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978-1-107-03063-3 - Membrane Structural Biology: With Biochemical and Biophysical Foundations: Second Edition

Mary Luckey

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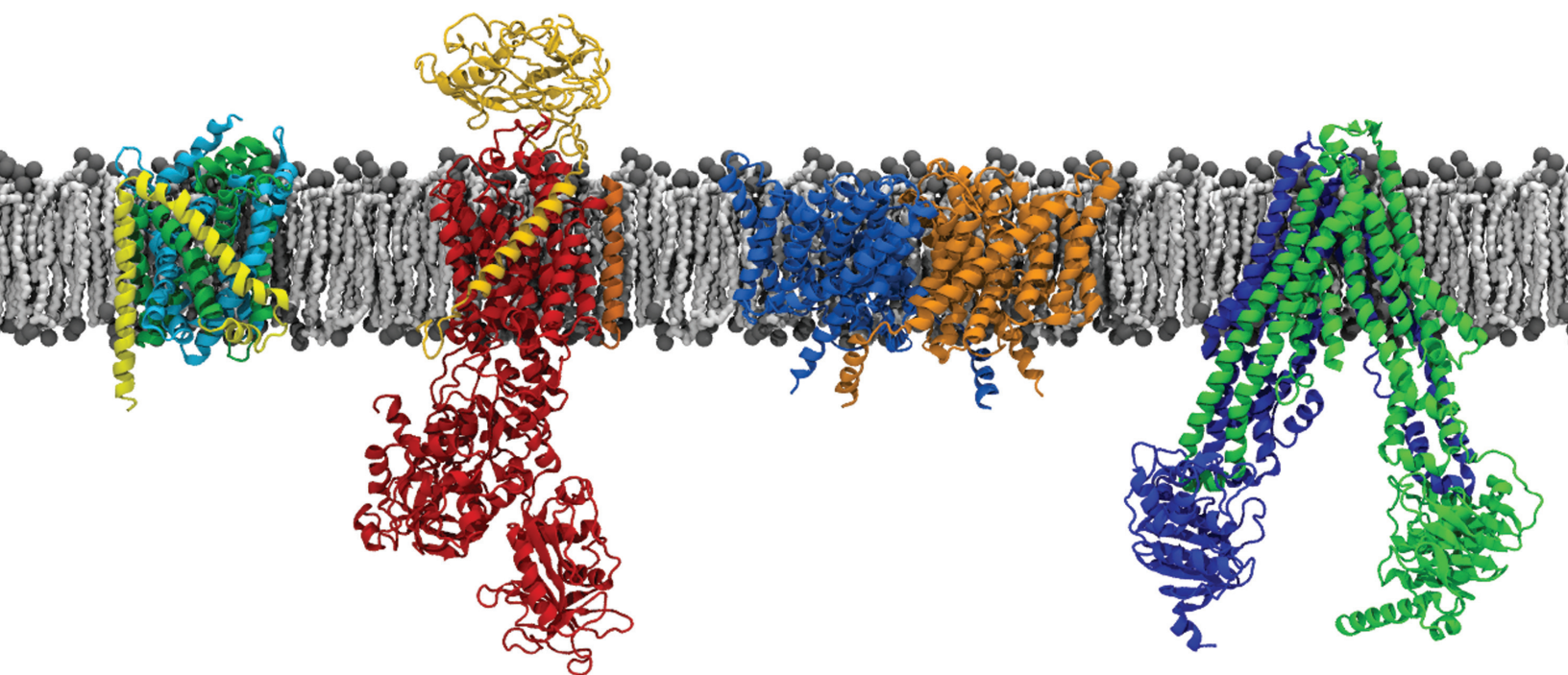
# MEMBRANE STRUCTURAL BIOLOGY

# MARY LUCKEY

San Francisco State University

**WITH BIOCHEMICAL AND  
BIOPHYSICAL FOUNDATIONS**

**SECOND EDITION**



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University Printing House, Cambridge CB2 8BS, United Kingdom

Published in the United States of America by Cambridge University Press, New York

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Information on this title: [www.cambridge.org/9781107030633](http://www.cambridge.org/9781107030633)

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First published 2008  
Reprinted 2011 (twice)  
Second Edition 2014

Printed in the United States by Sheridan Inc.

*Library of Congress Cataloging in Publication data*  
Luckey, Mary, 1948–  
Membrane structural biology : with biochemical and biophysical foundations / Mary Luckey. – Second edition.  
pages cm  
Includes bibliographical references and index.  
ISBN 978-1-107-03063-3 (hardback)  
1. Membranes (Biology) 2. Membrane lipids. 3. Membrane proteins. I. Title.  
QH601.L75 2014  
571.6'4–dc23 2013028009

ISBN 978-1-107-03063-3 Hardback

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Cover image:

The title page shows high-resolution structures of membrane proteins incorporated into a simulated lipid bilayer. The proteins are, from left to right,  $\beta$ 2A in complex with an agonist and a trimeric G-protein, the heme receptor HasR in complex with the heme-binding protein HasA, the trimeric aspartate transporter GltPh that is a homolog for neurotransmitter transporters, the SecYEG translocon in complex with the energizing subunit SecA, the amino acid transporter LeuT that is another homolog for neurotransmitter transporters, the Na<sup>+</sup>, K<sup>+</sup> ATPase, the dimeric chloride transporter ClC, and P-glycoprotein, a dimeric transporter that extrudes drugs.

Kindly provided by J. C. Gumbart, Georgia Institute of Technology, and E. Tajkhorshid, University of Illinois.