

KEEPING CURRENT

♦ ♦ ♦ is it important to you?

Two journals that guarantee you'll be told what's happening
NOW in pharmacology, physiology, and biochemistry.

PHARMACOLOGICAL REVIEWS

A Publication of
the American Society for
Pharmacology and Experimental
Therapeutics, Inc.

Editor: **James A. Bain, Ph.D.**,
Emory University

Pharmacological Reviews is a showcase journal for ideas that would otherwise be buried in the mass of pharmacological literature. Important review papers on the current status of a given topic are allotted plenty of space (from 10 to 40 pages) to exhaustively cover that topic. A fine balance is achieved in these articles, which are written in a clear, simple and concise fashion so as to be intelligible to non-specialists, yet are precise and detailed enough to be of great interest to experts in the field.

At various times, **Pharmacological Reviews** has addressed such subjects as biochemical and cellular pharmacology, drug metabolism and disposition, renal pharmacology, neuropharmacology, behavioral pharmacology, clinical pharmacology, and toxicology. Designed specifically as a medium through which those interested in these topics can communicate directly, **Pharmacological Reviews** serves the entire pharmacological community and is vital reading for physiologists, pharmacologists, and biological chemists.

THE JOURNAL OF PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS

A Publication of the American
Society for Pharmacology and
Experimental Therapeutics, Inc.

Editor: **Eva King Killam, PhD**,
School of Medicine, University of
California, Davis

Founded by John J. Abel in 1909,

this is one of the most prestigious journals in scientific research. Publishing original research articles on all aspects of the interactions of chemical and biological systems, **The Journal of Pharmacology and Experimental Therapeutics** is extremely useful for the academic or clinical pharmacologist. In addition, it has broad relevance for pharmaceutical research laboratories and anesthesiologists. Readers will find full coverage of autonomic, behavioral, cardiovascular, cellular, clinical, developmental, gastrointestinal, immuno-, neuro-, pulmonary, and renal pharmacology. Other areas include analgesia, drug abuse, drug metabolism and distribution, chemotherapy, and toxicology. Each issue of this monthly periodical averages over 200 pages and presents the best in research being published in pharmacology and therapeutics.

Please enter my new subscription to the journals checked below.
(Orders outside the U.S. must be prepaid.)

Pharmacological Reviews (quarterly)

- Personal: \$30.00/yr.
 Institutional: \$40.00/yr.
 In-training: \$20.00/yr.
 Foreign: add \$5.00/yr.

The Journal of Pharmacology and Experimental Therapeutics (monthly)

- Personal: \$120.00/yr.
 Institutional: \$165.00/yr.
 Foreign: add \$20.00/yr.

(In-training rates apply to residents, fellows, interns, and students. When requesting this rate, which is limited to three years, please give training status and name of institution.)

Members of the American Society for Pharmacology and Experimental Therapeutics should order subscriptions to the official society journals through the American Society for Pharmacology and Experimental Therapeutics, 9650 Rockville Pike, Bethesda, MD 20014

name

address

city state zip code

- check enclosed bill me

CREDIT CARD PURCHASE

(Check one) VISA MasterCard

card #

expiration date

TOLL-FREE TELEPHONE ORDERING (9 am to 4 pm)

Now, subscribing to any of these journals is as easy as making a phone call. To order WITH OR WITHOUT CHARGE CARD, call 1-800-638-0672 from anywhere in the continental U.S. Maryland residents CALL COLLECT, 528-4221.

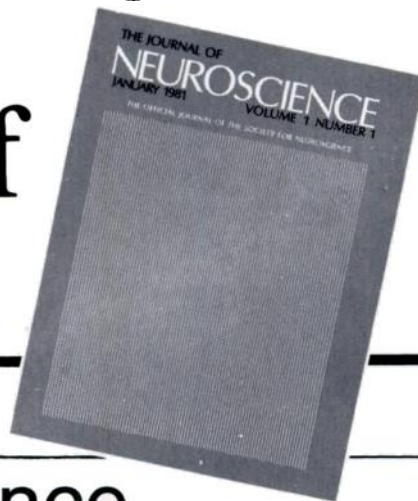
Williams & Wilkins

Dept. 310, P.O. Box 1496
Baltimore, Maryland 21203



PT PTSFIL

Tap into the broadest international coverage of the most rapidly growing branch of biological science



The Journal of Neuroscience *the Official Journal of the Society for Neuroscience*

You need **The Journal of Neuroscience** NOW, because there's no better way to keep up with crucial advances that affect YOUR work.

You need its interdisciplinary coverage, its scouting of findings in all areas of neuroscience. You'll appreciate the way it mirrors the objectives of the North American Society for Neuroscience, *as well as* the Societies in Europe and Japan. And the way it keeps you absolutely up-to-date, no matter where significant breakthroughs occur.

Here's a sampling of recent* articles:

- Morphology and Synaptic Connections of Ultrafine Primary Axons in Lamina I of the Spinal Dorsal Horn: Candidates for the Terminal Axonal Arbors of Primary Neurons with Unmyelinated (C) Axons
- *In Vitro* Resetting of the Circadian Clock in the *Aplysia* Eye
- Rohon-Beard Neurons Arise from a Substitute Ancestral Cell after Removal of the Cell from Which They Normally Arise in the 16-Cell Frog Embryo
- Postnatal Development of Dopaminergic Neurons in the Rabbit Retina
- Brain Peptidase with a Unique Neuronal Localization: The Histochemical Distribution of Dipeptidyl — aminopeptidase II
- Developmental Stage-specific Changes in Lectin Binding to Mouse Cerebellar Cells *In Vitro*
- The Laminar Origin and Distribution of the Crossed Tectoreticular Pathways

*from the August and October 1981 issues.

Section Editors

Molecular Neuroscience

Solomon H. Snyder

Cellular Neuroscience

Michael V. Bennett

Developmental Neuroscience

Gerald D. Fischbach

Neural Systems

Edward V. Evarts

R. W. Guillery

Behavioral Neuroscience

Eric R. Kandel

The Journal is edited by W. Maxwell Cowan of the Salk Institute for Biological Studies. The Board of Publication Trustees includes Julius Axelrod, Herbert H. Jasper, Seymour S. Kety, Vernon B. Mountcastle, Walle J. H. Nauta, and Pedro N. Rudomin.

Encourage your library to subscribe, and start using this first-rate journal. The institutional fee for a year's subscription is \$230.00. Once your department or institution subscribes, YOU can subscribe for the discount individual rate of \$60.00.

SEND IN THIS COUPON TODAY.

Please sign me up for a year's subscription to **The Journal of Neuroscience**, starting in January, 1982.

Institutional: \$230.00

Discount Individual: \$60.00 (With Institutional subscription).

(Add \$20.00 outside the US)

PAYMENT Check enclosed Bill me MasterCard VISA

Card Number

Expiration

Name

Address

City

State

Zip

ORDER FREE BY PHONE: To order with or without credit card, call 1-800-638-0672 between 9 am and 4 pm. Maryland residents call collect, 528-4221.



Williams & Wilkins

Dept. 374, P.O. Box 1496, Balto., MD 21203

JONAD 90530

The Journal of PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS

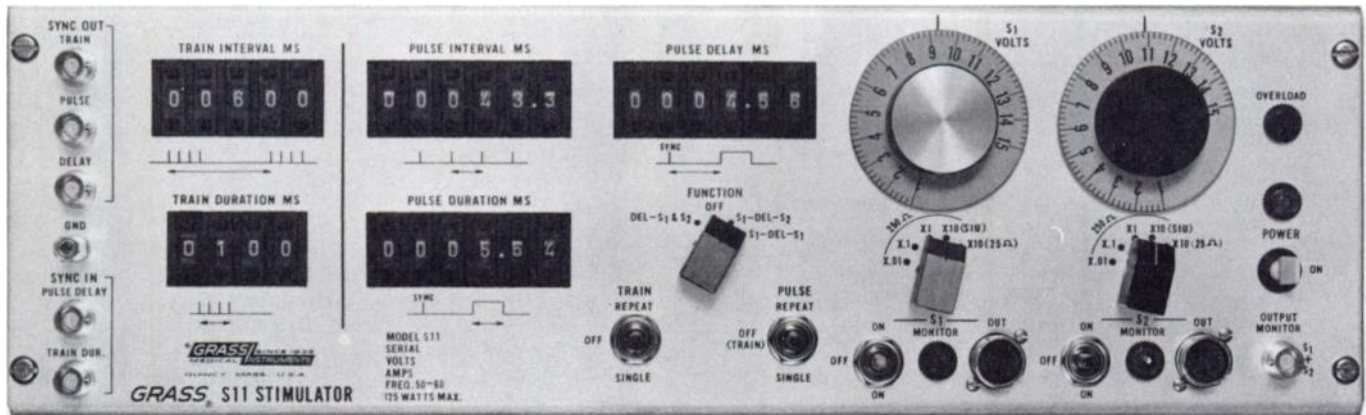
*A Publication of The American Society
for Pharmacology and Experimental Therapeutics*

Founded by John J. Abel 1909

Editor	Eva King Killam		
Assistant Editor	Mannfred A. Hollinger		
Editors for Specific Fields	<i>Analgesia and Drug Abuse</i> Joseph Cochin <i>Autonomic Pharmacology</i> Robert E. Stitzel <i>Behavioral Pharmacology</i> John A. Harvey <i>Cardiovascular Pharmacology</i> Henry R. Besch, Jr. Theodore M. Brody Donald V. Priola <i>Cell Pharmacology</i> Toshio Narahashi George B. Weiss	<i>Chemotherapy</i> H. George Mandel <i>Developmental Pharmacology</i> Bernard L. Mirkin <i>Drug Metabolism and Disposition</i> Edward Bresnick Vincent G. Zannoni <i>Endocrine Pharmacology</i> Paula H. Stern <i>Gastrointestinal Pharmacology</i> Thomas F. Burks	<i>Immunopharmacology</i> Sydney Spector <i>Neuropharmacology</i> S. J. Enna A. James Hance Charles O. Rutledge <i>Pulmonary Pharmacology</i> Mannfred A. Hollinger <i>Renal Pharmacology</i> William O. Berndt <i>Toxicology</i> Curtis D. Klaassen
Editorial Advisory Board	Martin W. Adler Edson X. Albuquerque Edmund G. Anderson Lewis Aronow Leslie E. Bailey Michael D. Bailie Paul Bass John A. Bevan C. Paul Bianchi Leslie C. Blaber David A. Blake Floyd E. Bloom Gary Brooker Carl K. Buckner David B. Bylund Theodore J. Cicero Doris H. Clouet Leonard Cook E. E. Daniel William C. de Groat Walter R. Dixon J. W. Downie Linda Dykstra Hugh L. Evans James A. Ferrendelli Lawrence J. Fischer William W. Fleming Ray W. Fuller Gerard L. Gebber James W. Gibb Shri N. Giri Dora B. Goldstein	Frank R. Goodman Charles W. Gorodetzky Garrett J. Gross T. Kendall Harden Harold F. Hardman Louis S. Harris Richard J. Head Philip C. Hoffmann Jordan L. Holtzman Stephen G. Holtzman Jerry B. Hook David M. Jacobowitz Donald R. Jasinski Alain F. Junod S. M. Kirpekar Conan Kornetsky Edwin A. Kroeger Wayne Levin Louis Levy George E. Lindenmayer Walter Lovenberg Benedict R. Lucchesi K. U. Malik John C. McGiff Donald E. McMillan Jerry Mitchell Perry B. Molinoff W. H. Morse Jose M. Musacchio Mary J. Mycek Robert A. Neal Achilles J. Pappano	William A. Pettinger Larissa A. Pohorecky James W. Putney, Jr. Arthur Raines Barbara Rennick G. Alan Robison C. R. Ross Ronald P. Rubin Robert R. Ruffolo, Jr. Betty I. Sasyniuk Arnold Schwartz Lewis S. Seiden Eric J. Simon Roger P. Smith John L. Sutko Robert I. Taber A. E. Takemori Robert E. Ten Eick Thomas R. Tephly Richard E. Tessel C. D. Thron U. Trendelenburg Betty M. Twarog Norman J. Uretsky Martin A. Wasserman I. M. Weiner Benjamin Weiss Richard M. Welch David P. Westfall Martin M. Winbury Barry B. Wolfe Ben G. Zimmerman
Board of Publications Trustees	Normal Weiner, <i>Chairman</i> George I. Drummond Leon I. Goldberg	Eva King Killam Norman Kirschner Kenneth C. Leibman	Allan H. Conney Walter Modell Paul L. Munson
Executive Officer	Houston Baker		

2 PULSE DIGITAL STIMULATOR

NEW!



® GRASS MODEL S11 SPECIFICATIONS

QUARTZ TIMED DIGITAL PARAMETERS
ARE COMPUTER PROGRAMMABLE

TRAIN INTERVAL

- SINGLE
- REPEAT - 1 MS to 100 SEC

TRAIN DURATION

- 1 MS to 10 SEC

PULSE INTERVAL

- SINGLE
- REPEAT - 100 μ S to 100 SEC

PULSE DURATION (S₁, S₂)

- 10 μ S to 10 SEC

PULSE DELAY

- 10 μ S to 10 SEC

OUTPUTS (Two)

- S₁: .01 to 150^V (+)
- S₂: .01 to 150^V (+)
- Independent Amplitudes
- Biphasic with two SIUs

FUNCTIONS

- S₁ Off-On
- S₂ Off-On
- Delay - S₁ + S₂ simultaneously
- S₁ - Delay - S₂
- S₁ - Delay - S₁

ISOLATION UNITS (Optional)

- SIU5 - Radio Frequency Isolation
- PSIU6 - DC. Optical Isolation
- SIU7 - AC for human stimulus optical capacity coupled.

SYNC IN

- To Pulse Delay
- To Train Duration

SYNC OUT

- Train
- Pulse
- Delay

MONITORS

- S₁ and S₂ LED's
- S₁ + S₂ BNC Out

PHYSICAL SIZE

- 19" W x 5.25" H x 8.5" D
- Weight 19 lbs.

GRASS INSTRUMENT CO.
QUINCY, MASS. 02169
Telephone: (617) 773-0002

GRASS SINCE 1935
MEDICAL INSTRUMENTS

©1980

D144E80

Inhibition of Acid Secretion in Isolated Canine Parietal Cells by Prostaglandins. Marcia L. Skoglund, Alan S. Nies and John G. Gerber	371
Regional Renal and Splanchnic Blood Flows during Nicotine Infusion: Effects of <i>Alpha</i> and of Combined <i>Alpha</i> and <i>Beta</i> Adrenergic Blockade. H. Fred Downey, George J. Crystal and Fouad A. Bashour	375
Specific Inhibition of Calcium Channels by Calcium Ions in Smooth Muscle. Leon Hurwitz, Linda J. McGuffee, Peggy M. Smith and Sally A. Little	382
Apomorphine-Induced Aggression in Rats Chronically Treated with Oral Clonidine: Modulation by Central Serotonic Mechanisms. Richard A. Hahn, Martin D. Hynes and Ray W. Fuller	389
Structure Activity Relationship Studies with Hypothalamic Peptide Hormones. I. Effect of Melanotropin Release Inhibiting Factor and Analogs on Tolerance to Morphine in the Rat. Hemendra N. Bhargava and H. S. Kim	394
Relationship of Tissue Nonprotein Sulhydryls to the Acute Toxic Effects of 1,2-Dibromo-3-Chloropropane. William M. Kluwe, Arnold Greenwell and Frank Harrington	399
Pharmacological Activities of Heparins Obtained from Different Tissues: Enrichment of Heparin Fractions with High Lipoprotein Lipase, Antihemolytic and Anticoagulant Activities by Molecular Sieving and Antithrombin III Affinity Chromatography. Pietro Bianchini, Bruna Osima, Bruna Parma, Helena B. Nader and Carl P. Dietrich	406
Alteration in Sensitivity to Isoproterenol and Acetylcholine in the Rat Heart after Repeated Administration of Isoproterenol. Yasuyuki Nomura, Hiroko Kajiyama and Tomio Segawa	411
Disposition of Etodolac, Other Anti-Inflammatory Pyranoindole-1-Acetic Acids and Furobufen in Normal and Adjuvant Arthritic Rats. Eckhardt S. Ferdinandi, Mitchell N. Cayen and Cecil Pace-Asciak	417
Protective Effect of Propylthiouracil Independent of Its Hypothyroid Effect on Acetaminophen Toxicity in the Rat. Krishan L. Raheja, Willem G. Linscheer, Chaidong Cho and Darbbie Mahany	427
The Renin-Angiotensin System in Aminoglycoside-Induced Acute Renal Failure. Friedrich C. Luft, George R. Aronoff, Andrew P. Evan, Bret A. Connors, Myron H. Weinberger and Stuart A. Kleit	433
Effects of Encainide and Metabolites (MJ14030 and MJ9444) on Canine Cardiac Purkinje and Ventricular Fibers. Victor Elharrar and Douglas P. Zipes	440
Erratum	447

AUTHOR INDEX

Adamski, S. W., 293	Elharrar, V., 440	Kleit, S. A., 433	Prasad, C. M., 293
Allison, M. E. M., 366	Ellingboe, J., 252	Kluwe, W. M., 399	Raheja, K. L., 427
Anderson, G. F., 347	Evan, A. P., 433	Kuehnle, J., 252	Rutledge, C. O., 340
Aronoff, G. R., 433	Ferdinandi, E. S., 417	Leighton, H. J., 299	Segawa, T., 411
Baker, S. P., 247	Fitzpatrick, F. A., 229	Lietman, P. S., 287	Sender, M., 236
Bashour, F. A., 375	Fuller, R. W., 389	Linscheer, W. G., 427	Sherman, S., 329
Bass, P., 236	Gerber, J. G., 371	Lipsky, J. J., 287	Skoglund, M. L., 371
Beek, D., 353	Greenwell, A., 399	Little, S. A., 382	Smith, P. M., 382
Berkowitz, B. A., 329	Grega, G. J., 293	Luft, F. C., 433	Snow, A. E., 335
Bhargava, H. N., 394	Griffiths, R. R., 256	Mahany, D., 427	Stier, C. T., Jr., 366
Bianchini, P., 406	Gullikson, G. W., 236	McGuffee, L. J., 382	Svenjö, E., 293
Bigelow, G. E., 256	Hahn, R. A., 389	McKenzie, R. C., 358	Tabachnik, N. F., 243
Blackburn, P., 243	Harrington, F., 399	Mello, N. K., 252	Verburg, M., 229
Bothwell, W., 229	Heckmann, M. E., 358	Mendelson, J. H., 252	Watkins, J. B., 305
Cayen, M. N., 417	Henningfield, J. E., 256	Miller, R. K., 358	Weinberger, M. H., 433
Cerami, A., 243	Horita, A., 335	Nader, H. B., 406	Wilcox, T. K., 266
Cho, C., 427	Howe, J., 311	Nies, A. S., 371	Williams, N., 278
Clouet, D. H., 278	Hurwitz, L., 382	Nomura, Y., 411	Willis, W. D., 266
Connors, B. A., 433	Hynes, M. D., 389	Osima, B., 406	Wince, L. C., 340
Cowden, E. A., 366	Jope, R. S., 322	Pace-Asciak, C., 417	Wynalda, M., 229
Crystal, G. J., 375	Kajiyama, H., 411	Parma, B., 406	Yaksh, T. L., 311
Daniels, E. G., 229	Kenakin, T. P., 353	Peterson, C. M., 243	Yeziarski, R. P., 266
Dietrich, C. P., 406	Kim, H. S., 394	Pitha, J., 247	Zipes, D. P., 440
Downey, H. F., 375	Klaassen, C. D., 305		

TO AUGMENT YOUR EXPERIENCE— CLINICAL RESOURCES from WILLIAMS & WILKINS

Let these two exciting titles join forces
with your professional abilities.

Try them out free for 20 days!

Manual Of Clinical Pharmacology

Edited by **David Robertson, MD**, and
Craig R. Smith, MD

It is well known that a core armamentarium of several dozen key drugs will suffice for the vast majority of clinical situations. This handy new manual gives you the most thorough understanding possible of the drugs commonly used in clinical practice, and supplies an annotated bibliography on these drugs as a point of access to the more detailed pharmacological literature. The discussion sections are not intended to be complete reviews. They are provided to quickly identify drugs which are *practical, difficult, or new*. You have to have some knowledge of *all* of the thousands of drugs on the market . . . but you should have a very thorough understanding of the few dozen drugs that are most frequently used. This little book highlights those areas that are truly most important to you.

Contents: Antibiotics. Antihypertensives. Antiarrhythmics and cardiovascular drugs. Diuretics. Drugs affecting neurotransmission. Anticoagulants. Analgesics. Drugs affecting the central nervous system. Oncologic agents. Drugs affecting the endocrine system. Miscellaneous. Index.

1981/about 368 pages/\$17.00
(softcover)/7300-1

Practical Clinical Psychopharmacology Second Edition

William S. Appleton, MD and **John M. Davis, MD**

"The authors, who possess impeccable credentials, have put together a handbook that is reliable, responsible, judicious, careful, and practical."

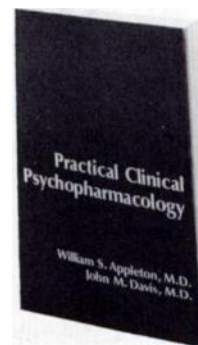
— from a review of the *First Edition* in
Modern Medicine

The authors call their book "a practical guide based on solid science." You will find it to be an indispensable manual of the latest clinical applications of psychopharmacology.

This new *Second Edition* distills the essential information from more than 15,000 published articles. It succinctly covers the diverse aspects of psychopharmacology and deals with the major categories of useful pharmacotherapeutic agents. **Practical Clinical Psychopharmacology** will provide you with all the latest information so you can prescribe psychotropic drugs rationally and counter side-effects efficiently.

Contents: Before drug therapy begins. Choosing an antipsychotic. Principles of prescribing antipsychotics. Pharmacological treatment for mood (affective) disorders. Anti-anxiety agents: adjuncts to psychotherapy. Medical emergency: overdose. Index.

1980/173 pages/illustrated/\$15.95/0238-4



ORDER TODAY

YES, please send me these selections on 20-day FREE approval:

- Robertson **Manual of Clinical Pharmacology** (7300-1) \$17.00 (U.S. price)
- Appleton **Practical Clinical Psychopharmacology** (0238-4) \$15.95 (U.S. price)

I've checked the payment option below:

Payment enclosed. I save all postage and handling with full refund still guaranteed.

Bill me.

Bill my VISA MasterCard

Residents of CA, VA, MD, please add sales tax. Prices subject to change without notice. Prices slightly higher outside the U.S. Please pay in U.S. dollars.

TO ORDER TOLL FREE, CALL US TODAY at
1-800-638-0672 from 9 AM to 4 PM. From Maryland phones, call 528-4221 collect.

Name _____

Address _____

City, State, Zip _____

card # _____

exp. date _____

Williams & Wilkins Department 363 P.O. Box 1496

Baltimore, Maryland 21203

7777

Naunyn-Schmiedeberg's **Archives of**
Pharmacology

September

Volume 317 Number 2 1981

J. Wemer, A. N. M. Schoffemeer, A. H. Mulder: Studies on the Role of Na⁺, K⁺ and Cl⁻ Ion Permeabilities in K⁺-Induced Release of ³H-Noradrenaline from Rat Brain Slices and Synaptosomes and in its Presynaptic α -Adrenergic Modulation 103

J. Willemot, D. M. Paton: Metabolism and Presynaptic Inhibitory Activity of 2',3'- and 5'-Adenine Nucleotides in Rat Vas Deferens 110

P. C. Waldmeier: Stimulation of Central Serotonin Turnover by β -Adrenoceptor Agonists 115

T. Kubo, Y. Misu: Pharmacological Characterisation of the α -Adrenoceptors Responsible for a Decrease of Blood Pressure in the Nucleus Tractus Solitarii of the Rat 120

B. Hedlund, T. Bartfai: Binding of [³H]-Pilocarpine to Membranes from Rat Cerebral Cortex 126

W. Löscher: Relationship Between Drug-Induced Changes in Seizure Thresholds and the GABA Content of Brain and Brain Nerve Endings 131

T. Doi, I. Jurna: Intrathecal Substance P Depresses the Tail-Flick Response – Antagonism by Naloxone 135

R. Gamse, S. E. Leeman, P. Holzer, F. Lembeck: Differential Effects of Capsaicin on the Content of Somatostatin, Substance P, and Neurotensin in the Nervous System of the Rat 140

T. Furukawa, K. Kushiku: Antagonism by γ -Aminobutyric Acid of the Stimulant Effect of Angiotensin II on Cardiac Sympathetic Ganglia in Spinal Dogs 149

W. Knepel, H. Anhut, D. Nutto, G. Hertting: The Effect of Isoprenaline on Plasma Concentrations of Immunoreactive β -Endorphin and β -Lipotropin in the Conscious Rat 154

M. Nagel-Hiemke, G. Groß, I. Lues, H.-J. Schümann: Influence of Hypo- and Hyperthyroidism on Plasma Catecholamines in Pithed Rats 159

T. Eriksson, A. Carlsson, M. Hagman, R. Jagenburg: Effects of Pentobarbital and Diazepam on Rat Plasma Amino Acid Patterns 165

J. H. de Neef, A. J. Porsius: Central Effects of Paraoxon on Haemodynamics in the Cat 168

S. Albouz, J.-M. Boutry, G. Dubois, R. Bourdon, J.-J. Hauw, N. Baumann: Lipid and Lysosomal Enzymes in Human Fibroblasts Cultured with Perhexiline Maleate 173

Short Communications

U. M. Farack, U. Kautz, K. Loeschke: Loperamide Reduces the Intestinal Secretion but not the Mucosal cAMP Accumulation Induced by Cholera toxin 178

L. Pichler, W. Kobinger: Modulation of Motor Activity by α_1 - and α_2 -Adrenoceptor Stimulation in Mice 180

R. Towart, E. Wehinger, H. Meyer: Effects of Unsymmetrical Ester Substituted 1,4-Dihydropyridine Derivatives and Their Optical Isomers on Contraction of Smooth Muscle 183

Indexed in Current Contents



Springer International

Naunyn-Schmiedeberg's Arch Pharmacol
 ISSN 0028-1298 NSAPCC 317(2) 103–186 (1981)