SCIENTIFIC AMERICAN

Molecules to Living Cells

With Introductions by Philip C. Hanawalt

"This selection of readings from *Scientific American* unfolds the miracle of the living cell by showing the hierarchy of its assembly from relatively simple small molecules. . . . The emphasis is upon molecular structures, their interactions in forming supramolecular structures, and the genetic control of their synthesis in the growing cells that constitute life. The story develops from George Wald's thoughtful speculations on the probability of life as a chance occurrence to Stanley Cohen's discussion of the new technology of genetic engineering in which the element of chance has been minimized.

"One of the most fascinating intellectual endeavors has been to learn the molecular workings of the very cells of which we ourselves are composed. We are now at the stage where the overall picture is clear although we are far from an understanding of all of the intricate details. This collection of readings documents the current state of our knowledge spiced with a few of the important landmarks along the historical path that brought us to this state. These landmarks are made all the more vivid since they are narrated here by many of those scientists who made the crucial discoveries and who worked out the answers to the mysteries of the living cell in their own laboratories."
—from the Preface

Up to date and fully illustrated, *Molecules to Living Cells* introduces readers to the rapidly advancing field of molecular biology. The introductions by biophysicist Philip Hanawalt integrate the articles, providing background information and discussing current developments not covered in the articles themselves.

For readers who want an authoritative overview of this diverse and important topic, along with descriptions of classic experiments by the scientists who performed them, *Molecules to Living Cells* provides substantive, interesting reading. Exceptionally extensive bibliographies allow readers to pursue topics of particular interest. This volume also makes an excellent addition to a variety of courses in biology, physiology, and biochemistry.

Philip C. Hanawalt holds appointments in the Department of Biological Sciences at Stanford University and the Dermatology Department at Stanford Medical Center. He holds an M.S. in Physics and a Ph.D. in Biophysics from Yale University. Professor Hanawalt has served on advisory committees for the American Cancer Society and the National Institute of Health and for many years has concentrated his research on DNA replication and the repair responses of living systems to their genetic material.

COVER: A scanning electron micrograph of cells isolated from the ovary of a Chinese hamster. The furry round structure is a cell about to divide into two cells; the flattened cells alongside are at an earlier stage in the growth cycle. Micrograph by Keith R. Porter.

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