

The Journal of Pharmacology and Experimental Therapeutics

A Publication of the American Society for Pharmacology and Experimental Therapeutics

Founded by John J. Abel - 1908

Michael F. Jarvis, Editor

Keith Glaser, Assistant Editor

ASSOCIATE EDITORS

Darrell R. Abernethy
Ian Adcock
Arthur Christopoulos
Salvatore Cuzzocrea
Giora Z. Feuerstein
Mitchell P. Fink

David A. Gewirtz
Alan R. Gintzler
Yuichi Hattori
Ronald N. Hines
Raouf A. Khalil
Rohini Kuner

Lawrence H. Lash
Roberto Levi
Philip R. Mayeux
David S. Miller
Richard A. Morrisett

James M. O'Donnell
Bryan L. Roth
Robert A. Roth
Roland Seifert
Domenico Spina

Kenneth D. Tew
David Weinschenker
Michael Williams
Raymond J. Winquist
Benjamin Yerxa

EDITORIAL ADVISORY BOARD

Geoffrey W. Abbott
Thomas J. Abbruscato
Peter Abel
Edson X. Albuquerque
Bradley Andresen
Thomas M. Argentieri
Reto Asmis
John Auchampach
Bork Balkan
Amy Baner-Berceli
William A. Banks
Bjoern Bauer
Reina Bendayan
Jack Bergman
Daniel C. Bertrand
Italo Biaggioni
Mark A. Birrell
Floyd E. Bloom
Jean-Marie Boeynaems
Franco Borsini
Robert Brock
Marco Brotto
Nancy Brown
Qin Chen
Jon Corton
Lucio G. Costa

Brian M. Cox
Bryan F. Cox
Brian Cummings
Ann Daly
M. Imad Damaj
William C. deGroat
Russell Delude
Patrick Dougherty
Grant Drummond
Andrea Eckhart
Frederick J. Ehler
John L. Evenden
Alessandro Fatatis
Steven J. Feinmark
Stephen F. Flaim
Anthony W. Fox
Gert Fricker
Ryan Fryer
Hiroyuki Fukui
James J. Galligan
Vadivel Ganapathy
Patricia E. Ganey
Kathy Gauthier
Gary Gintant
John R. Glowa
Steven M. Grassl

Garrett J. Gross
Perry V. Halushka
Gyorgy Hasko
Derek Hausenloy
Paul Heerdt
Susanna Hourani
Leonard L. Howell
Dale G. Hoyt
John Imig
Edwin K. Jackson
Douglas Johns
Kenneth M. Johnson
William J. Jusko
Peter W. Kalivas
Mark R. Kelley
Lewis B. Kinter
Thomas Kocarek
Wouter Koek
George F. Koob
Suk-Hee Lee
Richard Lock
Benedict R. Lucchesi
Joseph J. Lynch
Lee Ann MacMillan-Crow
Gerard Marek
Rosalinde Masereeuw

Mark J. Millan
Virginia Miller
Giorgio Minotti
Hitoshi Morikawa
Hasan Mukhtar
S. Jamal Mustafa
Michael Nader
S. Stevens Negus III
Kim A. Neve
Yasuyuki Nomura
James S. Norris
Grazyna Nowak
Patricio O'Donnell
Nazareno Paolucci
Achilles J. Pappano
B. Kevin Park
Sandra Pfister
Russell O. Pieper
Russell A. Prough
Raymond M. Quock
Fabio Recchia
J. Larry Renfro
Richard Rothman
Jonathan G. Scammell
Michal Laniado
Schwartzman

Federico Sesti
Patrick Sexton
Shivendra D. Shukla
David R. Sibley
Theodore A. Slotkin
Philip C. Smith
Nikolai M. Soldatov
Patricia K. Sonsalla
Michael D. Southall
Roger D. Spealman
Francis G. Spinale
Douglas Sweet
Milt Teitler
Alvin V. Terry
Myron L. Toews
George J. Trachte
Hiroshi Ueda
Ellen Walker
Sandra P. Welch
Daniel Wierda
Jeffrey M. Witkin
Bryan K. Yamamoto

BOARD OF PUBLICATIONS TRUSTEES

James E. Barrett, *Chair*; Randy A. Hall, Michael F. Jarvis, Kathryn E. Meier, Edward T. Morgan, Kim A. Neve, David R. Sibley, Stephen F. Traynelis, and Jeffrey M. Witkin

ASPET EXECUTIVE OFFICER: Christine K. Carrico

Journals Director: Richard Dodenhoff

Managing Editor: Jill Filler

Editorial Coordinator: Cassie Wood

The Journal of Pharmacology and Experimental Therapeutics (ISSN 1521-0103) is published monthly online only by the American Society for Pharmacology and Experimental Therapeutics, 9650 Rockville Pike, Bethesda, MD 20814-3995. E-mail: subscriptions@aspet.org. ASPET web site: aspet.org. Journal web site: jpet.aspetjournals.org. Subscription rates at aspetjournals.org/site/subscriptions/index.xhtml. GST Tax Number for Canadian subscribers: BN:13489 2330 RT.

Indexed or abstracted by: *Biochemistry & Biophysics Citation Index*®, *Biological Abstracts*, *BIOSIS Previews Database*, *Bio-Sciences Information Services*, *Current Awareness in Biological Sciences*, *Current Contents*®/*Life Sciences*, *EMBASE/Excerpta Medica*, *Index Medicus*, *Medical Documentation Service*®, *PsycINFO*, *Reference Update*®, *Research Alerts*®, *Science Citation Index*®, *SciSearch*®, and *SIIC Data Bases*.

Journal and ASPET office: 9650 Rockville Pike, Bethesda, MD 20814-3995. Telephone: 301-634-7060. Fax: 301-634-7061. E-mail: info@aspet.org. ASPET web site: aspet.org. Journal web site: jpet.aspetjournals.org.

Editorial matters should be addressed to Dr. Michael F. Jarvis, Editor, *The Journal of Pharmacology and Experimental Therapeutics*, at the above address.

Instructions to Authors: See jpet.aspetjournals.org for the Instructions to Authors and the ASPET Authorship Responsibility, Financial Disclosure, and Chemical Structure Statement forms.

Subscriptions: Contact the ASPET Subscriptions Dept., 9650 Rockville Pike, Bethesda, MD 20814-3995. Telephone: 301-634-7782. Fax: 301-634-7061. E-mail: subscriptions@aspet.org. See aspetjournals.org/site/subscriptions/index.xhtml for rates.

Change of IP addresses: ASPET will help institutional subscription administrators update IP address ranges as requested. Subscription administrators can make these changes at the journal site using their account user name and password.

Reprints of individual articles are available from the journal web site using the pay-per-view option for nonsubscribers.

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

Copyright information: *The Journal of Pharmacology and Experimental Therapeutics* is copyrighted by the American Society for Pharmacology and Experimental Therapeutics. For permission to photocopy entire articles from *The Journal of Pharmacology and Experimental Therapeutics*, see www.copyright.com or contact the Copyright Clearance Center (CCC), Inc., 222 Rosewood Dr., Danvers, MA 01923. Telephone: 978-750-8400. For permission to reprint portions of articles such as figures and tables or to reprint entire articles in a thesis or dissertation, see www.aspet.org/webforms.aspx?ekfrm=84. Photocopying or printing articles beyond that permitted by Sections 107 and 108 of the U.S. Copyright Law is allowed, provided that the \$25.00-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.

Disclaimer: The statements and opinions contained in the articles of *The Journal of Pharmacology and Experimental Therapeutics* 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 © 2012 by the American Society for Pharmacology and Experimental Therapeutics. All rights reserved.