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## Preface

When asked by Springer to serve as the editor on a second volume<sup>1</sup> of new methods and research from the world of G protein-coupled receptors (GPCRs), I immediately accepted without hesitation. Sure, it would be a lot of work contacting national and international experts, many of whom I know only from their research publications or heard speak once at a conference. There would be inevitable delays and numerous frustrations, waiting on the few remaining chapters to come in from far-flung places in the world. There would be a considerable amount of time spent editing as international experts by definition are located at institutions around the world, many of whom communicate in English as a second language. But the lure of the GPCR, the serpentine membrane protein, the almighty 7TM, the object of my heptahelical obsession, forced a quick acceptance, and a year later, this volume finds its way into the hands of the reader.

The prospect of searching vast GPCR references and reading new research publications to assemble a volume on the *GPCR Genetics: Research and Methods in the Post-Genomic Era* is most appealing. Much of the methodology and advancement in the GPCR field is due to the promethean set of molecular tools released since the completion of the human genome. Reflecting the post-genomic era we now live in, these new genetic methods and technology in the field of GPCR research are highlighted by the chapters in this volume. From powerful bioinformatic tools tracing the evolution of GPCRs, to methods for the cellular transfection of engineered viruses containing GPCRs, to optogenetic techniques that produce light-activated GPCRs in live mice, what was once science fiction is now science fact. These genetic methods, and the novel data that arises from their use, propels GPCR research past the genomic age and into the future age.

This volume is partitioned into three broadly-named parts. Each part consists of seven chapters, a structural nod to the actual seven transmembrane structures of GPCRs. The first chapter is a short introduction to the areas of research and methods covered in the whole volume, expanding the content of some chapters and providing additional citations. The introductory chapter also summarizes the topic of each chapter and, in doing so, provides a synopsis to each chapter should the reader wish to progress through the volume in a non-linear fashion. Each chapter is organized in a logical sequence from introduction and background to the future directions and conclusions sections ending each chapter. Readers have found the future directions section to be especially insightful; authors were encouraged to speculate on how their field of expertise and its methodology may be used in the future to answer significant research questions.

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<sup>1</sup>The first volume was *Methods for the Discovery and Characterization of G Protein-Coupled Receptors*, Stevens CW (Ed) Neuromethods vol. 60, Humana Press, Springer Science+Business Media, LLC, New York, NY, 2011.

Many thanks to the fine people at Springer who helped with the preparation of this volume. I especially want to thank Patrick Marton and David Casey. Their support and encouragement was a constant affirmation that a second volume on GPCR methods and research would be worth the efforts of the chapter contributors and the editor.

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