



Outline Studies in Biology

The Cytoskeleton

Alice B. Fulton

The eucaryotic cytoskeleton is a dynamic, fibrous, three-dimensional network responsible for spatial order within the cell. This book discusses the cytoskeleton at three levels: protein chemistry, cell-specific architecture (including plants and protists), and choreography, the orderly rearrangement of structures during such processes as cell movement, mitosis, phagocytosis and secretion. Comparisons are drawn at each level between normal and transformed cells.

Each section discusses the unifying organization at a given level, while distinguishing the relevant features of subsystems. Actin, tubulin, and the intermediate filament proteins are shown to share characteristics essential for structural proteins, and to differ in functionally significant ways. The development of cytoskeletal architecture is traced from red blood cells, platelets and fibroblasts through epithelia and the three classes of muscle. The comparable features of plants and protists are also discussed. The cytoskeletal behaviors examined include the action of cytoskeletal drugs, cell shape and movement, endocytosis and exocytosis, mitosis, the interaction between the cytoskeleton and gene expression, and the alterations of the cytoskeleton during transformation.

This concise and readable text provides undergraduate and beginning graduate students with an integrated account of the hierarchical organization of the cytoskeleton.

Chapman and Hall

733 Third Avenue, New York NY 10017
11 New Fetter Lane, London EC4P 4EE

12 25510 3