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Nota di contenuto	Part I: Overview and Introduction to Metabolic Syndrome -- 1. The biochemical symphony of metabolic syndrome: An intricate introduction -- 2. Insulin resistance and its biochemical basis in metabolic syndrome -- 3. Lipid metabolism dysregulation: Impact on metabolic syndrome -- 4. The weighty impact: Exploring the importance of obesity in metabolic Syndrome -- 5. Connecting the dots: The complex relationship between metabolic syndrome and hypertension -- 6. The orchestra of genetics: Genetic predisposition to metabolic syndrome Prachi Kariaa and Kirti Patela -- Part II: Cellular and Tissue Mechanisms in Metabolic Syndrome -- 7. cGAS-STING: A regulator of intestinal barrier dysfunction and metabolic syndrome -- 8. Adipose tissue remodeling and metabolic syndrome progression -- 9. Mitochondrial dysfunction, metabolic syndrome and the

Pathogenesis of Metabolic Diseases -- Part III. Emerging Molecular Mechanisms and Signaling Pathways -- 10. Inflammatory resolution and its relevance to metabolic syndrome -- 11. Role of Brain Natriuretic Peptide in Metabolic and Hypertrophic Heart Failure -- 12. Endoplasmic reticulum stress and unfolded protein response in metabolic syndrome -- 13. The Impact of Nrf2 Signalling Pathway in Redox Regulation, Inflammation Attenuation, and Management of Metabolic Syndrome: A Systematic Review -- Part IV. Brain-Gut-Adipose Axis and Endocrine Regulation -- 14. Gut Microbiota-derived metabolites and their impact on Obesity -- 15. The Impact of Gut Hormones and the Gut-Adipose-Liver Axis in Metabolic Syndrome: An Overview of Nrf2 Involvement in the Signaling Pathways -- 16. Neuronal regulation of thermogenesis and energy expenditure in Metabolic syndrome -- 17. Endocrine interplay in metabolic syndrome -- Part V. Omics Technologies: Unraveling the Molecular Complexity of Metabolic Syndrome -- 18. Understanding Cardiometabolic Diseases through Transcriptomic approach -- Part VI. Current Therapies and Future Perspectives of Metabolic Syndrome -- 19. Metabolic Syndrome Management through Omega-3 polyunsaturated fatty acids and Antioxidant-Rich Diets: An Approach from Marine and Vegetarian Sources -- 20. Pharmacological Interventions of Metabolic Syndrome -- 21. Metabolic syndrome and associated cognitive dysfunction: a pharmacological perspective -- 22. Brown adipose tissue and its therapeutic potential for Metabolic Syndrome -- 23. Bariatric Surgery and Metabolic Syndrome -- 24. Complementary and Alternative medicine in Metabolic Syndrome Management -- 25. Future Directions and Emerging Research in Metabolic syndrome.

Sommario/riassunto

The book "Biochemical Mechanisms for Metabolic Syndrome" delves into the intricate biochemistry underlying the complex condition known as Metabolic Syndrome. The main focus of the book is to provide a comprehensive overview and in-depth exploration of the various biochemical processes and molecular mechanisms contributing to the development and progression of Metabolic Syndrome. The book is structured into several chapters, each with a specific purpose. The initial chapters, lay the groundwork by introducing the concept of Metabolic Syndrome, its historical context, prevalence, and the risk factors associated with it. Subsequent chapters tackle various aspects of insulin resistance and its underlying mechanisms, lipid metabolism dysregulation, the impact of obesity, and the complex interplay between Metabolic Syndrome and hypertension. The book then shifts focus to exploring the genetic predisposition to Metabolic Syndrome and delves into recently explored indepth cellular and tissue mechanisms, including the role of gut barrier dysfunction and adipose tissue remodeling. Chapters dedicated to molecular mechanisms and signaling pathways offer a deeper understanding of the inflammatory resolution, and endoplasmic reticulum stress in the context of Metabolic Syndrome. Another significant aspect of the book is the exploration of the Brain-Gut-Adipose Axis and endocrine regulation, looking at the impact of gut microbiota-derived metabolites, gut hormones, and neuronal regulation on Metabolic Syndrome. Additionally, omics technologies are covered extensively, ranging from genomics, transcriptomics, proteomics, and epigenomics, to unravel the molecular complexity of Metabolic Syndrome. The latter part of the book delves into therapeutic approaches, including lifestyle interventions, pharmacological interventions, and dietary strategies. It also explores the therapeutic potential of brown adipose tissue, and highlights future directions and emerging research in the field of Metabolic Syndrome biochemistry. Overall, the book will provide a

valuable resource for researchers, healthcare professionals, and students seeking a comprehensive understanding of the biochemical intricacies of Metabolic Syndrome and potential avenues for therapeutic interventions.