

Methods in Enzymology

Volume 165

*Microbial Toxins:
Tools in Enzymology*

EDITED BY

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Preface

Microbial toxins are being used as precise tools to dissect biochemical pathways and to elucidate complex chemical structures. They have been exploited to define GTP-binding proteins, to characterize lipid structures in membranes, and to selectively permeabilize cells, to mention but a few applications. This volume is a convenient source both for methods of preparing a variety of microbial toxins and for their assay.

The book has been divided into two sections. Methods for the preparation of various toxins are reported in the first section. Emphasis is on simplicity of the procedure and the purity of biological activity rather than on physical chemical purity. For convenience, the toxins have been grouped under the classification of the organisms that produce them. Included are examples of hemolysins, proteases, protein synthesis inhibitors, ADP-ribosyltransferases, lipases, enterotoxins, neurotoxins, and the construction of a toxin hybrid molecule. The second section is devoted to descriptions of different ways of measuring the biochemical or physiological activities of the various toxins. It begins with a general procedure for the assay of hemolysins followed by more specific methods for assaying inhibition of protein synthesis, ADP-ribosylating activity, neurotoxic actions, membrane permeabilization, lipases, enterotoxins, and special assays for TSST-I. The section concludes with a description for photolabeling of membrane-penetrating toxins, the electron microscopic study of toxins, and the analysis of two-dimensional crystals of toxins.

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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
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