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Microbes Of The Intestinal Microbiota And Host Cells -- Part III Conclusion and Prospects -- Chapter 11. Conclusions: The Evolutionary Significance Of Amino Acid Metabolism In Life's Complexity -- Chapter 12. Perspectives On Amino Acid Metabolism: From Basic Research To Applied Science.

Sommario/riassunto

This book takes readers on a journey from the very fundamental and chemical beginnings of amino acids on Earth to their role in human metabolism. It provides background on how amino acid metabolism has changed across the evolutionary tree and discusses their physico-chemical properties as well as their biochemical roles across various forms of life. Amino acids are emerging as key players in numerous physiological functions and are being increasingly recognized as playing a mechanistic role for the communication between the gut microbiota and the host in healthy state and in some pathophysiological situations. However, understanding these associations requires a multidisciplinary approach, combining chemistry, biochemistry, physiology, nutrition, molecular/cellular biology and microbiology. This book aims to describe the science behind amino acids from their first appearance and evolutionary significance, all the way through the tree of life to humans, and then to consider how gut microbial amino acid metabolism regulates human physiology and risk in some chronic diseases. It covers key concepts such as the characteristics of different amino acids found in living organisms, their existence in the pre-living world, and their vital roles in metabolism and physiology. It also explores intriguing questions about microbial communication and the effect of amino acid-derived microbial metabolites on mammalian cells. With this multidisciplinary approach and accessible structure, this book will appeal not only to students and researchers with a background in biochemistry and related fields, but also to non-specialists with an interest in the foundations of life at the intersection of evolutionary biology and metabolism.