

Contents

| | |
|--|------|
| Foreword by Paola Timiras | v |
| Preface | vii |
| Contributors | xiii |
| PART I. CELLULAR AND MOLECULAR CHANGES OF AGED AND REACTIVE ASTROCYTES | |
| 1 • Neuromorphological Changes in Neuronal and Neuroglial Populations of the Cerebral Cortex in the Aging Rat: <i>Neurochemical Correlations</i> | 3 |
| <i>Maria Angeles Peinado, Manuel Martinez, Maria Jesus Ramirez, Adoracion Quesada, Juan Angel Pedrosa, Concepcion Iribar, and Jose Maria Peinado</i> | |
| 2 • Diversity in Reactive Astrocytes | 17 |
| <i>Sudarshan K. Malhotra and Theodor K. Shnitka</i> | |
| 3 • Astrocytic Reaction After Traumatic Brain Injury | 35 |
| <i>Jesús Boya, J. L. Calvo, Angel López-Carbonell, and José E. García-Mauriño</i> | |
| PART II. NEURON–GLIA INTERCOMMUNICATION | |
| 4 • Astrocytes <i>In Situ</i> Exhibit Functional Neurotransmitter Receptors | 59 |
| <i>Marilee K. Shelton and Ken D. McCarthy</i> | |
| 5 • Glia and Extracellular Space Diffusion Parameters in the Injured and Aging Brain | 77 |
| <i>Eva Syková</i> | |
| 6 • Intercellular Diffusional Coupling between Glial Cells in Slices from the Striatum | 99 |
| <i>Brigitte Hamon, Jacques Glowinski, and Christian Giaume</i> | |
| 7 • Glial Cell Involvement in Brain Repair and the Effects of Aging | 113 |
| <i>Elizabeth A. Howes and Peter J. S. Smith</i> | |
| 8 • ATP Signaling in Schwann Cells | 135 |
| <i>Thierry Amédée, Aurore Colomar, and Jonathan A. Coles</i> | |
| PART III. NEUROTROPHINS, GROWTH FACTORS, AND NEUROHORMONES IN AGING AND REGENERATION | |
| 9 • Gliosis Growth Factors in the Adult and Aging Rat Brain | 157 |
| <i>Gérard Labourdette and Françoise Eclancher</i> | |
| 10 • Role of Fibroblast Growth Factor-2 in Astrogliosis | 179 |
| <i>John F. Reilly</i> | |
| 11 • Trophins as Mediators of Astrocyte Effects in the Aging and Regenerating Brain | 199 |
| <i>Judith Lackland and Cheryl F. Dreyfus</i> | |

| | |
|---|-----|
| 12 • Responses in the Basal Forebrain Cholinergic System to Aging | 217 |
| <i>Zezone Gu and J. Regino Perez-Polo</i> | |
| 13 • Effects of Estrogens and Thyroid Hormone on Development and Aging of Astrocytes and Oligodendrocytes | 245 |
| <i>Kevin Higashigawa, Alisa Seo, Nayan Sheth, Giorgios Tsianos, Hogan Shy, Latha Malaiyandi, and Paola S. Timiras</i> | |
| PART IV. METABOLIC CHANGES | |
| 14 • Neurotoxic Injury and Astrocytes | 259 |
| <i>Michael Aschner and Richard M. LoPachin</i> | |
| 15 • Ammonium Ion Transport in Astrocytes: <i>Functional Implications</i> | 275 |
| <i>Neville Brookes</i> | |
| PART V. ASTROCYTES AND THE BLOOD-BRAIN BARRIER IN AGING | |
| 16 • Molecular Anatomy of the Blood-Brain Barrier in Development and Aging | 291 |
| <i>Dorothee Krause, Pedro M. Faustmann, and Rolf Dermietzel</i> | |
| 17 • The Blood-Brain Barrier in the Aging Brain | 305 |
| <i>Gesa Rascher and Hartwig Wolburg</i> | |
| 18 • Astrocytes and Barrier-provided Microvasculature in the Developing Brain | 321 |
| <i>Luisa Roncali</i> | |
| PART VI. ASTROCYTES IN NEURODEGENERATIVE DISEASES | |
| 19 • Microglial and Astrocytic Reactions in Alzheimer's Disease | 339 |
| <i>Douglas G. Walker and Thomas G. Beach</i> | |
| 20 • Activated Neuroglia in Alzheimer's Disease | 365 |
| <i>Kurt R. Brunden and Robert C. A. Frederickson</i> | |
| 21 • Reactive Astroglia in the Ataxic Form of Creutzfeldt-Jakob Disease: <i>Cytology and Organization in the Cerebellar Cortex</i> | 375 |
| <i>Miguel Lafarga, Nuria T. Villagra, and Maria T. Berciano</i> | |
| 22 • Ischemic Injury, Astrocytes, and the Aging Brain | 393 |
| <i>Robert Fern</i> | |
| 23 • Glial-Neuronal Interactions during Oxidative Stress: <i>Implications for Parkinson's Disease</i> | 407 |
| <i>Catherine Mytilineou</i> | |
| 24 • Astrocytic Changes Associated with Epileptic Seizures | 421 |
| <i>Angélique Bordey and Harald Sontheimer</i> | |
| 25 • Synaptic and Neuroglial Pathobiology in Acute and Chronic Neurological Disorders | 443 |
| <i>Lee J. Martin</i> | |
| 26 • Astrocytes and Ammonia in Hepatic Encephalopathy | 477 |
| <i>Michael D. Norenberg</i> | |
| Index | 497 |



<http://www.springer.com/978-0-89603-594-2>

Neuroglia in the Aging Brain

de Vellis, J. (Ed.)

2002, XIII, 513 p., Hardcover

ISBN: 978-0-89603-594-2

A product of Humana Press