## Contents

The Development of the Cerebellum: From the Beginnings .......................... 1
Jan Voogd

The Embryology and Anatomy of the Cerebellum ................................. 33
Maryam Rahimi Balaei, Niloufar Ashtari, and Hugo Bergen

Cellular and Genetic Programs Underlying Cerebellum Development .............................. 45
Alexandra L. Joyner, Ryan Willett, and Andrew Lawton

Early Purkinje Cell Development and the Origins of Cerebellar Patterning .......................... 67
Filippo Casoni, Laura Croci, Ottavio Cremona, Richard Hawkes, and G. Giacomo Consalez

Cerebellar Developmental Disorders and Cerebellar Nuclei ...................... 87
Hong-Ting Prekop, Alessio Delogu, and Richard J.T. Wingate

Motor Circuit Abnormalities During Cerebellar Development .................. 105
Elizabeth P. Lackey and Roy V. Sillitoe

Developmental Disorders of the Cerebellum and Neurotrophic Factors .......................... 129
Leila Pirmoradi, Ali Akbar Owji, and Shahla Shojaei

Apoptosis, Autophagy, and Unfolded Protein Response and Cerebellar Development .......................... 153
Mohammad Amin Moosavi, Marveh Rahmati, Niloufar Ashtari, Javad Alizadeh, Mohammad Hashemi, Seyedeh Zahra Bathaei, and Saeid Ghavami

The Ubiquitin Proteasome System and Cerebellar Developmental Disease .......................... 179
Jerry Vriend and Xiaodan Jiao
Epigenetics and Cerebellar Neurodevelopmental Disorders .......................... 197
Mojgan Rastegar

Hormonal Regulation of Cerebellar Development and Its Disorders ........... 219
Noriyuki Koibuchi

Infections of the Cerebellum ................................................................. 237
Kevin M. Coombs

Neuroimmune Mechanisms of Cerebellar Development and Its Developmental Disorders: Bidirectional Link Between the Immune System and Nervous System ................................................... 255
Nour Eissa, Laëtitia Kermarrec, and Jean-Eric Ghia

Teratogenic Influences on Cerebellar Development .................................. 275
Albert E. Chudley

Primary Pediatric Brain Tumors of the Posterior Fossa: Part I .................. 301
Kathleen Felton, Amanda Hogg, Lisa Liang, Christopher Aiken, Thomas Klonisch, Frank van Landeghem, Tamra E. Werbowetski-Ogilvie, and David D. Eisenstat

Primary Pediatric Brain Tumors of the Posterior Fossa Part II: A Comprehensive Overview of Medulloblastoma .............................................. 327
Lisa Liang, Christopher Aiken, Kathleen Felton, Amanda Hogg, Frank van Landeghem, T. Klonisch, David D. Eisenstat, and Tamra E. Werbowetski-Ogilvie

Can Cerebellar Neurodevelopmental Disorders Affect Behavioral Disorders or Vice Versa? .......................................................... 353
Seyed Soheil Saeedi Saravi and Ahmad Reza Dehpour

Neurodevelopmental Disorders of the Cerebellum: Autism Spectrum Disorder ................................................................. 369
Mehnosh Toback, Kambiz Zangeneh, Tabrez J. Siddiqui, and Hassan Marzban

Clinical Aspects of the Inherited Cerebellar Malformations ..................... 389
Asghar Marzban, Mohammad Vafaee-shahi, and Kamran Azarkhish

Clinical Features, Assessment, and Management of Patients with Developmental and Other Cerebellar Disorders .................................. 407
Michael S. Salman

Epidemiology of Cerebellar Disorders ....................................................... 423
S. Shooshtari, B.M. Stoesz, P. Rad, and S. Khoeiniha

Cerebellar Transplantation: A Potential Model to Study Repair and Development of Neurons and Circuits in the Cerebellum ....................... 465
Constantino Sotelo

Index ........................................................................................................ 495