

Methods in Enzymology

Volume 70

Immunochemical Techniques

Part A

EDITED BY

Helen Van Vunakis

John J. Langone

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Preface

Immunochemical procedures provide an important supplement to the battery of available chemical and instrumental methods and can often yield new information not readily obtainable in other ways. Antibodies are extraordinary analytical reagents since they can have specificity for macromolecules (proteins, nucleic acids, and polysaccharides) as well as for small molecules belonging to almost every chemical class. In a field that is moving so rapidly, an exhaustive compilation of immunochemical techniques is neither possible nor practical. Our purpose is to provide the investigator with significant examples and sufficient background information so that he can properly assess and adapt these techniques to his research.

This is the first of several volumes to be devoted to the description and application of immunochemical techniques. It deals with the basic principles of antigen-antibody reactions, production of reagent antibodies, as well as with purification and characterization of antibodies and antigens. Antibodies to individual compounds can be used with tracer molecules to develop sensitive, specific, rapid, and reproducible immunoassays. General procedures required to develop suitable radioimmunoassays and solid phase immunoradiometric assays are described in detail. Immunoassays that utilize means of detection other than radioactivity are included. Such assays are becoming increasingly popular because they possess the desirable attributes of good analytical methods yet avoid the generation of radioactive waste.

Already in progress is a second volume that will supplement the topics presently covered and include other important techniques. Innovative and practical applications of immunochemical methods have been described in other volumes of this series. We have avoided duplication so far as possible, and have included a cross-reference bibliography for each section (see pp. 481-484) to direct the reader to related papers in other volumes. Subsequent volumes will be involved with the development and application of immunoassays for specific compounds as well as for different classes of compounds.

We are grateful to the authors for their contributions and to the staff of Academic Press for invaluable assistance. Carla Langone is to be commended for her competent handling of the correspondence. Timely advice and constructive criticism were given by Nathan O. Kaplan and Sidney P. Colowick. Although this is the seventieth volume in the *Methods in Enzymology* Series, their enthusiasm, interest, and concern remain undiminished.

HELEN VAN VUNAKIS
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METHODS IN ENZYMOLOGY

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Section 1

Basic Principles and General Methods

