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## Polyamine Derivatives in Growing Cells

W. Y. Chan, G. Griesmann, and O. M. Rennert

*Department of Pediatrics and Molecular Biology and Biochemistry, Oklahoma Children's  
Memorial Hospital, University of Oklahoma Health Sciences Center,  
Oklahoma City, Oklahoma 73109*

### INTRODUCTION

Studies of the metabolism of the polyamines spermine and spermidine and the diamine putrescine have demonstrated increased polyamine concentrations in association with growth and cellular proliferative activity (3,7,8). Changes in the intracellular concentration of these amines had largely been ascribed to changes in their biosynthesis and in the activity of the enzymes catalyzing these reactions (14,18). Recent investigations in in vivo and in vitro systems have identified the prominent role of enzymes catalyzing the metabolic transformation of these compounds (5,21). These investigations have highlighted the physiological significance of conjugation (acetylation), oxidation and extracellular release of polyamines as regulators of polyamine concentration during cellular growth and division.

Recently, Rennert and associates have defined the presence of polyamine peptides in mammalian systems (6,19,20). Polyamine conjugates (17) and polyamine globulin complexes (4,13,16) have been detected in blood and urine of human subjects. Investigations in the past year in our laboratory (15) have resulted in the isolation and characterization of six polyamine conjugated proteins in human amniotic fluid. Three of these proteins contained covalently bound spermine, one covalently bound spermidine and two contained covalently bound putrescine.

To better understand the regulation and synthesis of these polyamine peptides, investigations to study the metabolic fate of radiolabelled putrescine were undertaken utilizing cultured human fibroblasts. The approach was predicated upon our previous observations indicating that polyamine peptide conjugates were found in extracellular fluid. The focus was to study the metabolic derivatives of radiolabelled putrescine by the characterization of products in the cell culture medium and within the intracellular pool. These studies document that human fibroblasts have the capacity to synthesize polyamine peptide conjugates and that these conjugates are excreted into the extracellular space.

Address all correspondence and reprint requests to O.M.R.

# Advances In Polyamine Research Vol 4

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## **Advances In Polyamine Research Vol 4:**

**Advances in polyamine research** ,1983      **The Physiology of Polyamines, Volume I** Uriel Bachrach,Yair M. Heimer,2021-05-30 The area of polyamines is presented in this useful two volume publication Basic information describing the role of polyamines in the processes of growth and differentiation is given Also included are data on the regulation of polyamine biosynthesis and metabolism and their interactions with nucleic acids Several chapters are devoted to the role of polyamines in various aspects of plant biology with a special emphasis on their participation in the response of plants to extreme environments Special attention is given to the use of inhibitors of polyamine biosynthesis as potential antitumor and antiproliferative agents Additionally progress in the molecular biology and genetic engineering of genes coding for polyamine biosynthetic enzymes is described Cancer researchers biologists geneticists biochemists physiologists and clinicians will find this volume indispensable      **Polyamines in Plants** T.A. Smith,Arthur W. Galston,1985      **Uremic Toxins** Severin Ringoir,Raymond Vanholder,Shaul G. Massry,2012-12-06 The present book contains the Proceedings of a two day Symposium on Uremic Toxins organized at the University of Ghent in Belgium A series of guest lectures free communications and posters have been presented An international audience of 163 scientists from 16 nationalities listened to and discussed extensively a spectrum of topics brought forward by colleagues and researchers who worked for many years in the field of Uremic Toxins There is a striking contrast between all the new dialysis strategies available in the work to clean the uremic patients and the almost non progression of our knowledge on uremic toxins in the past decade In this sense the symposium was felt by all participants as a new start for the research in the biochemical field of the definition of uremia If the present volume would stimulate new work in this field in order to define uremia or identify the uremic toxins the purpose of the organizers would be maximally fulfilled      **Structure and Functions of Amine Oxidases** Bruno Mondovi,2018-01-10 A good portion of this book has been devoted to the copper dependent enzymes these being the more numerous The chapter dealing with serum amine oxidases also focuses attention on their catalytic mechanism as these enzymes have been studied in greater depth As the presentation of topics whose experimental basis is rapidly developing is likely to stimulate the reader s interest many bibliographic references have been included Readers could find this book poor as far as many topics are dealt with in a relatively little space but we believe it essential to trace the background of our present knowledge in the field of amine oxidases stressing the future outlook of research on these enzymes for they are becoming more and more important in general and medical biochemistry      **Recent Progress in Polyamine Research** L. Selmecci,M. E. Brosnan,Nikolaus Seiler,1985      *Advances in Polyamine Research* Advances in Polyamine Research Staff,      **Books in Print** ,1991      Books in Print Supplement ,1994      **Advances in Polyamine Research** Robert A. Campbell,1978      Scientific and Technical Books and Serials in Print ,1989      Progress in Experimental Tumor Research Freddy Homburger,1960      **Second International Workshop on Temperate Zone Fruits in the Tropics and Subtropics** F. G. Dennis,1987      Symposium

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