an Macromolecular Biorecognition
 - User-Friendly Interface
4. Exploring eBook Recommendations from Macromolecular Biorecognition
 - Personalized Recommendations
 - Macromolecular Biorecognition User Reviews and Ratings
 - Macromolecular Biorecognition and Bestseller Lists
5. Accessing Macromolecular Biorecognition Free and Paid eBooks
 - Macromolecular Biorecognition Public Domain eBooks
 - Macromolecular Biorecognition eBook Subscription Services
 - Macromolecular Biorecognition Budget-Friendly Options

6. Navigating Macromolecular Biorecognition eBook Formats
 - ePub, PDF, MOBI, and More
 - Macromolecular Biorecognition Compatibility with Devices
 - Macromolecular Biorecognition Enhanced eBook Features
7. Enhancing Your Reading Experience
 - Adjustable Fonts and Text Sizes of Macromolecular Biorecognition
 - Highlighting and Note-Taking Macromolecular Biorecognition
 - Interactive Elements Macromolecular Biorecognition
8. Staying Engaged with Macromolecular Biorecognition
 - Joining Online Reading Communities
 - Participating in Virtual Book Clubs
 - Following Authors and Publishers Macromolecular Biorecognition
9. Balancing eBooks and Physical Books Macromolecular Biorecognition
 - Benefits of a Digital Library
 - Creating a Diverse Reading Collection Macromolecular Biorecognition
10. Overcoming Reading Challenges
 - Dealing with Digital Eye Strain
 - Minimizing Distractions
 - Managing Screen Time
11. Cultivating a Reading Routine Macromolecular Biorecognition
 - Setting Reading Goals Macromolecular Biorecognition
 - Carving Out Dedicated Reading Time
12. Sourcing Reliable Information of Macromolecular Biorecognition
 - Fact-Checking eBook Content of Macromolecular Biorecognition
 - Distinguishing Credible Sources
13. Promoting Lifelong Learning
 - Utilizing eBooks for Skill Development
 - Exploring Educational eBooks
14. Embracing eBook Trends
 - Integration of Multimedia Elements

- Interactive and Gamified eBooks

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