

# Methods in ENZYMOLOGY

Volume 203

Molecular Design and Modeling:

Concepts and Applications

Part B

Antibodies and Antigens, Nucleic Acids,  
Polysaccharides, and Drugs

*Edited by*

John J. Langone

*Methods in Enzymology*

*Volume 203*

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*Antibodies and Antigens, Nucleic Acids,  
Polysaccharides, and Drugs*

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*John J. Langone*

MOLECULAR BIOLOGY BRANCH  
DIVISION OF LIFE SCIENCES  
CENTER FOR DEVICES AND RADIOLOGICAL HEALTH  
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## Preface

The construction of molecules based on a rational design that includes structural features representing binding and/or functional sites has evolved into a new era as a result of a greater understanding of how acceptors bind to ligands and the availability of powerful analytical techniques and methods of synthesis derived mainly from molecular biology. Powerful computer hardware and increasingly friendly software that can be used by experimentalists as well as by those with a more theoretical background have fostered an unparalleled level of research interest at a time when chemical and biological properties that not long ago were essentially the sole domain of naturally occurring products can now be incorporated into specifically designed macromolecules and low molecular weight drugs for use as biochemical reagents, biomedical materials, or in medical devices.

Volumes 202 and 203 of *Methods in Enzymology* include topics in which molecular modeling and applications of design principles and techniques are covered from both methodological and didactic approaches. Computer-based design and modeling, computational approaches, and instrumental methods for elucidating molecular mechanisms of protein folding and ligand-acceptor interactions are included as are genetic and chemical methods for the production of functional molecules, including antibodies and antigens, enzymes, receptors, nucleic acids and polysaccharides, and drugs.

The aim of these volumes is to present mainstream concepts and methodology and to give an up-to-date view of the subject matter. This is with the understanding that new developments appear constantly, and that it would not be prudent or desirable to attempt to include all available and often more specialized or limited techniques.

At the end of each of these volumes is a Cross-Index to Prior Volumes in which related chapters from previously published volumes of *Methods in Enzymology* are listed. Each list serves as a reference guide and allows us to avoid repeated coverage of topics presented in these earlier volumes.

Continued collaboration with John Abelson, Mel Simon, and our colleagues at Academic Press is gratefully acknowledged. A special note of thanks is due Dina Langone for expertly managing the many office tasks involved in assembling these volumes.

JOHN J. LANGONE

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