

Contents

<i>List of Contributors</i>	vii
<i>Preface</i>	xiii
I History and Evolution	1
Chapter 1 Discovery of Dynein and its Properties: A Personal Account <i>I.R. Gibbons</i>	3
Chapter 2 Evolutionary Biology of Dyneins <i>Bill Wickstead, Keith Gull</i>	89
II Structure and Mechanics of Dynein Motors	123
Chapter 3 The AAA ⁺ Powerhouse – Trying to Understand How it Works <i>Paul A. Tucker</i>	125
Chapter 4 Dynein Motor Mechanisms <i>Michael P. Koonce, Irina Tikhonenko</i>	145
Chapter 5 Structural Analysis of Dynein Intermediate and Light Chains <i>John C. Williams, Amanda E. Siglin, Christine M. Lightcap, Amrita Dawn</i>	157
Chapter 6 Biophysics of Dynein <i>In Vivo</i> <i>Jing Xu, Steven P. Gross</i>	191
III Dyneins in Ciliary Biology	207
Chapter 7 Composition and Assembly of Axonemal Dyneins <i>Stephen M. King</i>	209
Chapter 8 Organization of Dyneins in the Axoneme <i>Takashi Ishikawa</i>	245
Chapter 9 Genetic Approaches to Axonemal Dynein Function in <i>Chlamydomonas</i> and Other Organisms <i>Toshiki Yagi and Ritsu Kamiya</i>	273
Chapter 10 Regulation of Axonemal Outer-Arm Dyneins in Cilia <i>Ken-ichi Wakabayashi</i>	297
Chapter 11 Control of Axonemal Inner Dynein Arms <i>Lea M. Alford, Maureen Wirschell, Ryosuke Yamamoto, Winfield S. Sale</i>	313

Chapter 12	Flagellar Motility and the Dynein Regulatory Complex <i>Mary E. Porter</i>	337
Chapter 13	Regulation of Dynein in Ciliary and Flagellar Movement <i>Chikako Shingyoji</i>	367
Chapter 14	Dynein and Intraflagellar Transport <i>George B. Witman</i>	395
IV Cytoplasmic Dynein Biology		423
Chapter 15	Cytoplasmic Dynein Function Defined by Subunit Composition <i>K. Kevin Plister, Kevin W.-H. Lo</i>	425
Chapter 16	Studies of Lissencephaly and Neurodegenerative Disease Reveal Novel Aspects of Cytoplasmic Dynein Regulation <i>Kassandra M. Ori-McKenney, Richard J. McKenney, Richard B. Vallee</i>	441
Chapter 17	Insights into Cytoplasmic Dynein Function and Regulation from Fungal Genetics <i>Xin Xiang</i>	455
Chapter 18	Genetic Insights into Mammalian Cytoplasmic Dynein Function Provided by Novel Mutations in the Mouse <i>Anna Kuta, Majid Hafezparast, Giampietro Schiavo, Elizabeth M.C. Fisher</i>	483
Chapter 19	Role of Dynactin in Dynein-mediated Motility <i>Trina A. Schroer, Frances K.Y. Cheong</i>	505
Chapter 20	Roles of Cytoplasmic Dynein during Mitosis <i>Kevin T. Vaughan</i>	523
V Dynein Dysfunction and Disease		537
Chapter 21	Does Dynein Influence the Non-Mendelian Inheritance of Chromosome 17 Homologs in Male Mice? <i>Stephen H. Pilder</i>	539
Chapter 22	Role of Dynein in Viral Pathogenesis <i>Andrew J. Mouland, Miroslav P. Milev</i>	561
Chapter 23	Cytoplasmic Dynein Dysfunction and Neurodegenerative Disease <i>Armen J. Moughamian, Erika L.F. Holzbaur</i>	585
Chapter 24	Dynein Dysfunction as a Cause of Primary Ciliary Dyskinesia and Other Ciliopathies <i>Anita Becker-Heck, Niki T. Loges, Heymut Omran</i>	603
	<i>Index</i>	629