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Bioluminescence

Methods and Protocols

Second Edition

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Bioluminescence Methods And Protocols Methods In Molecular Biology

Sung Bae Kim



Bioluminescence Methods And Protocols Methods In Molecular Biology:

Bioluminescence: Chemical Principles And Methods (Revised Edition) Osamu Shimomura,2012-03-27 This book is an authoritative monograph on the recent progresses in the chemistry of bioluminescence It provides a comprehensive overview of the past and the latest developments in understanding the biochemical mechanisms of some 35 different types of luminous organisms together with information helpful to students and researchers in an Appendix It is the first and only book that provides chemical information on all currently known bioluminescence systems Dr Shimomura is the leading practitioner in the field for the past half century and is best known for his discovery of the jellyfish photoprotein aequorin and the green fluorescent protein This book is the bible of bioluminescence and is a must read not only for the students who study bioluminescence but also for those who work in various aspects relating to bioluminescence This book will be an important source of chemical knowledge on bioluminescence for a long period of time in future Fully revised since its publication in 2006 it now incorporates the most recent advances in the subject area A new section on Green Fluorescent Protein has been added at the end of Chapter 4 It contains an extensive reference section

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Glycoanalysis Protocols Elizabeth F. Hounsell, 2008-02-02 Glycoanalysis Protocols Second Edition makes available to all protein scientists and particularly those working in today's pharmaceuticals industry the most advanced and reproducible glycoanalysis techniques These detailed up to date and proven analytical methods cover the areas of glycoprotein macromolecular structural analysis oligosaccharide profiling lipid conjugate characterization microorganism structure determination and proteoglycan function They also include advanced analytical techniques in biotechnology during the production of recombinant glycoproteins and other therapeutics These protocols will well serve anyone starting work on the analysis of glycoproteins as well as experienced investigators seeking to carry their expertise to higher levels of accomplishment

Molecular Methods in Developmental Biology Matt Guille, 2008-02-03 The process whereby a single cell the fertilized egg develops into an adult has fascinated for centuries Great progress in understanding that process has been made in the last two decades when the techniques of molecular biology have become available to developmental biologists By applying these techniques the exact nature of many of the interactions responsible for forming the body pattern are now being revealed in detail Such studies are a large and it seems ever expanding part of most life science groups It is at newcomers to this field that this book is primarily aimed A number of different plants and animals serve as common model organisms for developmental studies In Molecular Methods in Developmental Biology Xenopus and Zebrafish a range of the molecular methods applicable to two of these organisms are described these are the South African clawed frog Xenopus laevis and the zebrafish Brachydanio rerio The embryos of both of these species develop rapidly and externally making them particularly suited to investigations of early vertebrate development However both Xenopus and zebrafish have their own advantages and disadvantages Xenopus have large robust embryos that can be manipulated surgically with ease but their pseudotetraploidy and long generation time make them unsuitable candidates for genetics This disadvantage may soon be overcome by using the diploid Xenopus tropicalis and early experiments are already underway The transparent embryos of zebrafish render them well suited for in situ hybridization and immunohistochemistry and good for observing mutations in genetic screens

Nuclease Methods and Protocols Catherine H. Schein, 2008-02-03 Nucleases enzymes that restructure or degrade nucleic acid polymers are vital to the control of every area of metabolism They range from housekeeping enzymes with broad substrate ranges to extremely specific tools 1 Many types of nucleases are used in lab protocols and their commercial and clinical uses are expanding The purpose of Nuclease Methods and Protocols is to introduce the reader to some well characterized protein nucleases and the methods used to determine their activity structure interaction with other

molecules and physiological role Each chapter begins with a mini review on a specific nuclease or a nuclease related theme Although many chapters cover several topics they were arbitrarily divided into five parts Part I Characterizing Nuclease Activity includes protocols and assays to determine general processive distributive or specific mechanisms Methods to assay nuclease products identify cloned nucleases and determine their physiological role are also included here Part II Inhibitors and Activators of Nucleases summarizes assays for measuring the effects of other proteins and small molecules Many of these inhibitors have clinical relevance Part III Relating Nuclease Structure and Function provides an overview of methods to determine or model the 3 D structure of nucleases and their complexes with substrates and inhibitors A 3 D structure can greatly aid the rational design of nucleases and inhibitors for specific purposes Part IV Nucleases in the Clinic summarizes assays and protocols suitable for use with tissues and for nuclease based therapeutics *Bioluminescent Imaging* Christian E. Badr,2014 Bioluminescent Imaging Methods and Protocols distills a wide range of techniques that use bioluminescence imaging as a tool for visualizing and tracking various biological processes Covering diverse fields such as cellular and molecular biology oncology neurology infectious diseases immunology and others the detailed chapters of this volume are arranged by topic and describe practical procedures and applications of different bioluminescent reporters from photoproteins Aequorin to bacterial luciferases as well as other secreted such as Gaussia and non secreted luciferases such as Firefly 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 expert tips for troubleshooting and avoiding known pitfalls Authoritative and cutting edge Bioluminescent Imaging Methods and Protocols aims to provide diverse and comprehensive techniques to researchers interested in implementing bioluminescence based imaging in their laboratory regardless of their previous level of experience with such methodologies

Integrin Protocols Anthony R. Howlett,2008-02-03

Confocal Microscopy Stephen W. Paddock,2008-02-03

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