

MOLECULAR PHARMACOLOGY

EDITOR: WILLIAM A. CATTERALL, *University of Washington*

ASSOCIATE EDITORS: JOSEPH A. BEAVO, *University of Washington*
MONT R. JUCHAU, *University of Washington*
NEIL M. NATHANSON, *University of Washington*
DANIEL R. STORM, *University of Washington*
FRANK F. VINCENZI, *University of Washington*

EDITORIAL ASSISTANT: JOAN M. BURTON, *University of Washington*

EDITORIAL AND ADVISORY BOARD

EARL F. BARIL, *Worcester Foundation for Experimental Biology*

R. B. BARLOW, *University of Bristol*

N. J. M. BIRDSALL, *National Institute for Medical Research, Mill Hill*

JOËL BOCKAERT, *Centre CNRS-INSERM de Pharmacologie et Endocrinologie, Montpellier, France*

BRUCE MCL. BRECKENRIDGE, *UMDNJ-Robert Wood Johnson Medical School*

THEODORE M. BRODY, *Michigan State University*

CHARLES O. BROSTROM, *UMDNJ-Robert Wood Johnson Medical School*

JOAN HELLER BROWN, *University of California, San Diego*

MARC G. CARON, *Duke University*

COLIN F. CHIGNELL, *National Institute of Environmental Health Sciences*

BRIAN M. COX, *Uniformed Services University of the Health Sciences*

IAN CREESE, *Rutgers-State University of New Jersey*

STANLEY T. CROOKE, *Isis Pharmaceuticals, Inc.*

JOHN W. DALY, *National Institute of Arthritis, Diabetes, and Digestive and Kidney Diseases*

ALFRED G. GILMAN, *University of Texas Health Sciences Center, Dallas*

ROBERT I. GLAZER, *National Cancer Institute*

DAVID V. GODIN, *University of British Columbia*

AVRAM GOLDSTEIN, *Addiction Research Foundation, Palo Alto*

DORA B. GOLDSTEIN, *Stanford University*

FRANK J. GONZALEZ, *National Institutes of Health*

PHILIP GUZELIAN, *Medical College of Virginia*

ROBERT P. HANZLIK, *University of Kansas*

T. KENDALL HARDEN, *University of North Carolina*

PAUL A. INSEL, *University of California, San Diego*

ERIC F. JOHNSON, *Scripps Clinic and Research Foundation*

GARY JOHNSON, *National Jewish Center, Denver*

LAURENCE S. KAMINSKY, *State of New York Department of Health*

LEMONT B. KIER, *Medical College of Virginia*

DONALD W. KUFE, *Dana Farber Cancer Institute*

ROBERT J. LEFKOWITZ, *Duke University*

WAYNE LEVIN, *Hoffmann-La Roche Inc.*

MICHAEL E. MAGUIRE, *Case Western Reserve University*

VINCENT MANGANIELLO, *National Institutes of Health*

KEITH W. MILLER, *Harvard University*

RICHARD J. MILLER, *University of Chicago*

KENNETH P. MINNEMAN, *Emory University*

PERRY B. MOLINOFF, *University of Pennsylvania*

PAUL R. ORTIZ DE MONTELLANO, *University of California, San Francisco*

RICHARD M. PHILPOT, *National Institute of Environmental Health Sciences*

ALAN POLAND, *University of Wisconsin*

JAMES W. PUTNEY, JR., *National Institute of Environmental Health Sciences*

H. P. RANG, *University College, London*

JOHN B. SCHENKMAN, *University of Connecticut*

ARNOLD SCHWARTZ, *University of Cincinnati*

KENNETH SEAMON, *National Institutes of Health*

IAN C. P. SMITH, *National Research Council of Canada, Ottawa*

JOHN F. TALLMAN, *Yale University*

PALMER TAYLOR, *University of California, San Diego*

JAMES R. TRUDELL, *Stanford University*

WYLIE W. VALE, *Salk Institute, San Diego*

O. H. VIVEROS, *Wellcome Research Laboratories*

MICHAEL J. WARING, *University of Cambridge*

HAREL WEINSTEIN, *Mount Sinai School of Medicine*

J. N. WELLS, *Vanderbilt University*

BARRY B. WOLFE, *Georgetown University*

SUZANNE ZUKIN, *Albert Einstein College of Medicine*

BOARD OF PUBLICATIONS TRUSTEES

WILLIAM W. FLEMING, *Chairman*

KAY A. CROKER, *Executive Officer*

ARTHUR J. ATKINSON

WILLIAM A. CATTERALL

MARLENE L. COHEN

JOEL G. HARDMAN

EVA KING KILLAM

HORACE LOH

MARCUS M. REIDENBERG

ROBERT E. STITZEL

VINCENT G. ZANNONI

MOLECULAR PHARMACOLOGY

An International Journal

VOLUME 36, 1989

EDITOR: WILLIAM A. CATTERALL

ASSOCIATE EDITORS: JOSEPH A. BEAVO
MONT R. JUCHAU
NEIL M. NATHANSON
DANIEL R. STORM
FRANK F. VINCENZI

EDITORIAL ASSISTANT: JOAN M. BURTON

EDITORIAL AND ADVISORY BOARD

EARL F. BARIL
R. B. BARLOW
N. J. M. BIRDSALL
JOËL BOCKAERT
BRUCE McL. BRECKENRIDGE
THEODORE M. BRODY
CHARLES O. BROSTROM
JOAN HELLER BROWN
MARC G. CARON
COLIN F. CHIGNELL
BRIAN M. COX
IAN CREESE
STANLEY T. CROOKE
JOHN W. DALY
ALFRED G. GILMAN
ROBERT I. GLAZER
DAVID V. GODIN
AVRAM GOLDSTEIN
DORA B. GOLDSTEIN
FRANK J. GONZALEZ
PHILIP GUZELIAN
ROBERT P. HANZLIK
T. KENDALL HARDEN
PAUL A. INSEL
ERIC F. JOHNSON
GARY JOHNSON
LAURENCE S. KAMINSKY
LEMONT B. KIER

DONALD W. KUFÉ
ROBERT J. LEFKOWITZ
WAYNE LEVIN
MICHAEL E. MAGUIRE
VINCENT MANGANIELLO
KEITH W. MILLER
RICHARD J. MILLER
KENNETH P. MINNEMAN
PERRY B. MOLINOFF
PAUL R. ORTIZ DE MONTELLANO
RICHARD M. PHILPOT
ALAN POLAND
JAMES W. PUTNEY, JR.
H. P. RANG
JOHN B. SCHENKMAN
ARNOLD SCHWARTZ
KENNETH SEAMON
IAN C. P. SMITH
JOHN F. TALLMAN
PALMER TAYLOR
JAMES R. TRUDELL
WYLIE W. VALE
O. H. VIVEROS
MICHAEL J. WARING
HAREL WEINSTEIN
J. N. WELLS
BARRY B. WOLFE
SUZANNE ZUKIN