

About the Book:

Rugged fitness landscapes, an emerging area of biological science, underlie both molecular and morphological evolution. Mathematical descriptions of such landscapes can be expected to lead to new experimental studies that actually test and establish their structure. In addition, current experimental techniques now allow one to carry out applied molecular evolution in the laboratory, opening up the possibility of evolving biomolecules for medical and industrial use. *Molecular Evolution on Rugged Fitness Landscapes*, based on a Santa Fe Institute workshop, is the first book to serve as a comprehensive introduction to these tools that permit researchers to study the structures of complex, rugged, multi-peaked fitness landscapes.

The first section of the book outlines a number of the general issues concerning the structure of rugged fitness landscapes. The second section examines both the history and status of experimental work on somatic mutation and the maturation of the immune response, and discusses current attempts to build detailed models of the affinity landscape. The third section discusses current attempts at applied molecular evolution. Finally, the closing section discusses the hypercycle model of the origin of life. This proceedings volume is an excellent reference for graduate students and professionals in immunology, population biology, physics and molecular biology.

About the Santa Fe Institute:

The *Santa Fe Institute* is a multidisciplinary graduate research and teaching institution formed to nurture research on complex systems and their simpler elements. A private, independent institution, SFI was founded in 1984. Its primary concern is to focus the tools of traditional scientific disciplines and emerging new computer resources on the problems and opportunities that are involved in the multidisciplinary study of complex systems—

those fundamental processes that shape almost every aspect of human life. Understanding complex systems is critical to realizing the full potential of science, and may be expected to yield enormous intellectual and practical benefits.

About the Editors:

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