Record Nr. UNINA9910139751303321 Autore Masella Roberta **Titolo** Glutathione and sulfur amino acids in human health and disease [[electronic resource] /] / Roberta Masella and Giuseppe Mazza Pubbl/distr/stampa Hoboken, : Wiley, c2009 **ISBN** 1-282-27852-5 9786612278525 0-470-47597-8 0-470-47596-X Descrizione fisica 1 online resource (626 p.) Altri autori (Persone) MazzaG. <1946-> Disciplina 612.015756 612.3/98 612.398 Soggetti Glutathione - Psychological aspects Sulfur amino acids - Psychological aspects Glutathione - Therapeutic use Sulfur amino acids - Therapeutic use Glutathione - Metabolism Sulfur amino acids - Metabolism Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali Description based upon print version of record. Nota di contenuto GLUTATHIONE AND SULFUR AMINO ACIDS IN HUMAN HEALTH AND DISEASE: CONTENTS: PREFACE: CONTRIBUTORS: I INTRODUCTION: 1 GLUTATHIONE AND THE SULFUR-CONTAINING AMINO ACIDS: AN OVERVIEW; 1.1 Introduction; 1.2 Why Sulfur-Containing Amino Acids?; 1.3 S-Adenosylmethionine, Nature's Wonder Cofactor; 1.4 Glutathione; 1.5 Taurine-the Second Essential Sulfur-Containing Amino Acid?; 1.6 Conclusions; Acknowledgments; References; II CHEMISTRY AND METABOLISM OF GSH AND SULFUR AMINO ACIDS; 2 SULFUR AMINO ACIDS CONTENTS OF DIETARY PROTEINS: DAILY INTAKE AND REQUIREMENTS; 2.1 Introduction

2.2 Sulfur Amino Acids (SAA) Content of Dietary Protein2.3 Sulfur Amino Acid Intake; 2.4 Nutritional Requirement for Total Sulfur Amino

Acids: 2.5 Conclusions: References: 3 CELLULAR COMPARTMENTALIZATION OF GLUTATHIONE; 3.1 Introduction; 3.2 Glutathione Content in Cells: References; 4 INTESTINAL METABOLISM OF SULFUR AMINO ACIDS; 4.1 Introduction; 4.2 Isotopic Approaches to Study Metabolism; 4.3 Evidence of Gut Sulfur Amino Acid Metabolism; 4.4 Other Key Players in Intestinal Sulfur Amino Acid Metabolism; 4.5 Cysteine in Redox Function and Oxidant Stress in the Gut 4.6 Pathophysiology of Sulfur Amino Acid Metabolism in the GIT4.7 Conclusions: References: 5 HEPATIC SULFUR AMINO ACID METABOLISM: 5.1 Introduction; 5.2 Dietary Relation between Methionine and Cysteine; 5.3 Metabolic Relation between Hepatic Sulfur Amino Acids, B Vitamins, and Methyl Group Metabolism: 5.4 Regulation of Sulfur Amino Acid Metabolism and Related Metabolic Pathways in the Liver: 5.5 Impact of Physiologic and Nutritional Factors on Sulfur Amino Acid Metabolism: 5.6 Conclusions: References: III ANTIOXIDANT AND **DETOXIFICATION ACTIVITIES** 6 GLUTATHIONE AND SULFUR CONTAINING AMINO ACIDS: ANTIOXIDANT AND CONJUGATION ACTIVITIES 6.1 Introduction; 6.2 Reactive Oxygen Species and Antioxidants: 6.3 Glutathione Redox Cycle; 6.4 Regulation of GSH and Cysteine Levels; 6.5 Biotransformation: 6.6 ROS-Mediated Cellular Signaling: 6.7 Transcription Regulation of Antioxidant and Conjugation Enzymes; 6.8 Oxidative Stress and Diseases; References; 7 GLUTAREDOXIN AND THIOREDOXIN ENZYME SYSTEMS: CATALYTIC MECHANISMS AND PHYSIOLOGICAL FUNCTIONS: 7.1 Introduction: 7.2 General Characteristics of Glutaredoxins 7.3 General Characteristics of Thioredoxins 7.4 Glutaredoxin Mechanism of Action; 7.5 Thioredoxin Mechanism of Action; 7.6 Control of Grx Expression; 7.7 Control of Trx Expression in Mammalian Systems; 7.8 Cellular Functions of Grx; 7.9 Cellular Functions of Trx; 7.10 Reversible Sulfhydryl Oxidation and Disease: 7.11 Conclusions: References: 8 METHIONINE SULFOXIDE REDUCTASES: A PROTECTIVE SYSTEM AGAINST OXIDATIVE DAMAGE; 8.1 Introduction; 8.2 History of the Msr System; 8.3 MsrA and MsrB Protein Structure and Mechanism of Action; 8.4 Msr Reducing Requirement; 8.5 Other Members of the Msr Family 8.6 The Msr System: Both a Repair Enzyme and a Scavenger of ROS

Sommario/riassunto

The complex roles of glutathione and sulfur amino acids in human health Glutathione (?-L-glutamyl-L-cysteinylglycine, GSH) is a major antioxidant acting as a free radical scavenger that protects the cell from reactive oxygen species (ROS). Sulfur amino acids (SAAs), such as methionine and cysteine, play a critical role in the maintenance of health. GSH depletion as well as alterations of SAA metabolism are linked to a host of disease states including liver cirrhosis, various pulmonary diseases, myocardial ischemia and reperfusion injury, aging, Parkinson's disease, Alzheimer's disease