

POLYAMINE CELL SIGNALING

Physiology, Pharmacology, and Cancer Research

Edited by

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Polyamine Cell Signaling: Physiology, Pharmacology, and Cancer Research presents current state-of-the-art findings relevant to cellular and molecular functions of polyamines, as well as providing the underlying conceptual basis and knowledge regarding potential therapeutic-targeting polyamines and polyamine metabolism leading to the development of new therapeutic approaches for cancers and other diseases. Divided into four main parts that include polyamines in signal transduction of cell proliferation; polyamines in cellular signaling of apoptosis, carcinogenesis, and cancer therapy; polyamines in cell motility and cell-cell interactions; and polyamine homeostasis and transport, these topics are addressed by internationally recognized experts in their respective fields.

This timely guide provides the whole picture of polyamines—past, present, and potential future, and offers a wealth of information regarding basic knowledge and current progress on cellular functions of polyamines and their potential clinical applications in cancer therapy. For investigators in the fields of polyamines, physiology, pharmacology, and cancer research, *Polyamine Cell Signaling: Physiology, Pharmacology, and Cancer Research* serves as a foundation based on research and addresses the potential for subsequent applications in clinical practice.

FEATURES

- State-of-the-art findings relevant to cellular and molecular functions of polyamines
- Critical information to the development of therapeutic approaches for cancer and other diseases
- Emphasis on novel functions of cellular polyamines and potential applications in cancer therapy
- Past, present, and potential future outlook of polyamines
- Comprehensive guide for investigators in the fields of polyamines, physiology, pharmacology, and cancer research

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Part I Polyamines in Signal Transduction of Cell Proliferation. Polyamine Structure and Synthetic Analogs. Acute Increases in Intracellular Putrescine Lead to the Increase in Steady-State Levels of *c-fos*, *c-jun*, *RING3*, and *Id-1* mRNAs. Polyamine-Dependent Early Cellular Signals and Cell Proliferation. Cellular Signals Mediating Growth Arrest After Polyamine Depletion. Role of Polyamines in the Regulation of Chromatin Acetylation. Role of Polyamines in Regulation of Sequence-Specific DNA Binding Activity. Polyamine Metabolism and the Hypertrophic Heart. Influence of Polyamines on Breast Cancer Biology. Polyamines in Regulation of Prostatic Cell Growth. Polyamines in Kidney Biology. Polyamines in Pulmonary Vascular Biology. **Part II Polyamines in Cellular Signaling of Apoptosis, Carcinogenesis, and Cancer Therapy.** Recent Advances in the Understanding of Mammalian Polyamine Catabolism: The Regulation and Potential Role of Polyamine Catabolism in Drug Response and Disease Processes. Cellular Signaling and Polyamines in the Control of Apoptosis in Intestinal Epithelial Cells. The Role of Ornithine Decarboxylase in Myc-Induced Tumorigenesis. Protective Effect of Polyamines on NSAID-Induced Injury and Apoptosis. Role of Polyamines in the Control of the Immune Response in the Brain. Implication of Polyamines in Apoptosis of Immunoresponse Cells. Polyamines and Cancer. Polyamine Pools and Cancer Prevention. **Part III Polyamines in Cell Motility and Cell-Cell Interactions.** Polyamines and Cytoskeletal Regulation During Intestinal Epithelial Restitution. Regulation of Kv Channel Activity and Intercellular Junctions by Polyamines in Intestinal Epithelial Cells. Polyamine Block of Kir Channels: Toward a Molecular Picture. **Part IV Polyamine Homeostasis and Transport.** Regulation of Ornithine Decarboxylase Expression. Evidence for a Multistep Model for Eukaryotic Polyamine Transport. Bacterial and Eukaryotic Transport Systems. Regulation of S-Adenosylmethionine Decarboxylase. Genetic Engineering of Polyamine Catabolism in Transgenic Mice and Rats. Index.

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