UDK 577.1 : 61 **ISSN 1452-8258**

J Med Biochem 37: 86–87, 2018

Book Review
Recenzija knjige

INOSITOL & ITS PHOSPHATES: BASIC SCIENCE TO PRACTICAL APPLICATIONS

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URL: https://ebooks.benthamscience.com/book/9781681080079

An analysis of the book contents

The book is authored by two contributors, who are leading experts in the field of molecular carcinogenesis, cancer prevention, and management via nutritional support. This is a comprehensive review of inositol (a component of seeds and legumes) and its phosphates (InsPs) (especially its hexaphosphate, InsP6), integrating some key issues of physiology and metabolism with evidence-based, clinical effects of these compounds on various pathologies.

The book comprises 22 chapters that are distributed into four parts (I-IV), devoted to the following topics: I) Nature, Biosynthesis, Bioavailability and Metabolism (chapters 1-5), II) Health Impact (chapters 6-15), III) Mechanisms of Action (chapters 16-20), and IV) Industrial and Other Uses (chapters 21-22) of inositol and InsPs.

In the first five chapters (part I), the authors present the main basic science topics, highlighting that the InsP6 maintains communication between the cell nucleus, cytoplasm, and the outside environment. They also underscore that the InsPs exert antioxidant and neurotransmitter functions, and thus, play essential roles in signal transduction, control of cell proliferation/differentiation, DNA repair, ATP regeneration, and many other aspects of homeostasis. The authors also touch upon laboratory analysis, and pharmacokinetics of InsP6.

Part II addresses clinically relevant topics, concerning the most devastating medical problems, such as cancer and cardio-metabolic diseases. It focuses on clinical trials (e.g.: experimental cancer prevention and regression by InsP6), and radiation protection. It also highlights some in vitro studies (carried out on cancer cell lines), documenting that InsP6 reduced the cell propagation rate, and was protective against ultraviolet (UV) light-induced acute and chronic effects (e.g., skin cancer). Furthermore, the role of InsP6 in metabolic disorders (e.g.: diabetes mellitus, osteoporosis, or nephrolithiasis), cardiovascular diseases (CVD), and neuropsychiatric disorders (e.g.: Alzheimer's disease, and Parkinson's disease) is presented in details. In addition, the impact of inositol compounds on sickle cell disease, and their therapeutic potential in polycystic ovary syndrome (PCOS) is explained.

Part III covers several biological mechanisms of action of InsPs, and their roles in immunity (e.g.: enhancement of natural killer (NK) cell activity), infection, inflammation, and cell survival. Noteworthy, the InsPs influence on epigenetics, telomerase actions, and angiogenesis is elucidated. The last two chapters (part IV) deal with a broad range of topics from industrial applications, technology and environmental sciences, to the safety issues of InsPs.

The book also contains numerous scientific references, tables, graphs, and figures, documenting results from various research studies. At the end, a glossary (with relevant nomenclature and abbreviations), and an index (which allows the reader to promptly find the necessary information for clinical or research use) are placed.

Usefulness of the book to intended readership

The main strength of this book is in responding to a challenge of global risk of cancer and cardio-metabolic diseases, by offering an option of inositol and its metabolites, as a possible supportive approach to these civilization diseases. This book, facilitates a translation of basic science into clinical practice, and, therefore, should be of interest to researchers in biology, biochemistry, or physiology, and in medicine, pharmacology, nutrition, and diag-

nostic pathology. Moreover, this review is very useful to practicing physicians (e.g.: from primary care to specialists in oncology, cardiology, or endocrinology) pharmacists, and dietitians. In addition, this can be a helpful resource for patient education, especially in hands of the research investigators or coordinators (e.g.: at the Oncology Centers of Excellence, or Integrative Medicine Centers), focusing on interventions that are targeted to each individual patient genomic, metabolic, and clinical context, in order to reduce the burden of cancer.

In summary, this is an interesting book, which has a potential to reinforce interdisciplinary communication between clinicians and researchers, who are involved in personalized, patient-centered management that integrates modern medical and nutritional approaches. Finally, this review is an inspiration to conduct further research, and to deliver more effective and less toxic therapies, based on inositol and its phosphates.

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28.10.2017