

---

# Contents

---

Series Editor Introduction . . . . .	v
Preface . . . . .	xi
Contributors . . . . .	xv

## **PART I: IRON BIOCHEMISTRY AND METABOLISM**

<b>1</b> The Cellular Physiology of Iron . . . . .	<b>3</b>
<i>Gregory J. Anderson and Christopher D. Vulpe</i>	
<b>2</b> Regulation of Iron Absorption and Distribution . . . . .	<b>31</b>
<i>Gladys Olujemisi Latunde-Dada and Robert J. Simpson</i>	
<b>3</b> The Role of Hepcidin in Iron Homeostasis . . . . .	<b>51</b>
<i>Tomas Ganz</i>	
<b>4</b> Iron as Nutrient: Strategies for Iron Acquisition and Usage by Pathogenic Microorganisms . . . . .	<b>65</b>
<i>Eric Massé and Peter D. Pawelek</i>	
<b>5</b> Iron as a Drug and Drug–Drug Interactions . . . . .	<b>77</b>
<i>Tracy M. Hagemann and Teresa V. Lewis</i>	

## **PART II: IRON OVERLOAD AND DEFICIENCY PATHOLOGIES**

<b>6</b> Iron Deficiency and Excess in the Brain: Implications for Cognitive Impairment and Neurodegeneration . . . . .	<b>95</b>
<i>Moussa B.H. Youdim, Manfred Gerlach, and Peder Riederer</i>	
<b>7</b> Brain Iron Deposition in Aging and Disease: Role of HO-1 . . . . .	<b>125</b>
<i>Hyman M. Schipper</i>	
<b>8</b> Iron Deficiency and Neuropharmacology . . . . .	<b>141</b>
<i>Laura Bianco, Erica Unger, and John Beard</i>	
<b>9</b> Peripheral Effects of Iron Deficiency. . . . .	<b>159</b>
<i>Daniel B. Costa and Reed E. Drews</i>	
<b>10</b> Iron-Metabolism in Neurons of the Motor System of the Central Nervous System: Lessons from Iron Deficiency and Overloading Pathologies . . . . .	<b>181</b>
<i>Torben Moos</i>	

11	The Effects of Brain Iron Deficiency on Cognitive and Behavioral Aspects . . . . .	195
	<i>S. Yehuda, S. Rabinovitz, R.L. Carasso, and D.I. Mostofsky</i>	
12	Stress, Immunology, and Cytokines . . . . .	207
	<i>Dvora Sredni-Kenigsbuch</i>	
<b>PART III: DIAGNOSTIC AND CLINICAL ASPECTS IN CNS DISORDERS</b>		
13	MRI of Brain Iron and Neurodegenerative Diseases: A Potential Biomarker . . . . .	223
	<i>John F. Schenck</i>	
14	Alzheimer's Dementia . . . . .	241
	<i>Seema Gulyani and Mark P. Mattson</i>	
15	Inherited Disorders of Brain Iron Homeostasis . . . . .	251
	<i>Hyman M. Schipper and Prem Ponka</i>	
<b>PART IV: PUBLIC HEALTH ISSUES</b>		
16	Iron and Heart Disease: A Review of the Epidemiologic Data. . . . .	279
	<i>Christopher T. Sempos, Anne C. Looker, Daniel L. McGee, and Jürgen Rehm</i>	
17	Global Concept of Iron Deficiency . . . . .	299
	<i>S.M. Lewis and J.C. Emmanuel</i>	
18	Nutritional Iron Deficiency in Early Childhood . . . . .	313
	<i>Robert J.D. Moy</i>	
19	Iron and Women's Health . . . . .	327
	<i>Adrienne Bendich and Ronit Zilberboim</i>	
	Appendix A: <i>Reference Ranges for Common Laboratory Assays of Iron Metabolism</i> . . . . .	351
	<i>Anthony N. Sireci and Alexander Kratz</i>	
	Appendix B: <i>Nutritional Sources of Iron</i> . . . . .	355
	<i>Anthony N. Sireci and Alexander Kratz</i>	
	Subject Index . . . . .	359