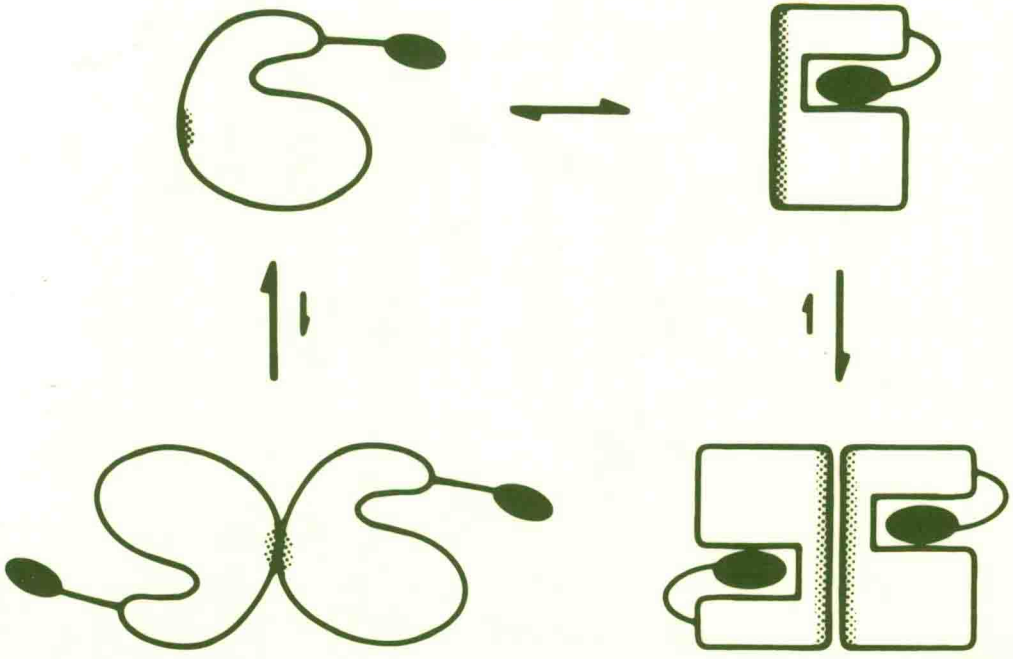
Macromolecular Biorecognition

Principles and Methods

Edited by

Irwin Chaiken
Emilia Chiancone
Angelo Fontana and *Paolo Neri*



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Preface

Specific biomolecular interactions occur in practically every biological process, usually involving macromolecules such as proteins and nucleic acids. Thus, it is not surprising that great attention has been devoted by biologists, chemists, and physical chemists to the general phenomenon of macromolecular recognition in order to gain a better understanding of the principles, forces, and energetics that determine the often remarkable specificities of such interactions as those of enzymes and their substrates and inhibitors, antibodies with antigens, hormones with their receptors, and DNA with drugs. These studies have allowed the unraveling of some basic principles of molecular recognition, such as complementarity, specificity, and dynamics of the interacting species, and at the same time have led to development of analytical and separation techniques based on biological specificity (e.g., affinity chromatography and other bioaffinity methods).

This volume was assembled to address current research and developing ideas in biomolecular recognition through the contributions presented at the Conference on "Mechanisms of Recognition in Biological Macromolecules" held in Siena, Italy, September 4–6, 1986. The Conference was cosponsored by the National Research Council of Italy, the Italian Biochemical Society, the University of Siena, and the International Interest Group in Biorecognition Technology.

It was the intention of the organizers to bring together researchers with a broad range of scientific background in chemistry, biochemistry, biophysics, and immunology in order to discuss the general phenomenon of biorecognition in proteins and nucleic acids and the use of biorecognition principles to solve analytical and separation problems. The major areas chosen for discussion included: principles and methods for the design of recognition surfaces in proteins; specific interactions and functional regulation of proteins; interactions of nucleic acids; analytical and preparative bioaffinity methods; and immunological recognition and development of synthetic vaccines. Scientists from Italy and abroad attended the Conference. The inti-

mate environment prompted a stimulating interdisciplinary forum among scientists working in different fields and looking at a common phenomenon from many specific viewpoints.

The editors hope that this volume will be useful to all researchers interested in understanding the general problem of interacting biomolecules and that it will stimulate new research ideas among its readers much as the meeting did among the conferees in Siena.

Irwin Chaiken
Emilia Chiancone
Angelo Fontana
Paolo Neri

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The efficient cooperation of Conventur S. r. l., Siena, in the organization of this Conference is gratefully acknowledged. The participants in the Conference very much enjoyed, besides science itself, the scenic frame afforded by the beautiful city of Siena, including the festive atmosphere at the reception hosted in the City Hall and the dinners in the Contrada della Selva and in Piazza del Campo.

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