

*Sidney P. Colowick and Nathan O. Kaplan*

# Methods in ENZYMOLOGY

Volume 115

Diffraction Methods  
for Biological Macromolecules  
Part B

*Edited by*

Harold W. Wyckoff

C. H. W. Hirs

Serge N. Timasheff

*Methods in Enzymology*

*Volume 115*

*Diffraction Methods for  
Biological Macromolecules*

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## Preface

The aim of "Methods in Enzymology" volumes is to present as comprehensively as possible current techniques used in biochemistry, encompassing biological mechanisms, chemistry, and structure. In previous volumes, detailed coverage of solution physical-chemical techniques for the study of protein conformations, conformational changes, and interactions has been provided.

The two volumes on Diffraction Methods for Biological Macromolecules, Parts A and B, are devoted to a description of diffraction methods for biological macromolecules and assemblies. Different aspects of the methods involved in solving, presenting, and interpreting structure so that the reader can proceed knowledgeably and productively toward his goals are presented. We believe that an understanding of the fundamentals of each aspect of the overall method is both intellectually satisfying and practically important.

These two volumes have been divided according to the logical sequence of steps in structure determination. Part A is devoted to the experimental aspects of X-ray crystallography, starting from crystal growth and crystal handling, followed by methods of data collection. Part B includes analysis of the data, covering various aspects of phasing and refinement as well as the structures and methods for their analysis.

The goal which we hoped to attain was twofold: to give biochemists an introduction to the field of macromolecular structure determination, offering them guidance to pathways that are available to determine the structure of a protein, and to give practitioners of X-ray crystallography a comprehensive summary of techniques available to them, some of which are at the state-of-the-art level.

We wish to acknowledge with pleasure and gratitude the generous cooperation of the contributors. Their suggestions during the planning and preparation stages have been particularly valuable. Academic Press has provided inestimable help in the assembly of this material. We thank them for their many courtesies.

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