

VOLUME 181

APRIL-JUNE

1972

THE JOURNAL OF

# Pharmacology

AND EXPERIMENTAL THERAPEUTICS

FOUNDED BY JOHN J. ABEL 1909

*Official Publication of The American Society for  
Pharmacology and Experimental Therapeutics, Inc.*

EDITOR

MARION DE V. COTTEN

ASSISTANT TO THE EDITOR

MARY ELLA LOGAN

EDITORS FOR SPECIFIC FIELDS

*Analgesia and Drug Abuse*  
Joseph Cochin

*Autonomic Pharmacology*  
William W. Fleming  
Norman Weiner

*Behavioral Pharmacology*  
Roger T. Kelleher

*Biochemical Pharmacology*  
Vincent G. Zannoni

*Cardiovascular Pharmacology*  
Henry H. Swain

*Cell Pharmacology*  
C. Paul Bianchi  
Toshio Narahashi

*Drug Metabolism and Disposition*  
Edward Bresnick

Milton T. Bush  
Kenneth P. DuBois

*Neuroendocrine Pharmacology*  
Alfred Heller

*Neuropharmacology*  
Frank G. Standaert

*Renal Pharmacology*  
Irwin M. Weiner

*Toxicology*  
Gabriel L. Plaa

EDITORIAL ADVISORY BOARD

Julius Axelrod  
William O. Berndt  
John R. Blinks  
Floyd E. Bloom  
Michael J. Brody  
Theodore M. Brody  
George A. Condouris  
Theodore Cooper  
E. E. Daniel  
G. A. Deneau  
Peter E. Dresel  
Ronald W. Estabrook  
Werner E. Flacke  
Thomas E. Gaffney

William F. Ganong  
James R. Gillette  
Jack Peter Green  
Louis S. Harris  
Philip C. Hoffmann  
David Jacobowitz  
Ronald G. Kuntzman  
Bernard Levy  
Benedict R. Lucchesi  
Harriet M. Maling  
Bernard H. Marks  
D. E. McMillan  
Joseph J. McPhillips  
W. H. Morse

Arnold Schwartz  
Lewis S. Seiden  
Robert E. Stitzel  
C. D. Thron  
U. Trendelenburg  
Lucas S. Van Orden III  
Joan Vernikos-Danellis  
Robert L. Volle  
Andrew G. Wallace  
Douglas R. Waud  
Bernard Weiss  
Albert Weissman  
Martin M. Winbury  
Richard J. Wurtman

BOARD OF PUBLICATIONS TRUSTEES

EDWARD J. CAFRUNY, *Chairman*; MARION DE V. COTTEN, H. GEORGE MANDEL, THOMAS H. MAREN,  
STEVEN E. MAYER, WALTER MODEL, E. LEONG WAY, W. CLARKE WESCOE

EXECUTIVE OFFICER OF THE SOCIETY

ELLSWORTH B. COOK

JPETAB

COPYRIGHT © 1972, BY THE WILLIAMS & WILKINS COMPANY