

---

# Contents

Preface .....	v
Contributors .....	ix

## PART I. OVERVIEWS

1. Transmembrane Signaling by G Protein-Coupled Receptors ..... 3  
**Louis M. Luttrell**
2. Crosstalk Coregulation Mechanisms of G Protein-Coupled Receptors  
and Receptor Tyrosine Kinases ..... 51  
**Kanchana Natarajan and Bradford C. Berk**
3. Protein-Protein Interactions in Signaling Cascades ..... 79  
**Bruce J. Mayer**

## PART II. SPECIFIC TOPICS

### A. Membrane Receptors and Signaling

4. Biological Role of the CXCR4-SDF-1 Axis in Normal Human  
Hematopoietic Cells..... 103  
**Marcin Majka and Mariusz Z. Ratajczak**
5. Functional Expression of CXCR4 in *Saccharomyces cerevisiae*  
in the Development of Powerful Tools for the Pharmacological  
Characterization of CXCR4 ..... 115  
**Zi-xuan Wang, James R. Broach, and Stephen C. Peiper**
6. Characterization of Constitutively Active Mutants  
of G Protein-Coupled Receptors ..... 129  
**Jean-Marc Navenot, Zi-xuan Wang, and Stephen C. Peiper**
7. G Protein-Coupled Receptor Dimerization and Signaling ..... 141  
**Mario Mellado, Antonio Serrano, Carlos Martínez-A.,  
and José Miguel Rodríguez-Frade**
8. Real-Time Analysis of G Protein-Coupled Receptor Signaling  
in Live Cells ..... 159  
**Venkatakrishna R. Jala and Bodduluri Haribabu**

### B. Lipid Raft and Caveolae in Transmembrane Signaling

9. Isolation of Membrane Rafts and Signaling Complexes ..... 169  
**Kathleen Boesze-Battaglia**
10. Methods for the Study of Signaling Molecules in Membrane  
Lipid Rafts and Caveolae ..... 181  
**Rennolds S. Ostrom and Paul A. Insel**

**C. Protein–Protein Interaction in Transmembrane Signaling**

11. Bioluminescence Resonance Energy Transfer to Monitor Protein–Protein Interactions ..... 195  
**Tarik Issad and Ralf Jockers**
12. Identification of Interacting Proteins Using the Yeast Two-Hybrid Screen ..... 211  
**Kelly L. Jordan-Sciutto and Marshall B. Montgomery**
13. Analysis of PDZ Domain Interactions Using Yeast Two-Hybrid and Coimmunoprecipitation Assays ..... 233  
**Hyun Woo Lee, Jaewon Ko, and Eunjoon Kim**
14. Clustering Assay for Studying the Interaction of Membrane Proteins With PDZ Domain Proteins ..... 245  
**Jaewon Ko and Eunjoon Kim**

**D. Rho Guanosine Triphosphatases and Reconstitution of Signaling Complexes**

15. Mammalian Cell Microinjection Assay to Study the Function of Rho Family Guanosine Triphosphatases ..... 257  
**Ritu Garg and Anne J. Ridley**
16. Affinity-Based Assay of Rho Guanosine Triphosphatase Activation ..... 269  
**Mary Stofega, Celine DerMardirossian, and Gary M. Bokoch**
17. Assay of Phospholipase D Activity in Cell-Free Systems ..... 281  
**Shankar S. Iyer and David J. Kusner**
18. Reconstitution System Based on Cytosol-Depleted Cells to Study the Regulation of Phospholipase D ..... 299  
**Amanda Fensome-Green and Shamshad Cockcroft**

**E. Genomics and Proteomics**

19. Analysis of Global Gene Expression Profiles Activated by Chemoattractant Receptors ..... 313  
**Fernando O. Martinez and Massimo Locati**
20. Genetic Reconstitution of Bone Marrow for the Study of Signal Transduction Ex Vivo ..... 331  
**Martha S. Jordan**
21. Proteomic Analysis of Human Neutrophils ..... 343  
**George Lominadze, Richard A. Ward, Jon B. Klein, and Kenneth R. McLeish**

Index ..... 357



<http://www.springer.com/978-1-58829-546-0>

Transmembrane Signaling Protocols

Ali, H.; Bodduluri, H. (Eds.)

2006, XII, 364 p. 54 illus., 1 illus. in color., Hardcover

ISBN: 978-1-58829-546-0

A product of Humana Press