

"The second edition of Handbook of Dynein, edited by Keiko Hirose, is an outstanding collection of scholarly chapters from leading experts from around the world on the molecular structure and mechanism of the dynein motors and on the diverse physiological functions served by dyneins. The book is an excellent reference for scientists new to the field and for seasoned experts with many years' experience in the study of molecular motors. The text includes a helpful historical perspective on the challenges of studying dynein motors, and excellent illustrations of experimental approaches and summary models of the current understanding of the structure and mechanism of dyneins."

Prof. Winfield S. Sale
Emory University, USA

Dyneins are molecular motors that are involved in various cellular processes, such as cilia and flagella motility, vesicular transport, and mitosis. Since the first edition of this book was published in 2012, there has been a breakthrough: the crystal structures of the motor domains of cytoplasmic dynein have been solved and the previously unknown details of this huge and complex molecule have been unveiled. This new edition contains 14 chapters written by researchers from the US, Europe, and Asia, including 3 new chapters that incorporate new fields. The other chapters have also been substantially updated and rearranged. Compared with the earlier edition, this book focuses more on the motile mechanisms of dynein, especially by biophysical methods such as cryo-EM, X-ray crystallography, and single-molecule nanometry. It is a major handbook for frontline researchers as well as for advanced students studying cell biology, molecular biology, biochemistry, biophysics, and structural biology.



Keiko Hirose is a researcher with more than 30 years' experience in structural and functional studies of motor proteins. She has a PhD from the University of Tokyo and was a postdoctoral fellow at the University of Pennsylvania and at the MRC Laboratory of Molecular Biology, Cambridge, UK. She is especially interested in how molecular motor proteins, such as dynein, move. Dr. Hirose has been working at the National Institute of Advanced Industrial Science and Technology, Japan, since 1997.



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