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THE BIOCHEMISTRY OF  
**INORGANIC  
POLYPHOSPHATES**

SECOND EDITION



 WILEY

# Biochemistry Of Inorganic Polyphosphates

**Igor S. Kulaev**



## **Biochemistry Of Inorganic Polyphosphates:**

**The Biochemistry of Inorganic Polyphosphates** Igor S. Kulaev, Vladimir Vagabov, Tatiana Kulakovskaya, 2004-06-18  
Now in a second edition Biochemistry of Inorganic Polyphosphates fills the need for an exhaustive resource on inorganic polyphosphate metabolism The authors describe the structure and properties of these compounds and presents a comparative analysis of the newest and traditional methods of their extraction from cells Distribution of polyphosphates in organisms their localization in cells and tissues is also described Comprehensive presentation of inorganic polyphosphate metabolism Follows polyphosphates in cells of organisms from different stages of evolution Presents methods for the analysis and study of polyP dependent enzymes Comprehensive information on genetics metabolism and biotechnology of polyphosphates Textbook and reference work on all aspects of polyphosphates

**Inorganic Polyphosphates** Heinz C. Schröder, Werner E.G. Müller, 2012-12-06 Inorganic polyphosphates polymers of orthophosphate linked by high energy phosphoanhydride bonds have been found in apparently all forms of life from bacteria yeasts and fungi to higher plants and animals These polymers which had been neglected for a long time have become a fascinating area of research in the last few years This volume summarizes the present state of knowledge about the metabolism and function of inorganic polyphosphates In addition the methods to study these polymers as well as the biotechnological applications of inorganic polyphosphates are described The 15 chapters of this volume dealing with different aspects of polyphosphate research are written by experts in the field This book represents a valuable source of information not only for researchers working on this subject but also for scientists interested in fundamental aspects of cell and energy metabolism

**The Biochemistry of Inorganic Polyphosphates** Igor S. Kulaev, Inorganic Polyphosphates in Eukaryotic Cells Tatiana Kulakovskaya, Evgeny Pavlov, Elena N. Dedkova, 2016-11-18 The book elucidates the role of inorganic polyphosphates in eukaryotic cells from fungi and protozoa to human being To date there is plenty of evidence that these anionic biopolymers occurring in the cells of all living organisms from bacteria to humans perform numerous regulatory functions The book describes the evolution of PolyPs their role in lower eukaryotes and their involvement in various processes in the human organism as well as its use in biomaterials such as bioactive glass and engineered bone tissue The aim of this book is to summarize the data of the past decade on the functional role of inorganic polyphosphates in eukaryotes and discuss their biological role also in context of common human diseases The book will provide a modern concept of the functional significance of these biopolymers useful for researchers in cell biology biochemistry molecular biology and biomedicine alike

Inorganic Polyphosphates Werner E. G. Müller, Heinz C. Schröder, Patrick Suess, Xiaohong Wang, 2022-06-13 This volume focuses on the biomedical aspects of inorganic polyphosphates a family of unique bio inorganic polymers In recent years great advances have been made in understanding the development metabolism and physiological role of inorganic polyphosphates These energy rich polymers which consist of long chains of phosphate units are evolutionary old molecules The acidocalcisomes conserved organelles

from bacteria to humans as well as the mitochondria play a central role in polyphosphate production and storage Polyphosphates have been assigned multiple functions some of which are closely related to medically important processes such as blood coagulation and fibrinolysis energy metabolism cell cycle regulation apoptosis chaperon function microvascularization stress response neurodegeneration and aging The development of bioinspired polyphosphate particles in combination with suitable hydrogel forming polymers enabled the development of new strategies in regenerative medicine in particular for hard and soft tissue repair but also in drug delivery and antimicrobial defense This book not only highlights the basic research in this area but also discusses possible applications Therefore it appeals to scientists working in cell biology biochemistry and biomedicine and practitioners alike The biochemistry of inorganic polyphosphates (Biochimija vysokumolekuljarnych polifosfatov, engl.) Transl Igor' Stepanovič Kulaev,1979 **The Biochemistry of Inorganic Polyphosphates** Igor S. Kulaev,1980-03-20 Based on world literature and on experimental material obtained by the author and his collaborators providing an overview of the chemistry of condensed phosphates and expounding the state of the problem of distribution intracellular localization metabolism and physiological role of polyphosphates in the vital activity of contemporary organisms and in the evolution process **Advances in Nanostructured Materials and Nanopatterning Technologies** Vincenzo Guarino,Maria Letizia Focarete,Dario Pisignano,2020-02-11 Advances in Nanostructured Materials and Nanopatterning Technologies Applications for Healthcare Environment and Energy demonstrates how to apply micro and nanofabrication and bioextrusion based systems for cell printing electrophoretic deposition antimicrobial applications and nanoparticles technologies for use in a range of green industry sectors with an emphasis on emerging applications Details strategies to design and realize smart nanostructured patterned substrates for healthcare and energy and environmental applications Enables the preparation characterization and fundamental understanding of nanostructured materials for promising applications in health environmental and energy related sectors Provides a broader view of the context around existing projects and techniques including discussions on potential new routes for fabrication **Advances in Microbial Physiology** ,1983-07-12 Advances in Microbial Physiology **Pyrophosphates and Polyphosphates in Plants and Microorganisms** Jose Roman Perez-Castineira,Roberto Docampo,Tatsuhiko Ezawa,Aurelio Serrano,2021-05-25

## **Biochemistry Of Inorganic Polyphosphates** Book Review: Unveiling the Magic of Language

In an electronic digital era where connections and knowledge reign supreme, the enchanting power of language has become more apparent than ever. Its ability to stir emotions, provoke thought, and instigate transformation is truly remarkable. This extraordinary book, aptly titled "**Biochemistry Of Inorganic Polyphosphates**," published by a highly acclaimed author, immerses readers in a captivating exploration of the significance of language and its profound affect our existence.

Throughout this critique, we will delve in to the book is central themes, evaluate its unique writing style, and assess its overall influence on its readership.

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