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Nota di contenuto	REDOX BIOCHEMISTRY; CONTENTS; Contributors; List of Abbreviations; Preface; 1. Redox Metabolism and Life; 1.1. Redox Biochemistry and the Evolution of Life; 1.2. Global Redox Cycles; 1.3. Major Bioenergetic Cycles; 1.3.A. Photosynthesis; 1.3.B. Aerobic Respiration; 2. Antioxidant Molecules and Redox Cofactors; 2.1. Glutathione; 2.1.A. Biological Functions; 2.1.B. Biosynthesis; 2.1.C. Degradation; 2.1.D. Other Thiol-Based Redox Buffers; 2.2. Ascorbate; 2.2.A. Ascorbate Chemistry; 2.2.B. Ascorbate Biosynthesis; 2.2.C. Ascorbate Recycling; 2.2.D. Ascorbate Transport 2.2.E. Importance of Ascorbate in Stress and Disease2.3. Other Antioxidants; 2.3.A. Lipid-Soluble Antioxidants; 2.3.B. Water-Soluble Antioxidants; 2.3.C. Antioxidants and Human Health; 2.4. Redox Coenzymes; 2.4.A. Flavin; 2.4.B. NAD; 2.4.C. Quinones; 2.4.D. Pterins and Molybdopterins; 2.4.E. Folic Acid; 3. Antioxidant Enzymes; 3.1. ROS-Dependent Enzymes; 3.1.A. Catalase; 3.1.B. Superoxide Dismutase; 3.1.C. Peroxiredoxins; 3.1.D. Alkyl Hydroperoxide Reductases; 3.2. The Thioredoxin System; 3.2.A. Thioredoxin; 3.2.B. Thioredoxin Reductase; 3.3. The Glutathione System 3.3.A. Glutathione Reductase3.3.B. Glutaredoxin (Thioltransferase); 3.4. Repair Enzymes; 3.4.A. Methionine Sulfoxide Reductases; 3.4.B. DNA Repair Enzymes; 3.4.C. Sulfiredoxins; 3.5. Detoxification Enzymes; 3.5.

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Sommario/riassunto

This is the premier, single-source reference on redox biochemistry, a rapidly emerging field. This reference presents the basic principles and includes detailed chapters focusing on various aspects of five primary areas of redox biochemistry: antioxidant molecules and redox cofactors; antioxidant enzymes; redox regulation of physiological processes; pathological processes related to redox; and specialized methods. This is a go-to resource for professionals in pharmaceuticals, medicine, immunology, nutrition, and environmental fields and an excellent text for upper-level students.