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Biotechnology And Bioinformatics Advances And Applications For Bioenergy Bioremediation And Biopharmaceutical Research

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Single-Cell Omics
Biotechnology and Bioinformatics
Bioinformatics in Agriculture
Proceedings of the 2nd International Conference on Applied Biotechnology (ICAB 2014)-Volume I
OMICS-Based Approaches in Plant Biotechnology
Bioinformatics of Non-Coding RNAs with Applications to Biomedicine: Recent Advances and Open Challenges
Advances in Biotechnology Research and Application: 2011 Edition
Multidisciplinary Applications
Computational Biology and Bioinformatics
Advances and Applications for Bioenergy, Bioremediation and Biopharmaceutical Research
The Ethical Issues Arising from Technological Advances
Volume 2: Technological Advances and Applications
A Practical Approach
Biotechnology and Bioinformatics
Bioinformatics for Everyone
Advances in Biotechnology Research and Application: 2012 Edition
Advances in Synthetic Biology
Sustainable Production and Bioresource Utilization
Advances in Biotechnology Research and Application: 2011 Edition

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YADIRA JOSEPH

Academic Press
Bioinformatics in Agriculture: Next Generation Sequencing Era is a comprehensive volume presenting an integrated research and development approach to the practical application of genomics to improve agricultural crops. Exploring both the theoretical and applied aspects of computational biology, and focusing on the innovation processes, the book highlights the increased productivity of a translational approach. Presented in four sections and including insights from experts from around the world, the book includes: Section I: Bioinformatics and Next Generation Sequencing Technologies; Section II: Omics Application; Section III: Data mining and Markers Discovery; Section IV: Artificial Intelligence and Agribots. Bioinformatics in Agriculture: Next Generation Sequencing Era explores deep sequencing, NGS, genomic, transcriptome analysis and multiplexing, highlighting practices forreducing time, cost, and effort for the analysis of gene as they are pooled, and sequenced. Readers will gain real-world information on computational biology, genomics, applied data mining, machine learning, and artificial intelligence. This book serves as a complete package for advanced undergraduate students, researchers, and scientists with an interest in bioinformatics. Discusses integral aspects of molecular biology and pivotal tool sfor molecular breeding Enables breeders to design cost-effective and efficient breeding strategies Provides examples ofinnovative genome-wide marker (SSR, SNP) discovery Explores both the theoretical and practical aspects of computational biology with focus on innovation processes Covers recent trends of bioinformatics and different tools and techniques
Single-Cell Omics Biotechnology and BioinformaticsAdvances and Applications for Bioenergy, Bioremediation and Biopharmaceutical Research
Advances in high-throughput biological methods have led to the publication of a large number of genome-wide studies in human and animal models. In this context, recent tools from bioinformatics and computational biology have been fundamental for the analysis of these genomic studies. The book Bioinformatics and Human Genomics Research provides updated and comprehensive information about multiple approaches of the application of bioinformatic tools to research in human genomics. It covers strategies analysis of genome-wide association studies, genome-wide expression studies and genome-wide DNA methylation, among other topics. It provides interesting strategies for data mining in human genomics, network analysis, prediction of binding sites for miRNAs and transcription factors, among other themes. Experts from all around the world in bioinformatics and human genomics have contributed chapters in this book. Readers will find this book as quite useful for their in silico explorations, which would contribute to a better and deeper understanding of multiple biological processes and of pathophysiology of many human diseases.
Biotechnology and Bioinformatics CRC Press
Advances in Biotechnology Research and Application: 2011 Edition is a ScholarlyEditions™ eBook that delivers timely, authoritative, and comprehensive information about Biotechnology. The editors have built Advances in Biotechnology Research and Application: 2011 Edition on the vast information databases of ScholarlyNews.™ You can expect the information about Biotechnology in this eBook to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Advances in Biotechnology Research and Application: 2011 Edition has been produced by the world's leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at http://www.ScholarlyEditions.com/.
Bioinformatics in Agriculture Springer Science & Business Media
Biotechnology and BioinformaticsAdvances and Applications for Bioenergy, Bioremediation and Biopharmaceutical ResearchCRC Press
Proceedings of the 2nd International Conference on Applied Biotechnology (ICAB 2014)-Volume I Royal Society of Chemistry
This book covers a range of topics on exploiting Nigeria's mega biodiversity for food security and health; DNA forensic science and its applications; medical biotechnology and biopharmaceutics; medicinal and underutilized plants; impact and mitigation of antibiotic resistance; bioinformatics applications; medical insect biotechnology; etc. The book will be useful reference material for the scientists and researchers working in the fields of nutraceuticals, molecular diagnostics and DNA forensics, biopharmaceuticals and medical biotechnology, nanotechnology, antimicrobials from indigenous plant species, bioinformatics, etc. Emphasizes recent advances in biotechnologies that will help in tackling emerging global health challenges Provides detailed information on how to harness indigenous bioresources including microorganisms and plants for healthcare delivery Introduces new frontiers in the areas of molecular diagnostics and DNA forensic science and bioinformatics with case studies, recent advances in medical insect biotechnology and molecular genetics of pest use towards the exploitation of arthropod midgut components to develop interventions against infectious diseases Reviews bioactive molecules derived from commonly used and underutilized medicinal plants that could be used to develop novel drugs for improved healthcare delivery Discusses current approaches in medical and biopharmaceutical biotechnology, deployment of inexpensive genomics-based vector surveillance for effective disease outbreak prediction and control of mosquito-borne viruses Hajiya Mairo Inuwa, Ph.D., is Professor in the Department of Biochemistry and Formerly Director, Centre for Biotechnology Research and Training (CBR&T), Ahmadu Bello University, Zaria, Nigeria. Ifeoma Maureen Ezeonu, Ph.D., is Professor of Medical Microbiology and Molecular Genetics in the Department of Microbiology, University of Nigeria, Nsukka, Nigeria. Charles Oluwaseun Adetunji, Ph.D., is Associate Professor of Microbiology and Biotechnology and Director of Intellectual Property and Technology Transfer, Edo State University, Uzairue, Nigeria. Abubakar Gidado, Ph.D., is Professor of Biochemistry and Director of North-East Zonal Biotechnology Centre of Excellence at the University of Maiduguri. Emmanuel Olufemi Ekundayo, Ph.D., is Associate Professor of Medical Microbiology and Microbial Genetics, Michael Okpara University of Agriculture, Umudike, Nigeria. Abdulrazak B. Ibrahim, Ph.D., is a Capacity Development Expert at the Forum for Agricultural Research in Africa (FARA) and Associate Professor of Biochemistry, Ahmadu Bello University, Zaria, Nigeria. Benjamin Ewa Ubi, Ph.D., is a Professor of Plant Breeding and Biotechnology and Director, Biotechnology Research and Development Centre, Ebonyi State University, Abakaliki, Nigeria.
OMICS-Based Approaches in Plant Biotechnology John Wiley & Sons
This book presents the latest developments in bioinformatics, highlighting the importance of bioinformatics in genomics, transcriptomics, metabolism and cheminformatics analysis, as well as in drug discovery and development. It covers tools, data mining and analysis, protein analysis, computational vaccine, and drug design. Covering cheminformatics, computational evolutionary biology and the role of next-generation sequencing and neural network analysis, it also discusses the use of bioinformatics tools in the development of precision medicine. This book offers a valuable source of information for not only beginners in bioinformatics, but also for students, researchers, scientists, clinicians, practitioners, policymakers, and stakeholders who are interested in harnessing the potential of bioinformatics in many areas.
Bioinformatics of Non-Coding RNAs with Applications to Biomedicine: Recent Advances and Open Challenges Academic Press
This textbook has been conceptualized to provide a detailed description of the various aspects of Systems and Synthetic Biology, keeping the requirements of M.Sc. and Ph.D. students in mind. Also, it is hoped that this book will mentor young scientists who are willing to contribute to this area but do not know from where to begin. The book has been divided into two sections. The first section will deal with systems biology – in terms of the foundational understanding, highlighting issues in biological complexity, methods of analysis and various aspects of modelling. The second section deals with the engineering concepts, design strategies of the biological systems ranging from simple DNA/RNA fragments, switches and oscillators, molecular pathways to a complete synthetic cell will be described. Finally, the book will offer expert opinions in legal, safety, security and social issues to present a well-balanced information both for students and scientists.
Advances in Biotechnology Research and Application: 2011 Edition CRC Press
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Multidisciplinary Applications CRC Press

This book addresses the design of emerging conceptual tools, technologies and systems including novel synthetic parts, devices, circuits, oscillators, biological gates, and small regulatory RNAs (riboregulators and riboswitches), which serve as versatile control elements for regulating gene expression. Synthetic biology, a rapidly growing field that involves the application of engineering principles in biology, is now being used to develop novel systems for a wide range of applications including diagnostics, cell reprogramming, therapeutics, enzymes, vaccines, biomaterials, biofuels, fine chemicals and many more. The book subsequently summarizes recent developments in technologies for assembling synthetic genomes, minimal genomes, synthetic biology toolboxes, CRISPR-Cas systems, cell-free protein synthesis systems and microfluidics. Accordingly, it offers a valuable resource not only for beginners in synthetic biology, but also for researchers, students, scientists, clinicians, stakeholders and policymakers interested in the potential held by synthetic biology.

Computational Biology and Bioinformatics ScholarlyEditions

Single-cell Omics, Volume 2: Advances in Applications provides the latest single-cell omics applications in the field of biomedicine. The advent of omics technologies have enabled us to identify the differences between cell types and subpopulations at the level of the genome, proteome, transcriptome, epigenome, and in several other fields of omics. The book is divided into two sections: the first is dedicated to biomedical applications, such as cell diagnostics, non-invasive prenatal testing (NIPT), circulating tumor cells, breast cancer, gliomas, nervous systems and autoimmune disorders, and more. The second focuses on cell omics in plants, discussing micro algal and single cell omics, and more. This book is a valuable source for bioinformaticians, molecular diagnostic researchers, clinicians and several members of biomedical field interested in understanding more about single-cell omics and its potential for research and diagnosis. Covers the diverse single cell omics applications in the biomedical field Summarizes the latest progress in single cell omics and discusses potential future developments for research and diagnosis Written by experts across the world, it brings different points-of-view and study cases to fully give a comprehensive overview of the topic

Advances and Applications for Bioenergy, Bioremediation and Biopharmaceutical Research Academic Press

The advances in biotechnology such as the next generation sequencing technologies are occurring at breathtaking speed. Advances and breakthroughs give competitive advantages to those who are prepared. However, the driving force behind the positive competition is not only limited to the technological advancement, but also to the companion data analytical skills and computational methods which are collectively called computational biology and bioinformatics. Without them, the biotechnology-output data by itself is raw and perhaps meaningless. To raise such awareness, we have collected the state-of-the-art research works in computational biology and bioinformatics with a thematic focus on gene regulation in this book. This book is designed to be self-contained and comprehensive, targeting senior undergraduates and junior graduate students in the related disciplines such as bioinformatics, computational biology, biostatistics, genome science, computer science, applied data mining, applied machine learning, life science, biomedical science, and genetics. In addition, we believe that this book will serve as a useful reference for both bioinformaticians and computational biologists in the post-genomic era.

The Ethical Issues Arising from Technological Advances National Academies Press

The book embodies 22 chapters covering various important disciplines of biotechnology, such as cell biology, molecular biology, molecular genetics, biophysical methods, genomics and proteomics, metagenomics, enzyme technology, immune-technology, transgenic plants and animals, industrial microbiology and environmental biotechnology. The book is illustrative. It is written in a simple language

Volume 2: Technological Advances and Applications S. Chand Publishing

Named #1 of 15 Best New Biotechnology Books to Read in 2021 by BookAuthority. This volume explores and explains the vast uses and benefits of algae as food, feed, and fuel. It covers the most advanced applications of algae in the food and feed industries and for environmental sustainability. With chapters written by experts and which were extensively reviewed by many well-known subject experts and professionals, Phycobiotechnology: Biodiversity and Biotechnology of Algae and Algal Products for Food, Feed, and Fuel provides an abundance of valuable information. Algae are a genetically diverse group of organisms with a wide range of physiological and biochemical characteristics that have unique capabilities in the fields of agriculture, pharmaceuticals, industry, and environment. Algae hold the potential to become the planet's next major source of energy and a vital part of the solution for climate change and dependence on fossil fuels. Many varieties of algae are also known to be an abundant source of vitamins, minerals, and other nutrients that can boost the human immune system.

A Practical Approach ScholarlyEditions

This popular textbook has been revised and updated to provide a comprehensive overview and to reflect the latest developments in this rapidly developing area. Advances in basic research at the molecular level have provided many insights into biological processes and allowed the production of new developments across the fields of genome editing, proteomics, agriculture, microbial biotechnology, bioinformatics and therapeutics. This new edition provides the reader with a number of key areas in discrete chapters either updated from the previous edition or written as entirely new chapters concerning emerging fields. By presenting information in an easily assimilated form, this book makes an ideal undergraduate text for students of biology and chemistry, as well as appealing to postgraduates.

Biotechnology and Bioinformatics Springer Science & Business Media

Over the past few decades, major advances in the field of molecular biology, coupled with advances in genomic technologies, have led to an explosive growth in the biological information generated by the scientific community. This surge of genomic information has, in turn, led to an absolute requirement for computerized databases to store, organize, and index the data and for specialized tools to view and analyze the data. There are many tools in bioinformatics, with many functions to suit the needs and expertise of the scientists using them. Gene and protein databases are constantly being updated with information that aid scientists all around the world, in whatever field of the life sciences they are working. Bioinformatics carries benefits for plant researchers: it can aid in plant breeding and genetic engineering, and allow plant scientists to produce better crops for the future. By knowing which plants are closely related, scientists can figure out which sexually compatible species have desirable characteristics (such as longer stalks for rice plants, or larger grains for barley, corn, or wheat). The wild relatives of today's plants may be sources of crop improvement genes. This information, in conjunction with appropriate technology, may provide predictive measures of plant health and quality and become part of future breeding decision management systems. Next-generation sequencing coupled with high-performance computing methods have revolutionized the field of plant breeding and genetics. The volume Biotechnology and Bioinformatics contains recent advances in certain biotechnological applications. It presents some of the key concepts, methods, software packages, and databases used in bioinformatics, with an emphasis on those relevant to plant science. It also cover some fundamental issues related to biological sequence analyses, transcriptome analyses, computational proteomics, computational metabolomics, bio-ontologies, and biological databases. A focus on a few emerging research topics in bioinformatics is given. This book will be very helpful to the undergraduate and postgraduate students, researchers, teachers of microbiology, biotechnology, agriculture and horticulture.

Bioinformatics for Everyone

CRC Press

Advances in computers and biotechnology have had a profound impact on biomedical research, and as a result complex data sets can now be generated to address extremely complex biological questions. Correspondingly, advances in the statistical methods necessary to analyze such data are following closely behind the advances in data generation methods. The statistical methods required by bioinformatics present many new and difficult problems for the research community. This book provides an introduction to some of these new methods. The main biological topics treated include sequence analysis, BLAST, microarray analysis, gene finding, and the analysis of evolutionary processes. The main statistical techniques covered include hypothesis testing and estimation, Poisson processes, Markov models and Hidden Markov models, and multiple testing methods. The second edition features new chapters on microarray analysis and on statistical inference, including a discussion of ANOVA, and discussions of the statistical theory of motifs and methods based on the hypergeometric distribution. Much material has been clarified and reorganized. The book is written so as to appeal to biologists and computer scientists who wish to know more about the statistical methods of the field, as well as to trained statisticians who wish to become involved with bioinformatics. The earlier chapters introduce the concepts of probability and statistics at an elementary level, but with an emphasis on material relevant to later chapters and often not covered in standard introductory texts. Later chapters should be immediately accessible to the trained statistician. Sufficient mathematical background consists of introductory courses in calculus and linear algebra. The basic biological concepts that are used are explained, or can be understood from the context, and standard mathematical concepts are summarized in an Appendix. Problems are provided at the end of each chapter allowing the reader to develop aspects of the theory outlined in the main text. Warren J. Ewens holds the Christopher H. Brown Distinguished Professorship at the University of Pennsylvania. He is the author of two books, Population Genetics and Mathematical Population Genetics. He is a senior editor of Annals of Human Genetics and has served on the editorial boards of Theoretical Population Biology, GENETICS, Proceedings of the Royal Society B and SIAM Journal in Mathematical Biology. He is a fellow of the Royal Society and the Australian Academy of Science. Gregory R. Grant is a senior bioinformatics researcher in the University of Pennsylvania Computational Biology and Informatics Laboratory. He obtained his Ph.D. in number theory from the University of Maryland in 1995 and his Masters in Computer Science from the University of Pennsylvania in 1999. Comments on the first edition: "This book would be an ideal text for a postgraduate course...[and] is equally well suited to individual study.... I would recommend the book highly." (Biometrics) "Ewens and Grant have given us a very welcome introduction to what is behind those pretty [graphical user] interfaces." (Naturwissenschaften) "The authors do an excellent job of presenting the essence of the material without getting bogged down in mathematical details." (Journal American Statistical Association) "The authors have restructured classical material to a great extent and the new organization of the different topics is one of the outstanding services of the book." (Metrika)

Advances in Biotechnology Research and Application: 2012 Edition Springer Science & Business Media

Introductio to bioinformatics. Overview of structural bioinformatics. Database warehousing in bioinformatics. Modeling for bioinformatics. Pattern matching for motifs. Visualization and fractal analysis of biological sequences. Microarray data analysis.

Advances in Synthetic Biology Academic Press

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Sustainable Production and Bioresource Utilization Frontiers Media SA

At the ICAB 2014, researchers from around the world will gather to discuss the latest scientific research, findings and technologies concerning Microbial Genetics and Breeding, Optimization and Control of Biological Processes, Biological Separation and Biological Purification, and Advances in Biotechnology. This conference will provide a platform for academic exchange on the application of biotechnology between domestic and international universities, research institutes, corporate experts and scholars. The participants will focus on the international development and future trends. The event will lay a solid foundation for addressing key technical challenges in various areas of applied biotechnology, providing opportunities to promote the development and expansion of the biotechnology industry.

Advances in Biotechnology Research and Application: 2011 Edition

Springer Nature

Translational Bioinformatics in Healthcare and Medicine offers an overview of main principles of bioinformatics, biological databases, clinical informatics, health informatics, viroinformatics and real-case applications of translational bioinformatics in healthcare. Written by experts from both technology and clinical sides, the content brings together essential knowledge to make the best of recent advancements of the field. The book discusses topics such as next generation sequence analysis, genomics in clinical care, IoT applications, blockchain technology, patient centered interoperability of EHR, health data mining, and translational bioinformatics methods for drug discovery and drug repurposing. In addition, it discusses the role of bioinformatics in cancer research and viroinformatics approaches to counter viral diseases through informatics. This is a valuable resource for bioinformaticians, clinicians, healthcare professionals, graduate students and several members of biomedical field who are interested in learning more about how bioinformatics can impact in their research and practice. Covers recent advancements in translational

bioinformatics and its healthcare applications Discusses integrative and multidisciplinary approaches to U-healthcare systems development and management Bridges the gap among various knowledge domains in the field, integrating both technological and clinical knowledge into practical content