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Autore	Crichton Robert R.
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Nota di contenuto	Title Page; Table of Contents; Preface; References; 1 Solution Chemistry of Iron; 1.1 Iron Chemistry; 1.2 Interactions of Iron with Dioxygen and Chemistry of Oxygen Free Radicals; 1.3 Hydrolysis of Iron Salts; 1.4 Formation and Characterisation of Ferrihydrite; 1.5 Ageing of Amorphous Ferrihydrite to more Crystalline Products; 1.6 Biomineralisation; 1.7 Magnetite Biomineralisation by Magnetotactic Bacteria; References; 2 The Essential Role of Iron in Biology; 2.1 Introduction: Iron an Essential Element in Biology; 2.2 Physical Techniques for the Study of Iron in Biological Systems 2.3 Classes of Iron Proteins; 2.4 Haemoproteins; 2.5 Iron-Sulphur Proteins; 2.6 Non-haem, Non-Fe-S Proteins; 2.7 The Dark Side of Iron: ROS, RNS and NTBI; References; 3 Microbial Iron Uptake; 3.1 Introduction; 3.2 Iron Uptake from Siderophores; 3.3 Fe ²⁺ transport Systems; 3.4 Iron Release from Siderophores in the Cytoplasm; 3.5 Intracellular Iron Metabolism; 3.6 Control of Gene Expression by Iron; References; 4 Iron Acquisition by Pathogens; 4.1 Introduction; 4.2 Host Defence Mechanisms, Nutritional Immunity; 4.3 Pathogenicity and PAIs; 4.4 Pathogen-specific Iron Uptake Systems 4.5 Role of Fur and Fur Homologues in Virulence; 4.6 Role of Pathogen ECF Sigma Factors; 4.7 Fungal Pathogens; References; 5 Iron Uptake by Plants and Fungi; 5.1 Iron Uptake by Plants; 5.2 Iron Metabolism and

Homeostasis in Plants; 5.3 Iron Uptake, Metabolism and Homeostasis in Fungi; References; 6 Cellular Iron Uptake and Export in Mammals; 6.1 The Transferrins; 6.2 Cellular Iron Uptake; 6.3 Cellular Iron Export; References; 7 Mammalian Iron Metabolism and Dietary Iron Absorption; 7.1 An Overview of Mammalian Iron Metabolism; 7.2 Mammalian Iron Absorption
7.3 Molecular Mechanisms of Mucosal Iron Absorption; References; 8 Intracellular Iron Utilisation; 8.1 Intracellular Iron Pools; 8.2 Mitochondrial Iron Metabolism; 8.3 Haem Oxygenase; References; 9 Iron Storage Proteins; 9.1 Introduction; 9.2 The Ferritin Superfamily and Haemosiderins; 9.3 Iron Uptake and Release from Ferritin; 9.4 Biotechnological Applications of Ferritins; References; 10 Cellular and Systemic Iron Homeostasis; 10.1 Cellular Iron Homeostasis; 10.2 Systemic Iron Homeostasis; 10.3 Integration of iron homeostatic systems; References; 11 Iron Deficiency, Iron Overload and Therapy 11.1 Iron-deficiency Anaemia (IDA); 11.2 Hereditary Iron Overload; 11.3 Acquired Iron Overload; References; 12 Iron and Immunity; 12.1 Introduction; 12.2 The key role of macrophages; 12.3 Effect of Iron Status on Phagocytic Cell Function; 12.4 Effect of Phagocytic Cell Function on Iron Metabolism; 12.5 Effector Molecules of the Innate Immune System; 12.6 Adaptive immunity; 12.7 Immune Function and other Factors; 12.8 Concluding remarks; References; 13 Iron and Oxidative Stress; 13.1 Oxidative stress; References; 14 Interactions between Iron and other Metals; 14.1 Introduction; 14.2 Iron Interactions with Essential Metals
