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**Sinopsis**

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The advent of ever more sophisticated molecular manipulation techniques has made it clear that cellular systems are far more complex and dynamic than previously thought. At the same time, experimental techniques are providing an almost overwhelming amount of new data. It is increasingly apparent that linking molecular and cellular structure to function will require the use of new computational tools.

This book provides specific examples, across a wide range of molecular and cellular systems, of how modeling techniques can be used to explore functionally relevant molecular and cellular relationships. The modeling techniques covered are applicable to cell, developmental, structural, and mathematical biology; genetics; and computational neuroscience. The book, intended as a primer for both theoretical and experimental biologists, is organized in two parts: models of gene activity and models of interactions among gene products. Modeling examples are provided at several scales for each subject. Each chapter includes an overview of the biological system in question and extensive references to important work in the area.

About the Editors

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