PHARMACOLOGICAL REVIEWS

A Publication of the American Society for Pharmacology and Experimental Therapeutics *Louis S. Goodman, Founding Editor, 1949*

Eric L. Barker, Editor

ASSOCIATE EDITORS

Stephen P. Alexander Nottingham, United Kingdom MacDonald J. Christie Sydney, Australia Robert Dantzer Houston, Texas Lynette Daws San Antonio, Texas Charles France San Antonio, Texas Christopher J. Garland Oxford, United Kingdom Michael Gottesman Bethesda, Maryland

Birgitte Holst Čopenhagen, Denmark Vivian Hook San Diego, California Paul A. Insel La Jolla, California Yoshihiro Íshikawa Yokohama, Japan Lori L. Isom Ann Arbor, Michigan Hyunyoung (Young) Jeong Chicago, Illinois Habibeh Khoshbouei Gainesville, Florida

Markku Koulu
Turku, Finland
Finn Olav Levy
Oslo, Norway
Qiang Ma
Morgantown, West
Virginia
Martin Michel
Ingelheim,
Germany
Michael Nader
Winston-Salem,
North Carolina
Eliot Ohlstein
Glenmore,
Pennsylvania

Clive Page London, United Kingdom Amin Rostami-Hodjegan Manchester, United Kingdom Nancy R. Rusch Little Rock, Arkansas Gunnar Schulte Stockholm, Sweden Ulf Simonsen Trige, Denmark Rhian M. Touyz Glasgow, United Kingdom Richard D. Ye Shanghai, China

ASPET BOARD OF PUBLICATIONS TRUSTEES

Mary Vore, Chair; Eric L. Barker, Jack Bergman, Lynette Daws, Beverley Greenwood-Van Meerveld, Michael F. Jarvis, J. Steven Leeder, Kathryn E. Meier, Emily E. Scott, Jeffrey C. Stevens, Kenneth D. Tew, Judith A. Siuciak, ex officio; and Joseph Jilik, ex officio Young Scientist Representative

ASPET EXECUTIVE OFFICER: Judith A. Siuciak JOURNALS DIRECTOR: Richard Dodenhoff PEER REVIEW MANAGER: Jacqueline Perry

Editorial supervision of *Pharmacological Reviews* is shared jointly with the **British Pharmacological Society** and the **Scandinavian Pharmacological Societies.**

Pharmacological Reviews (ISSN 1521-0081) is published quarterly in January, April, July, and October online only by the American Society for Pharmacology and Experimental Therapeutics, 1801 Rockville Pike, Suite 210, Rockville, MD 20852-1633. E-mail: subscriptions@aspet.org. ASPET web site: aspet.org. Journal web site: pharmrev.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: Biological Abstracts, BIOSIS Previews Database, Biosciences Information Service, Current Contents®/Life Sciences, EMBASE/Excerpta Medica, Index Medicus, Index to Scientific Reviews®, Medical Documentation Service®, Reference Update®, Research Alerts®, Science Citation Index®, and SciSearch®.

Journal and ASPET office: 1801 Rockville Pike, Suite 210, Rockville, MD 20852-1633. Telephone: 301-634-7060. Fax: 301-634-7061. E-mail: info@aspet.org. ASPET web site: aspet.org. Journal web site: pharmrev.aspetjournals.org.

Editorial matters should be addressed to Dr. Eric Barker, Editor, *Pharmacological Reviews*, at the above address.

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

Subscriptions: Contact the ASPET Subscriptions Dept., 1801 Rockville Pike, Suite 210, Rockville, MD 20852-1633. 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: Pharmacological Reviews is copyrighted by the American Society for Pharmacology and Experimental Therapeutics. For permission to photocopy entire articles from Pharmacological Reviews, 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 https://www.aspet.org/aspet/journals/journals-information/permissions-request. Photocopying or printing articles beyond that permitted by Sections 107 and 108 of the U.S. Copyright Law is allowed, provided that the \$35.00-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 *Pharmacological Reviews* 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 © 2019 by the American Society for Pharmacology and Experimental Therapeutics. All rights reserved.