



PROTEINS

Structure and Function



Edited by James J. L'Italien



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James J. L'Italien

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PREFACE

This volume surveys the current status of many of the important methods and approaches which are central to the study of protein structure and function. Many of the articles in this volume are written to emphasize the general utility of the method or approach which is at its core, and to provide sufficient literature references to enable the reader to adapt the method or approach to other applications. It is hoped that this volume will provide a source from which newcomers as well as experienced scientists may become more familiar with recent developments and future trends in some of the important areas of protein research.

The articles which comprise this book are selected proceedings from the Symposium of American Protein Chemists, which was held in San Diego, California, September 30 to October 3, 1985. The goal of the organizers of this first symposium was to provide a forum for discussion and interaction among scientists whose interests span the broad spectrum of protein structure and function research. The concept and timing of the symposium was well received as evidenced by the approximately 500 delegates to the symposium. The inaugural meeting was marked by a strong scientific program with over 140 papers presented in either a lecture or poster format. A majority of the symposium attendees took part in an open forum on the relative merits and timeliness of forming a scholarly society of scientists interested in protein structure and function. The outcome of this forum was the formation of "The Protein Society."

From an organizational perspective, this book is divided into three major sections. The first of these sections, entitled "Methods of Polypeptide Purification and Characterization," addresses recent development dealing with microanalytical advances in polypeptide isolation and structural elucidation. Topics in this section include applications of microbore HPLC to polypeptide isolation; direct electrotransfer of polypeptide for microsequence analysis; micropreparative isolation of polypeptides by HPLC and immunoaffinity chromatography for microsequence analysis; and microanalytical polypeptide applications of FAB mass spectrometry. The second major section is entitled "Analysis of Protein Structure and Function." This section focuses upon recent developments, as well as new applications of established methods, in determining polypeptide structure/function relationships. Papers in this section highlight the use of molecular biological approaches for site directed mutagenesis and active site studies; biochemical approaches to active site localization; and chemical and immunological approaches to domain and topographical studies. This section also includes papers on the characterization of proteases and the identification of sites of covalent Post-Translational modification. The third section of the book is a summary of microsequencing workshop which was held in conjunction with the symposium. This unprecedented event permitted all conference attendees the opportunity to request an aliquot of an unknown polypeptide which they could characterize by their method(s) of

choice. This "survey" provides an interesting perspective on which techniques scientists feel are most reliable for characterization of an unknown "micro" sample and furthermore, permits a comparison of results obtained by various methods on the same unknown sample.

James J. L'Italien

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