

# MOLECULAR PHARMACOLOGY

A Publication of the American Society for Pharmacology and Experimental Therapeutics

Founded by Avram Goldstein—1965

## P. Jeffrey Conn, *Editor*

### ASSOCIATE EDITORS

Paul Dent, Alfred L. George, Steven Grant, Lee M. Graves, Richard B. Kim,  
Dianne M. Perez, Hugh Rosen, Stephen F. Traynelis  
Laura M. Bohn, *Minireview Editor*

### EDITORIAL AND ADVISORY BOARD

Myles Akabas	Frederick J. Ehler	Marcelo Kazanietz	James McCubrey	Roland Reinehr
Jacques Barhanin	Michael Freissmuth	Brian K. Kobilka	James O. McNamara	John J. Reiners, Jr.
Giuseppe Battaglia	Yoshiaki Fujii-Kuriyama	Herman Koepsell	Kathryn E. Meier	Des Richardson
Jeffrey L. Benovic	Ulrik Gether	Rakesh Kukreja	Martin Michel	Michael Robinson
Nigel J.M. Birdsall	Robert I. Glazer	Ping-Yee Law	Laurence Miller	Michael A. Rogawski
Randy D. Blakely	Catherine Godson	L.M. Fredrik Leeb-	Graeme Milligan	Elliott M. Ross
Julie Blendy	Frank J. Gonzalez	Lundberg	Neil M. Nathanson	Bryan L. Roth
Kendall J. Blumer	Michael M. Gottesman	Henry Lester	Richard R. Neubig	Carol A. Rouzer
Michel Bouvier	Robert M. Graham	Lian Li	Kim A. Neve	Arnold E. Ruoho
Thomas P. Burris	Jennifer R. Grandis	Stephen B. Liggett	Robert A. Nicholas	David R. Sibley
William A. Catterall	Randy Hall	Thomas M. Lincoln	Sanjay K. Nigam	Jill Siegfried
Srikumar Chellappan	R. Adron Harris	Richard B. Lock	R. Alan North	Shivendra V. Singh
Arthur Christopoulos	John R. Hepler	Sophie Lotersztajn	Robert E. Oswald	Alan Smrcka
Richard B. Clark	Peter J. Houghton	Peter MacKenzie	Krzysztof Palczewski	David J. Waxman
Phillip A. Dennis	Kenneth A. Jacobson	Sridhar Mani	Gavril W. Pasternak	Jurgen Wess
David L. Dewitt	Andrew Jenkins	David Manning	Tarun Patel	Michael M. White
George Dubyak	Eric F. Johnson	Donald H. Maurice	Jean-Philippe Pin	Keith Williams
Ronald S. Duman	Peter Kalivas	Andrew McCammon	Alvaro Puga	Richard D. Ye

### BOARD OF PUBLICATIONS TRUSTEES

James E. Barrett, *Chair*; P. Jeffrey Conn, Randy A. Hall, Michael F. Jarvis, Eric F. Johnson,  
Kathryn E. Meier, Kim A. Neve, David R. Sibley, Mary Vore, and Jeffrey M. Witkin

**ASPET EXECUTIVE OFFICER:** Christine K. Carrico

*Journals Director:* Richard Dodenhoff

*Managing Editor:* Jill Filler

*Editorial Coordinator:* Mary Blackwood

**Journal and ASPET office:** 9650 Rockville Pike, Bethesda, MD 20814-3995; telephone: 301-634-7060; fax: 301-634-7061; email: info@aspet.org; web site: www.aspet.org; journal web site: molpharm.aspetjournals.org.

**Editorial matters** should be addressed to Dr. P. Jeffrey Conn, Editor, *Molecular Pharmacology*, at the above address.

**Official version:** The online version of *Molecular Pharmacology* contains all of the information and material contained in the print version plus additional material that may not appear in print such as videos and large data sets. The online version may be more current than the print version. Where noted, the online version has been corrected in departure from the print version. The online version of *Molecular Pharmacology* officially published by the American Society for Pharmacology and Experimental Therapeutics is the definitive version and, to the extent any difference exists, will prevail over the print version.

**Instructions to Authors:** See molpharm.aspetjournals.org for the Instructions to Authors and the ASPET Authorship Responsibility, Financial Disclosure, and Chemical Structure Statement form, and Copyright Transfer form.

**Subscriptions:** Contact the ASPET Subscriptions Dept., 9650 Rockville Pike, Bethesda, MD 20814-3995; telephone: 301-634-7782; fax: 301-634-7061; email: subscriptions@aspet.org. For multi-site and consortia sales in Europe, contact: David Charles, eLicensing, 92 avenue du Général de Gaulle, 78600, Maisons-Laffitte, France; telephone: +33-1-39-12-29-29; fax: +33-1-39-12-47-45; email: dc.Elicensing@orange.fr.

**Change of address:** ASPET must be notified 60 days in advance. Copies undeliverable because of incorrect address will be destroyed. Duplicate copies may be obtained, if available, from ASPET at the single copy price. Send address changes to the ASPET office.

**Issue replacement policy:** *Domestic subscribers*—Claims for non-delivery of issues must be made within three (3) months of issue mail date. *Foreign subscribers*—Claims for nondelivery of issues must be

made within six (6) months of issue mail date. **Missing Issues (domestic and foreign)**—ASPET will not honor refunds or replacement requests made outside of the claim time period. Up to two (2) issues will be replaced free of charge per subscription year.

**Reprints in large quantities** for commercial or academic use may be purchased from ASPET. For information and prices, call 301-634-7063.

**Copyright information:** *Molecular Pharmacology* is copyrighted by the American Society for Pharmacology and Experimental Therapeutics. For permission to photocopy or use material electronically from *Molecular Pharmacology*, see www.copyright.com or contact the Copyright Clearance Center (CCC), Inc., 222 Rosewood Dr., Danvers, MA 01923; telephone: 978-750-8400. Photocopying of articles beyond that permitted by Sections 107 and 108 of the U.S. Copyright Law is allowed, provided that the \$20.00-per-copy fee is paid through the CCC. Classroom photocopying is permitted at no fee, provided that students are not charged more than the cost of duplication. This consent does not extend to other kinds of copying. Reproduction of any portion of an article for subsequent republication requires permission of ASPET. Write to the ASPET office at the above address. Requests should include a statement of intended use as well as explicit specifications of the materials to be reproduced.

**Disclaimer:** The statements and opinions contained in the articles of *Molecular Pharmacology* are solely those of the individual authors and contributors and not of the American Society for Pharmacology and Experimental Therapeutics. The appearance of advertisements in the journal is not a warranty, endorsement, or approval of the products or their safety. The American Society for Pharmacology and Experimental Therapeutics disclaims responsibility for any injury to persons or property resulting from any ideas or products referred to in any article or advertisement.

**Copyright** © 2011 by the American Society for Pharmacology and Experimental Therapeutics. All rights reserved. Printed in the U.S.A.