

Contents

| | | |
|-----------|--|------------|
| 1 | Centromeres and Kinetochores: An Historical Perspective | 1 |
| | Kerry S. Bloom | |
| 2 | The Basics of Chromosome Segregation. | 21 |
| | Mitsuhiro Yanagida | |
| 3 | The Centromere | 45 |
| | Beth A. Sullivan | |
| 4 | Neocentromeres | 77 |
| | Owen J. Marshall and K.H. Andy Choo | |
| 5 | Human Artificial Centromeres: <i>De novo</i> Assembly of Functional Centromeres on Human Artificial Chromosomes | 107 |
| | Hiroshi Masumoto, Teruaki Okada, and Yasuhide Okamoto | |
| 6 | Kinetochores: Composition, Formation, and Organization | 133 |
| | Tatsuo Fukagawa and Peter De Wulf | |
| 7 | Evolution of Centromeres and Kinetochores: A Two-Part Fugue | 193 |
| | Paul B. Talbert, Joshua J. Bayes, and Steven Henikoff | |
| 8 | Mitotic Spindle Assembly Mechanisms | 231 |
| | Rebecca Heald and Claire E. Walczak | |
| 9 | Kinetochores-Microtubule Interactions | 269 |
| | Lesley Clayton and Tomoyuki U. Tanaka | |
| 10 | Post-Translational Modifications that Regulate Kinetochores Activity. | 293 |
| | Chitra V. Kotwaliwale and Sue Biggins | |

11 The Role of the Kinetochore in Spindle Checkpoint Signaling 345
P. Todd Stukenberg and Daniel J. Burke

12 Kinetochore Regulation of Anaphase and Cytokinesis 371
Scott Thomas and Kenneth B. Kaplan

13 Roles of Centromeres and Kinetochores in Meiosis 395
Adele L. Marston

14 The Kinetochore-Cancer Connection 433
Takeshi Tomonaga

15 The Kinetochore as Target for Cancer Drug Development 455
Song-Tao Liu and Tim J. Yen

Index 481