

Contents

1 Nuclear Subdomains and Cancer	1
Kendra L. Cann, Sui Huang, and Graham Dellaire	
2 Spatial Point Process Analysis of Promyelocytic Leukemia Nuclear Bodies	59
Philip P. Umande and David A. Stephens	
3 Quantitative Approaches to Nuclear Architecture Analysis and Modelling	87
Daniel Hübschmann, Nikolaus Kepper, Christoph Cremer, and Gregor Kreth	
4 Statistical Shape Theory and Registration Methods for Analyzing the 3D Architecture of Chromatin in Interphase Cell Nuclei	131
Siwei Yang, Doris Illner, Kathrin Teller, Irina Solovei, Roel van Driel, Boris Joffe, Thomas Cremer, Roland Eils, and Karl Rohr	
5 Nuclear Molecular Motors for Active, Directed Chromatin Movement in Interphase Nuclei	149
Joanna M. Bridger and Ishita S. Mehta	
6 Methodology for Quantitative Analysis of 3-D Nuclear Architecture	173
Richard A. Russell, Niall M. Adams, David Stephens, Elizabeth Batty, Kirsten Jensen, and Paul S. Freemont	
7 Thinking Holistically About Gene Transcription	189
Dean A. Jackson	
Index	207