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METHODS IN MOLECULAR BIOLOGY™

Peptide Characterization and Application Protocols

Edited by

Gregg B. Fields

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Preface

It has been over a century since the first peptide synthesis, as well as the creation of the term “peptide,” was reported by Fischer and Fourneau. Prior volumes of *Methods in Molecular Biology* have included peptide synthesis (#35, #73, #87), analytical techniques that may be utilized to characterize synthetic peptides (#36, #60, #73, #146, #159, #211, #251, #276), combinatorial peptide libraries (#87), and production of antibodies using peptides (#151, chapter 26). However, this is the first volume of the series dedicated entirely to the characterization of peptides and their application for study of biochemical systems. The most recent advances in selected analytical techniques are presented. Among these is a comprehensive updating of high-performance liquid chromatography for purification and evaluation of peptides. Mass spectrometry is utilized for analysis of standard and modified peptides. Recent advances in the synthesis and characterization of membrane peptides closes out the first section of *Peptide Characterization and Application Protocols*.

A variety of specific applications of synthetic peptides compose the remainder of this volume. Conformationally constrained peptides are described as potential ligands, substrates, and enzyme inhibitors. Such peptides are also utilized for proteolytic profiling of melanoma. Drug and siRNA delivery is enhanced by peptides engineered for these purposes. Finally, peptides serve as imaging, anti-aggregatory, and antimicrobial agents. Overall, the collected works presented in this volume represent the systematic manner in which peptides can be constructed, analyzed, and applied to attack contemporary problems in biochemistry.

Peptide Characterization and Application Protocols is dedicated to the late Murray Goodman (1928–2004), a friend and mentor to so many in the peptide research community. His tireless research efforts covered many aspects of peptide synthesis, characterization, and application, and were inspirational.

Gregg B. Fields

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