
**A
GUIDE
TO THE
POLYAMINES**

REYNOLD B. COHEN

Guide To The Polyamines

Mohammad Pessarakli



Guide To The Polyamines:

A Guide to the Polyamines Seymour Stanley Cohen, 1998 The polyamines are ubiquitous and essential organic cations in prokaryotic and eukaryotic cells This book is a comprehensive survey of the development of knowledge of their physiological and structural roles Currently the genetic and regulatory determinants of the amines and their cellular composition are being explored actively as parameters of normal physiology and aberrant pathologies Cancer virus infection and protozoan parasitism are major examples of the later groups Studies of the control of polyamine metabolism are providing important therapeutic leads Further the structural roles of the amines are being determined at molecular levels contributing to the understanding of polynucleotide and protein organization and interaction as well as to the solution of problems of genome transfer These subjects describe a burgeoning biochemical area involving compounds whose roles in cytoplasmic and nuclear function include numerous aspects of organelle structure polymer synthesis and interactions

Plant Polyamines Taku Takahashi, 2020-06-17 Polyamines are small organic compounds found in all living organisms In recent years there have been many exciting advances in our understanding of plant polyamines such as the determination of the biosynthetic and catabolic pathways of plant polyamines and the identification of the roles that plant polyamines play in cellular processes This Special Issue contains six original research papers and three review articles providing valuable insights and information for future polyamine related research

Polyamines in Plant Biotechnology, Food Nutrition and Human Health Rubén Alcázar, Ana Margarida Fortes, Antonio F. Tiburcio, 2020-03-24 [Polyamine Cell Signaling](#)

Jian-Ying Wang, 2007-11-19 Polyamines are organic cations found in all eukaryotic cells and intimately involved in and required for distinct biological functions An increasing body of evidence indicates that the regulation of cellular polyamines is a central convergence point for the multiple signaling pathways driving various cellular functions Over the last decade considerable progress has been made in understanding the molecular functions of cellular polyamines These significant findings provide a fundamental basis to not only define the exact role of polyamines in physiology but also to develop new therapeutic approaches for cancers and other diseases The major objective of this book is to provide a timely and long lasting guide for investigators in the fields of polyamines physiology pharmacology and cancer research It will provide a foundation based on research and address the potential for subsequent applications in clinical practice Polyamine Cell Signaling Physiology Pharmacology and Cancer Research is divided into four main parts Part I Polyamines in Signal Transduction of Cell Proliferation Part II Polyamines in Cellular Signaling of Apoptosis Carcinogenesis and Cancer Therapy Part III Polyamines in Cell Motility and Cell Cell Interactions Part IV Polyamine Homeostasis and Transport This book not only covers the current state of the art findings relevant to cellular and molecular functions of polyamines but also provides the underlying conceptual basis and knowledge regarding potential therapeutic targeting of polyamines and polyamine metabolism These points are addressed by internationally recognized experts in their contributions to this book

Handbook of Plant and Crop Physiology Mohammad Pessarakli, 2014-03-21 Continuous discoveries in plant and crop physiology have resulted in an abundance of new information since the publication of the second edition of the Handbook of Plant and Crop Physiology necessitating a new edition to cover the latest advances in the field Like its predecessors the Third Edition offers a unique complete collection of topics **Plant polyamines in stress and development** Rubén

Alcázar, Antonio F. Tiburcio, 2014-10-24 Polyamines are small aliphatic polycations which have been involved in key stress and developmental processes in plants In the recent years compelling genetic and molecular evidences point to polyamines as essential metabolites required for resistance to drought freezing salinity oxidative stress among other type of abiotic and biotic stresses In addition to their role as stress protective compounds polyamines participate in key developmental processes mediated by specific signaling pathways or in cross regulation with other plant hormones Our Research Topic aims to integrate the multiple stress and developmental regulatory functions of polyamines in plants under a genetic molecular and evolutionary perspective with special focus on signaling networks mechanisms of action and metabolism regulation

Polyamine Metabolism in Disease and Polyamine-Targeted Therapies Tracy Murray-Stewart, 2019-10-01 Polyamines are ubiquitous polycations essential for all cellular life The most common polyamines in eukaryotes spermine spermidine and putrescine exist in millimolar intracellular concentrations that are tightly regulated through biosynthesis catabolism and transport Polyamines interact with and regulate negatively charged macromolecules including nucleic acids proteins and ion channels Accordingly alterations in polyamine metabolism affect cellular proliferation and survival through changes in gene expression and transcription translation autophagy oxidative stress and apoptosis Dysregulation of these multifaceted polyamine functions contribute to multiple disease processes thus their metabolism and function have been targeted for preventive or therapeutic intervention The correlation between elevated polyamine levels and cancer is well established and ornithine decarboxylase the rate limiting biosynthetic enzyme in the production of putrescine is a bona fide transcriptional target of the Myc oncogene Furthermore induced polyamine catabolism contributes to carcinogenesis that is associated with certain forms of chronic infection and or inflammation through the production of reactive oxygen species These and other characteristics specific to cancer cells have led to the development of polyamine based agents and inhibitors aimed at exploiting the polyamine metabolic pathway for chemotherapeutic and chemopreventive benefit In addition to cancer polyamines are involved in the pathologies of neurodegenerative diseases including Alzheimer s and Parkinson s parasitic and infectious diseases wound healing ischemia reperfusion injuries and certain age related conditions as polyamines are known to decrease with age As in cancer polyamine based therapies for these conditions are an area of active investigation With recent advances in immunotherapy interest has increased regarding polyamine associated modulation of immune responses as well as potential immunoregulation of polyamine metabolism the results of which could have relevance to multiple disease processes The goal of this Special Issue of Medical Sciences is to present the most recent advances in

polyamine research as it relates to health disease and or therapy **Enzymes of Polyamine Metabolism** ,2025-05-19
 Enzymes of Polyamine Metabolism Volume 715 highlights new advances in the field with this new volume presenting interesting chapters on topics such as Convergence of MYC and the hypusine circuits in the control of metabolism HDAC10 structure and enzymology TR FRET Assay for Profiling HDAC10 Inhibitors and PROTACs Polyamine Transport Inhibitors Methods and caveats associated with measuring polyamine uptake in mammalian cells Evaluation of platinum drug toxicity resulting from polyamine catabolism Measurements of acrolein adducts resulting from polyamine catabolism Alterations in polyamine metabolism induced by the pathogen *Helicobacter pylori* implications for gastric inflammation and carcinogenesis and much more Other sections delve into Molecular and biochemical analysis of eIF5A Analysis of in vivo SMOX activity Structure and role of ATP13A2 in polyamine transport Analysis of Translational Regulation Using Polysome Profiling and Puromycin Incorporation Targeting polyamine metabolism in an ex vivo prostatectomy model Development and characterization of a *Drosophila* model of SRS Monitoring ODC activity and polyamines in Bachmann Bupp syndrome patient biological samples Gene replacement therapy to restore polyamine metabolism Investigation of polyamine metabolism in bone homeostasis Collection preparation and biobanking of clinical specimens for polyamine analysis and many other topics Provides the latest information on biological research Offers outstanding and original reviews on a range of enzymes research topics Serves as an indispensable reference for researchers and students alike **Subject Guide to Books in Print** ,1993 Polyamines Tomonobu Kusano,Hideyuki Suzuki,2015-01-07 This book covers key topics in polyamine research from a range of organisms including plants mammals and prokaryotes such as bacteria and archaea The book provides an introduction to general concepts in the field of polyamine research as well as more detailed information With the availability of genome sequence data from a broad range of organisms the evolution of the genes involved in polyamine metabolism is discussed The mode of action of polyamines has been shown to be dependent on cation channels and this mechanism is described in the book The origin of polyamine transporters from bacteria yeasts and plants is described The various effects of polyamines on growth and survival are also documented The book details the mechanisms of polyamine homeostasis and the role of polyamine molecules as precursors of secondary metabolites such as plant alkaloids and toxins derived from spiders and wasps The role of polyamines in longevity and disease is discussed A link between polyamine contents and cancer progression is reported as is the use of polyamine metabolites as diagnostic markers in the initial stages of cancer Moreover a novel approach that utilizes the polyamine pathway of a parasite as a drug target in African sleeping sickness is described Therefore this book is a valuable resource both as a textbook for undergraduate and graduate students and also as a reference book for front line polyamine researchers **New-Generation Bioinorganic Complexes** Renata Jastrzab,Bartosz Tylkowski,2016-03-21 Bio Inorganic compounds are successfully applied as therapeutic agents since decades Thus scientist designed new metal complexes bearing biomolecules as ligands investigating their potential as

bioactive and therapeutic agents This book presents a comprehensive overview on materials design substance classes and their characterization This book is compiled for scientists interested in medical application of bioinspired materials

Methods for Studying Nucleic Acid/Drug Interactions Meni Wanunu, Yitzhak Tor, 2011-12-20 Since most therapeutic efforts have been predominantly focused on pharmaceuticals that target proteins there is an unmet need to develop drugs that intercept cellular pathways that critically involve nucleic acids Progress in the discovery of nucleic acid binding drugs naturally relies on the availability of analytical methods that assess the efficacy and nature of interactions between nucleic acids and their putative ligands This progress can benefit tremendously from new methods that probe nucleic acid ligand interactions both rapidly and quantitatively A variety of novel methods for these studies have emerged in recent years and Methods for Studying DNA Drug Interactions highlights new and non conventional methods for exploring nucleic acid ligand interactions Designed to present drug developing companies with a survey of possible future techniques the book compares their drawbacks and advantages with respect to commonly used tools Perhaps more importantly this book was written to inspire young scientists to continue to advance these methods into fruition especially in light of current capabilities for assay miniaturization and enhanced sensitivity using microfluidics and nanomaterials *Apicomplexan Parasites* Katja Becker, 2011-01-19 This handbook is the first dealing with the discovery of drugs directed against apicomplexan parasites Amongst others this group of endoparasites includes the causative agents of Malaria Toxoplasmosis and Babesiosis the latter occurring mainly in animals Written by renowned scientific experts from academia and industry the book focuses on current drug development approaches for all apicomplexan diseases making it appealing to a large audience ranging from research labs in academia to the human and veterinarian pharmaceutical industry This work is the second volume of the new book series *Drug Discovery in Infectious Diseases* edited by Prof Dr Paul M Selzer *Advances in Plant Physiology (Vol. 11)* A. Hemantaranjan, 2009-01-01 The configuration of Volume 11 of the International Treatise Series has been absolutely due to praiseworthy contributions from Scientists of global eminence This programme has been undertaken with a view to reinforce the indistinguishable efforts to recognize the outcome of scrupulous research in some of the very rational and stirring areas of Environmental and Molecular Physiology of Plants In order to sustain and further advance it is committed to maintain the originality and the introduction of novel ideas ensuring that the treatise welcomes the best science done across the full extent of modern plant biology in general and plant physiology in particular Indeed within the time span of twelve years this treatise has been duly recognized through Current Book Contents and other academic periodicals in the minds of distinguished readers and has beyond doubt achieved the international status It is reiterated that in spite of handiness of quick accessibility of vast literature from internet this treatise series in the field of life sciences has been realized over and above to be like a true guide friend and philosopher continually enlightening the most hidden perceptible nerves of an individual worker which is beyond the competence of mere internet web service It is glory to record that in Volume 11 with

inventive applied research attempts have been made to bring together much needed fifteen review articles by Fifty eight contributors from Brazil China Egypt France Germany India Switzerland and Tunisia duly evaluated by Consulting Editors of international stature from India U K U S A Argentina Australia France Germany Japan Spain Portugal Israel and Morocco and rationally disseminated in Seven Sections Creditably in this volume over five important reviews belong to the field of Environmental Stresses besides covering significant areas of research In genuineness the treatise is an achievement for interdisciplinary exchange of information It would be extremely a significant book and a voluminous reference material for acquiring advanced knowledge by post graduate and Ph D scholars in response to the innovative courses in Plant Physiology Plant Biochemistry Plant Molecular Biology Plant Biotechnology Environmental Sciences Plant Pathology Microbiology Soil Science Agricultural Chemistry Agronomy Horticulture and Botany besides fulfilling needs for research teams and scientists engaged in various facets of research in Molecular Physiology and Biology of Plants in traditional and agricultural universities institutes and research laboratories throughout the world

Embryogenesis Ken-Ichi Sato,2012-04-20 The book Embryogenesis is a compilation of cutting edge views of current trends in modern developmental biology focusing on gametogenesis fertilization early and or late embryogenesis in animals plants and some other small organisms Each of 27 chapters contributed from the authorships of world wide 20 countries provides an introduction as well as an in depth review to classical as well as contemporary problems that challenge to understand how living organisms are born grow and reproduce at the levels from molecule and cell to individual

Environment at Crossroads Challenges and Green Solutions Arun Arya,2020-07-17 The global environment has significantly changed due to a number of factors such as industrial pollution expansion of agricultural land way beyond the fringe forest zones destruction of virgin forests loss of quality agricultural lands due to soil erosion loss of global wildlife and biodiversity climate change global warming devastating forest fires floods draughts melting of glaciers to mention a few Human or anthropogenic impacts are in turn devastating the planet with our attention being shifted only to the shining aspect of our civilizations The most alarming fact about this hidden factor is that they are all directly or indirectly impacted by human activities in some way or other The present work Environment at Crossroads deals with various environmental problems like climate change global warming food security bioremediation of waste oil spills and problems of heavy metal toxicity control strategies like use of gene therapy conservation of mangroves revival of river Vishwamitri and role of plant and animals in biodiversity conservation is discussed

Bugs as Drugs Robert A. Britton,Patrice D. Cani,2018-02-01 Examining the enormous potential of microbiome manipulation to improve health Associations between the composition of the intestinal microbiome and many human diseases including inflammatory bowel disease cardiovascular disease metabolic disorders and cancer have been elegantly described in the past decade Now whole genome sequencing bioinformatics and precision gene editing techniques are being combined with centuries old therapies such as fecal microbiota transplantation to translate current research into new diagnostics and

therapeutics to treat complex diseases Bugs as Drugs provides a much needed overview of microbes in therapies and will serve as an excellent resource for scientists and clinicians as they carry out research and clinical studies on investigating the roles the microbiota plays in health and disease In Bugs as Drugs editors Robert A Britton and Patrice D Cani have assembled a fascinating collection of reviews that chart the history current efforts and future prospects of using microorganisms to fight disease and improve health Sections cover traditional uses of probiotics next generation microbial therapeutics controlling infectious diseases and indirect strategies for manipulating the host microbiome Topics presented include How well established probiotics support and improve host health by improving the composition of the intestinal microbiota of the host and by modulating the host immune response The use of gene editing and recombinant DNA techniques to create tailored probiotics and to characterize next generation beneficial microbes For example engineering that improves the anti inflammatory profile of probiotics can reduce the number of colonic polyps formed and lactobacilli can be transformed into targeted delivery systems carrying therapeutic proteins or bioengineered bacteriophage The association of specific microbiota composition with colorectal cancer liver diseases osteoporosis and inflammatory bowel disease The gut microbiota has been proposed to serve as an organ involved in regulation of inflammation immune function and energy homeostasis Fecal microbiota transplantation as a promising treatment for numerous diseases beyond C difficile infection Practical considerations for using fecal microbiota transplantation are provided while it is acknowledged that more high quality evidence is needed to ascertain the importance of strain specificity in positive treatment outcomes Because systems biology approaches and synthetic engineering of microbes are now high throughput and cost effective a much wider range of therapeutic possibilities can be explored and vetted If you are looking for online access to the latest clinical microbiology content please visit www.wiley.com/learn/clinmicronow

Methodologies and Results in Grapevine Research Serge Delrot, Hipólito Medrano, Etti Or, Luigi Bavaresco, Stella Grando, 2010-10-19 Grapevine is a crop of major economical interest and wine represents a multicultural heritage which has been growing since several milleniums Yet modern viticulture must face several challenges Global climate has increased berry sugar content and alcohol in the wine whereas phenolic and aromatic ripeness are not always achieved Water supply is becoming shorter New varieties better adapted to new climatic conditions might have to be planted which may affect wine typicity Phytochemical treatments are more controlled and the consumer pays increasing attention to environmentally safe practices New methods reducing pesticide use but maintaining yield and typicity must be designed The present book illustrates the recent progress made in ecophysiology molecular and cell biology and pathology of grapevine as well as in precision viticulture and berry composition Combination of these new tools with field observations will undoubtly make it easier to face the challenges described above These multidisciplinary contributions will be of interest to anyone involved in grapevine and wine activities

Thin Cell Layer Culture System: Regeneration and Transformation Applications Duong Tan Nhut, Kiem Tran Thanh Van, B. Van Le, Trevor A.

Thorpe, 2013-03-09 Scientists within the field of plant biotechnology are in a constant search for techniques that can in the simplest manner possible answer the genetic and biochemical questions that underlie developmental processes Thin Cell Layer Culture System not only takes an in depth look at a technique that has had so much success in attempting through various practical models and systems to answer these issues but also represents a celebration of almost 30 years of research that has covered a massive scope of plant species and areas of study The initial studies conducted on tobacco thin cell layers TCLs proving that organogenesis can be strictly controlled in vitro allowed plant research to benefit from this finding expanding this knowledge in a practical and applied manner into the biotechnological fields of tissue culture and micropropagation cell and organ genetics and biochemistry The chapters in this book tell the enigmatic tale of TCLs An historical perspective opens the scene for an inquiry into the possible cellular biochemical and genetic processes that allow for the controlled development of a TCL into any organ type The success of the system is further demonstrated in both monocotyledonous and dicotyledonous species covering successful organogenesis and in vitro flowering in species within ornamental leguminous and wood crops cereals and grasses Methodologies are outlined in detail as is the rationale behind the TCL organogenesis developmental sequel The TCL method shown to be superior to many conventional micropropagation systems has also shown to be vital in the recovery of transgenic plants This book is an essential part of every plant cell and developmental biologist geneticist and tissue culturalist s shelf as it addresses the primary issue of any plant the cell the tissue and their subsequent development into a highly organized system Combinatorial Chemistry on Solid Supports

Stefan Braese, 2007-06-23 With contributions by numerous experts

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