Methods in Enzymology

Volume XLVI

Affinity Labeling

EDITED BY

William B. Jakoby

Meir Wilchek

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NATIONAL INSTITUTES OF HEALTH
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Preface

Few investigators entertaining the use of affinity labels will be interested in working with the enzymes, antibodies, receptors, or other macromolecular structures that are reported on here. Indeed, if the work has been done well—and this volume contains a number of elegant examples of affinity labeling—there is little value in repeating identical procedures. What then is the rationale for presenting this material in the context of the Methods in Enzymology series?

The answer requires acknowledgment that the state of the art is such that the detailed instructions for designing effective affinity labels cannot be given with predictive success. Although the first section of this volume, that on general methodology, attempts to present both a critical basis for design as well as a number of synthetic methods of wide applicability, these serve only as guidelines at best. The specific instances that are analyzed in the subsequent articles represent both the triumphs and shortcomings of the technique of affinity labeling in its various guises, including those in which the labeling has little to do with the specific interactions that are basic to the method.

The answer, then, is that our aim in collecting this large number of illustrative methods is to offer to the investigator contemplating the design of a specific affinity label a background to the type of problems and complexities that have been encountered by others. Our expectation is that at least some of the difficulties may be avoided and others may be correctly interpreted. Since some of the affinity reagents are ligands for proteins other than those recorded here, the fortunate investigator may find in this volume the very compound suitable for the purpose. To aid in the search for such compounds lists of ligands and of macromolecules that are discussed in this volume have been compiled.

It would be unfair to blame the contributors to Volume XLVI for failure to include the specifics of the actual labeling experiments. Our instructions to the authors were to stress the design aspects and synthesis of the reagents, including those instances that were not successful, rather than the details of their use; the latter aspect is readily available in the primary journals.

The investigator may also wish to consult Volume XXXIV of this series in which a number of synthetic methods and concepts are discussed from the standpoint of affinity methods applicable to the separation of proteins.

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METHODS IN ENZYMOLOGY

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II. Preparation and Assay of Enzymes
III. Preparation and Assay of Substrates
IV. Special Techniques for the Enzymologist
V. Preparation and Assay of Enzymes
VI. Preparation and Assay of Enzymes (*Continued*)
Preparation and Assay of Substrates
Special Techniques
VII. Cumulative Subject Index

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List of Substances for Which Affinity Analogs Are Presented

Article numbers follow each entry

List of Macromolecules Subjected to Affinity Labeling

Article numbers follow each entry