

Contents

1 Membrane Protein Production for Structural Analysis	1
Isabelle Mus-Veteau, Pascal Demange and Francesca Zito	
2 Membrane Protein Quality Control in Cell-Free Expression Systems: Tools, Strategies and Case Studies	45
Davide Proverbio, Erik Henrich, Erika Orbán, Volker Dötsch and Frank Bernhard	
3 Bacterial Expression and Stabilization of GPCRs	71
Jean-Louis Banères	
4 Membrane Protein Production in <i>Escherichia coli</i>: Overview and Protocols	87
Georges Hattab, Annabelle Y. T. Suisse, Oana Iliaia, Marina Casiraghi, Manuela Dezi, Xavier L. Warnet, Dror E. Warschawski, Karine Moncoq, Manuela Zoonens and Bruno Miroux	
5 <i>Lactococcus lactis</i>: Recent Developments in Functional Expression of Membrane Proteins	107
Sana Bakari, François André, Daphné Seigneurin-Berny, Marcel Delaforge, Norbert Rolland and Annie Frelet-Barrand	
6 Overexpression of Membrane Proteins in <i>Saccharomyces cerevisiae</i> for Structural and Functional Studies: A Focus on the Rabbit Ca²⁺-ATPase Serca1a and on the Yeast Lipid “Flippase” Complex Drs2p/Cdc50p	133
Cédric Montigny, Hassina Azouaoui, Aurore Jacquot, Marc le Maire, Christine Jaxel, Philippe Champeil and Guillaume Lenoir	
7 Amphipols: A General Introduction and Some Protocols	173
Manuela Zoonens, Francesca Zito, Karen L. Martinez and Jean-Luc Popot	

8	New Amphiphiles to Handle Membrane Proteins: “Ménage à Trois” Between Chemistry, Physical Chemistry, and Biochemistry	205
	Grégory Durand, Maher Abla, Christine Ebel and Cécile Breyton	
9	Building Model Membranes with Lipids and Proteins: Dangers and Challenges	253
	James N. Sturgis	
10	Analytical Ultracentrifugation and Size-Exclusion Chromatography Coupled with Light Scattering for the Characterization of Membrane Proteins in Solution	267
	Aline Le Roy, Cécile Breyton and Christine Ebel	
11	Lipidic Cubic Phase Technologies for Structural Studies of Membrane Proteins	289
	Andrii Ishchenko, Enrique Abola and Vadim Cherezov	
12	Micelles, Bicelles, Amphipols, Nanodiscs, Liposomes, or Intact Cells: The Hitchhiker’s Guide to the Study of Membrane Proteins by NMR	315
	Laurent J. Catoire, Xavier L. Warnet and Dror E. Warschawski	
13	Foundations of Biomolecular Simulations: A Critical Introduction to Homology Modeling, Molecular Dynamics Simulations, and Free Energy Calculations of Membrane Proteins	347
	Marc Baaden, Jérôme Hénin and Antoine Taly	
14	Structural Studies of TSPO, a Mitochondrial Membrane Protein	393
	Jean-Jacques Lacapere, Soria Iatmanen-Harbi, Lucile Senicourt, Olivier Lequin, Piotr Tekely, Rudra N. Purusottam, Petra Hellwig, Sebastien Kriegel, Stephanie Ravaud, Céline Juillan-Binard, Eva Pebay Peyroula and Vassilios Papadopoulos	
	Index	423



<http://www.springer.com/978-1-4939-0661-1>

Membrane Proteins Production for Structural Analysis

Mus-Veteau, I. (Ed.)

2014, XXIII, 425 p. 108 illus., 72 illus. in color.,

Hardcover

ISBN: 978-1-4939-0661-1