
Preface

The observation that neuropeptide Y (NPY) is the most abundant peptide present in the mammalian nervous system and the finding that it elicits the most powerful orexigenic signal have led to active investigations of the properties of the NPY family of hormones, including peptide YY (PYY) and pancreatic polypeptide (PP). Nearly two decades of research have led to the identification of several NPY receptor subtypes and the development of useful receptor selective ligands. Moreover, these investigations have implicated NPY in the pathophysiology of a number of diseases, including feeding disorders, seizures, memory loss, anxiety, depression, and heart failure. Vigorous efforts are therefore continuing, not only to understand the biochemical aspects of NPY actions, but also toward developing NPY-based treatments for a variety of disorders. To facilitate these efforts, it was decided to produce the first handbook on NPY research techniques as part of the Methods in Molecular Biology Series.

In compiling *Neuropeptide Y Protocols*, I have gathered contributions on techniques considered critical for the advancement of the NPY field from experts in various disciplines. Each chapter starts with a brief introduction, with Materials and Methods sections following. The latter sections are presented in an easy to follow step-by-step format. The last section of the chapter, Notes, highlights pitfalls and the maneuvers employed to overcome them. This information, not usually disseminated in standard research publications, may prove extremely useful for investigators employing these techniques in NYP research.

Neuropeptide Y Protocols contains a total of 18 chapters divided into five parts. Part I describes various cloning techniques in six chapters, including genomic DNA isolation, expression cloning, classical techniques, PCR cloning, construction of hybrid receptors, and homology-based cloning. Production of transgenic and knockout models is described in Part II. Four chapters in Part III illustrate the use of antisense technology to define the receptors and the signal transduction pathways mediating NPY actions. Various qualitative and quantitative techniques used to study tissue mRNA distribution are described in a total of five chapters spanned across Parts IV

and V. A chapter on radioligand binding is also included in Part V. The techniques described here could easily be extrapolated to study any peptide hormone. Therefore, *Neuropeptide Y Protocols* should benefit all investigators involved in polypeptide hormone research.

I wish to express my appreciation to all the authors for their excellent contributions, and particularly for meeting their deadlines. Appreciation is also expressed to my colleague, Sulaiman Sheriff, for the chapter and his help in selecting the contents of this volume. The series editor, John Walker, has contributed to the success of this volume in many ways, and is appreciated very much. Finally, I am grateful to Koti Sreekrishna, Senior Scientist, Procter and Gamble, Inc., Cincinnati, OH, for his expert help in editing these chapters.

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