

Preface

G protein-coupled receptors, signaling mechanisms and pathophysiological relevance

In the last three decades, the biomedical scientific community has focused much attention on G-protein-coupled receptors (GPCRs). The structure of these integral membrane proteins has been extensively studied and it has been shown to resemble that of the bacterial bacteriorhodopsin proton pump. Nature has found in these molecules a versatile means for propagating extracellular messages, whereby differences in cellular localization, messenger recognition, signal propagation, etc., can be generated through their structural diversity. The interest in these systems also comes from the complexity of the signaling events that they trigger, the variety of pathways they regulate, and the number of proteins controlling the various steps in their signaling cascades. Accordingly, GPCRs play a crucial role in many relevant physiological functions, and their involvement in human pathologies has made them the target of choice for clinical therapies in as many as two-thirds of newly developed medicines. This special issue of *BBA Biomembranes* focuses on different aspects associated with these receptors, albeit within the space constraints imposed. Indeed, in a single issue it would not be possible to cover all the important matters that are associated with such a huge field, but the articles gathered here

certainly deal with what are currently considered important issues. Thus, the reader will find that the collected papers address topics such as the structure and function of GPCRs, their regulation, receptor trafficking and dimerization, new ligands and signaling mechanisms, G proteins and their function, the interactions of GPCR-related signaling proteins with membrane lipids, the involvement of these receptors in the etiology of human pathologies, and their relevance as drug targets. Last but not least, a historic overview of the development of this field is presented by researchers who have contributed significantly to our current understanding of GPCR-associated signal transduction, providing a valuable aid to better understanding recent advances.

Pablo V. Escribá
IUNICS-Biologia, Universitat de les Illes Balears,
Ctra. De Valldemossa km 7,
5 E-07122 Palma de Mallorca, Spain
E-mail address: pablo.escriba@uib.es.
Fax: +34 971 173184