

1. Record Nr.	UNINA9910983036003321
Autore	Soliman Sameh S. M
Titolo	Metabolic Dynamics in Host-Microbe Interaction // edited by Sameh S. M. Soliman, Mohamed I. Hussein
Pubbl/distr/stampa	Singapore : , : Springer Nature Singapore : , : Imprint : Springer, , 2025
ISBN	9789819613052 9819613051
Edizione	[1st ed. 2025.]
Descrizione fisica	1 online resource (674 pages)
Altri autori (Persone)	HusseinMohamed I
Disciplina	570
Soggetti	Biology Metabolism Metabolism, Secondary Plants Biochemistry Cytology Biological Sciences Plant Secondary Metabolism Metabolic Pathways
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	1. Metabolism: Fine and Coarse Controls -- 2. Bioinformatics and Artificial Intelligence Approaches in Metabolic Pathways -- 3. Methods of Extraction, Detection, and Identification of Different Metabolites – A Metabolomics Approach -- 4. Bacterial Metabolites in Attack -- 5. Bacterial Metabolites in Defense: A Crucial Aspect of Microbial Interaction and Host Protection -- 6. Fungal Metabolites in Attack -- 7. Fungal Metabolites in Defense -- 8. Role of Metabolism in Supporting Immune Responses -- 9. Metabolic Imbalance in Immune Cells in Relation to Metabolic disorders, Cancer, and infections -- 10. Metabolism of Cellular Immunity and Its Role in Supporting Responses to Microbial Infection -- 11. The Fight for Iron: A Central Theme in Host-Pathogen Interactions -- 12. The Mechanisms and Therapeutic Implications of Metabolic Communication in the Tumor-Immune

Microenvironment -- 13. The Role of Microbiome in Metabolic Pattern Changes -- 14. Metabolic Pattern of Microbiome in Healthy versus Patient Individuals -- 15. Role of Microbiome in Defense -- 16. Human Microbiota and Metabolic Alteration in Cancer Progression and Treatment -- 17. The Microbial and Metabolic Link between Gut and Brain -- 18. Machine Learning Approaches in Metabolic Pathway Predictions and Drug-Target Interactions: Advancing Drug Discovery.

Sommario/riassunto

This book is a ground-breaking that delves into the fascinating world of metabolism and its pivotal role in the survival, attack, and defense strategies in human-microbe interaction. This book explores the intricate biochemical processes that enable organisms to thrive, adapt, and protect themselves against various challenges they encounter in their environments. The book will describe the importance of metabolism in defense and attack by bacteria and fungi in the human microenvironment and the reverse immuno-metabolic responses by the human. Different metabolites from different organisms will be described, in addition to their changes due to interaction with other organisms during infection or defense. The book also will describe the methods of detection and identification of metabolites including metabolomics. The use of artificial intelligence in prediction of metabolic patterns following interaction between different organisms will be included as well. The metabolism in microbiome will be described in relation to infection, and other metabolic diseases, in addition to their effects on therapeutic drugs. The book combines the latest scientific research with accessible explanations, providing readers with a deep understanding of how metabolism empowers organisms to thrive and protect themselves in diverse environments. It will be an invaluable resource for researchers, students, physicians, and anyone fascinated by the wonders of biology and the intricate workings of life.
