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Bioenergetics INTRODUCTION; REDOX REACTIONS IN METABOLISM; THE CENTRAL ROLE OF ATP IN METABOLISM; THE TYPES OF REACTION CATALYSED BY ENZYMES OF INTERMEDIARY METABOLISM; AN OVERVIEW OF CATABOLISM; SELECTED CASE STUDIES - GLYCOLYSIS AND THE TRICARBOXYLIC ACID CYCLE; AN OVERVIEW OF ANABOLISM; SELECTED CASE STUDIES: GLUCONEOGENESIS AND FATTY ACID BIOSYNTHESIS; BIOENERGETICS - GENERATION OF PHOSPHORYL TRANSFER POTENTIAL AT THE EXPENSE OF PROTON GRADIENTS; REFERENCES; Chapter 6 - Methods to Study Metals in Biological Systems; INTRODUCTION  
MAGNETIC PROPERTIES ELECTRON PARAMAGNETIC RESONANCE (EPR) SPECTROSCOPY; MOSSBAUER SPECTROSCOPY; NMR SPECTROSCOPY; ELECTRONIC AND VIBRATIONAL SPECTROSCOPIES; CIRCULAR DICHROISM AND MAGNETIC CIRCULAR DICHROISM; RESONANCE RAMAN SPECTROSCOPY; EXTENDED X-RAY ABSORPTION FINE STRUCTURE (EXAFS); X-RAY DIFFRACTION; REFERENCES; Chapter 7 - Metal Assimilation Pathways; INTRODUCTION; INORGANIC BIOGEOCHEMISTRY; METAL ASSIMILATION IN BACTERIA; METAL ASSIMILATION IN FUNGI AND PLANTS; METAL ASSIMILATION IN MAMMALS; REFERENCES; Chapter 8 - Transport, Storage, and Homeostasis of Metal Ions; INTRODUCTION  
METAL STORAGE AND HOMEOSTASIS IN BACTERIA METAL TRANSPORT, STORAGE, AND HOMEOSTASIS IN PLANTS AND FUNGI; METAL TRANSPORT, STORAGE, AND HOMEOSTASIS IN MAMMALS; REFERENCES; Chapter 9 - Sodium and Potassium - Channels and Pumps; INTRODUCTION - TRANSPORT ACROSS MEMBRANES; SODIUM VERSUS POTASSIUM; POTASSIUM CHANNELS; SODIUM CHANNELS; THE SODIUM-POTASSIUM ATPASE; ACTIVE TRANSPORT DRIVEN BY  $\text{Na}^+$  GRADIENTS; SODIUM/PROTON EXCHANGERS; OTHER ROLES OF INTRACELLULAR  $\text{K}^+$ ; REFERENCES; Chapter 10 - Magnesium-Phosphate Metabolism and Photoreceptors; INTRODUCTION; MAGNESIUM-DEPENDENT ENZYMES PHOSPHORYL GROUP TRANSFER KINASES

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### Sommario/riassunto

The revised and expanded second edition of Biological Inorganic Chemistry, winner of a 2013 Texty Award from the Text and Academic Authors Association, presents an introduction to this exciting and dynamic field. An increasing understanding of the importance of metals in biology, the environment and medicine, and the multiple roles of metal ions in biological systems, has given rise to biological inorganic chemistry as a field of study. The book begins with an overview of the concepts, both chemical and biological, required for the detailed analysis which follows. Pathways of

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