CONTEMPLATE THE NAVAL...

All oranges may seem alike, but they are not. The navel, for example, is an eating orange. Seedless. Meatier. Definitely different.

And there are centrifuges and centrifuges. To better meet your needs, Beckman high speed J2 and large capacity J6 floor models are different by design. They’re easier to use with sensible temperature controls. More efficient with faster acceleration, deceleration, lower heat output. And, for applications flexibility, their rotors offer greater capabilities including counterflow centrifugal elutriation for living cell separations.

So contemplate a basic truth: like oranges, all floor model centrifuges are not created equal!

For details on the superior aspects of the J2 and J6 Series Centrifuges, contact Beckman Instruments, Inc., Spinco Division, 1050 Page Mill Road, Palo Alto, CA 94304. (800) 742-2345. Offices worldwide.
Brighten a small world...

AuroProbe LM will illuminate your antigens and cell structures with unprecedented clarity

In your small world of antigens and cells there are no stains that can illuminate your targets as well as AuroProbe* LM... in defining cell structure and surface using light microscopy, no immunostains offer such unmatched contrast and sensitivity.

AuroProbe LM immunoprobes contain secondary antibodies or streptavidin linked to 5 nm colloidal gold particles. The colloidal gold signal is strongly enhanced with IntenSE*, Janssen's new and easy to use silver enhancement kit. IntenSE silver enhancement can be performed in natural light and does not require any special changes in your protocols.

Light up your research with AuroProbe LM and IntenSE, the most advanced immunocytochemical stains available.

Human prostate: Benign hyperplasia stained with AuroProbe LM for prostatic acid phosphatase. Paraffin section counterstained with hematoxylin-eosin.

Rat pancreas, islet of Langerhans stained with AuroProbe LM for glucagon. Paraffin section counterstained with hematoxylin.

(Courtesy of Drs. in't Veld and C.F.M. van Schravendijk, VUB, Belgium)

JANSSEN
LIFE SCIENCES PRODUCTS

40 Kingsbridge Road,
Piscataway, NJ 08854
Toll free: 1-800-624-0137
Telex: 6853051

Turnhoutseweg 30,
B-2340 Beerse BELGIUM
Tel.: 014/60.33.85
Telex: 6853051

Circle No. 12 on Readers' Service Card
Our Reagents Star in WESTERS...

…and SOUTHERNS, too. If you’re looking for rave reviews of your Western or Southern transfers, try the VECTASTAIN® ABC or VECTASTAIN® ABC-AP systems. Whether you choose the classic peroxidase or the newer, more sensitive, alkaline phosphatase-based VECTASTAIN® ABC reagents, you’ll be pleased with the performance of these biotin/avidin-based preformed enzyme complexes. We also offer substrate kits for alkaline phosphatase and detailed protocols describing the staining procedures. For more information on all the detection systems in our range, just phone or write us. You’ll be rewarded for your time.
How to take command of your UV-Vis Assays

1. RECALL METHOD
   If your analytical work involves the determination of
   - purity of samples
   - perturbation and dilution effects
   - concentration of single or multicomponents
   - decomposition studies
   - comparison with reference materials

2. START
   or other assays requiring advanced scanning capabilities, take command with the
   Varian DMS 200 UV-Vis Spectrophotometer. Combine its advanced calculator functions with its powerful COMMAND function and automate spectral data calculations. Calculated results are printed online, along with selected spectral data.

IBM PC/XT software enhances DMS 200 capabilities by extending method storage, storing spectral data and allowing application of user-developed spectral manipulations.

Call 800-231-5772
(in Canada 416-457-4130)
for more information on the DMS 200, one of Varian’s family of high-performing UV-Vis-NIR spectrophotometers.

IBM and PC/XT are trademarks of International Business Machines Corporation

Determinant of Two Components in a Mixture

Yellow dye concentration 8.843
Red dye concentration 8.591

Very Intelligent Solutions for You

Circle No. 264 on Readers’ Service Card
This book examines the federal government's use of labeling to regulate risks from drugs, consumer products, occupations, food, and pesticides. After analyzing the costs and benefits for alternative forms of risk regulation, the author outlines actions to make federal labeling policy more coherent.

275pp, 1986
Published by Westview Press for AAAS.
$27.50; AAAS members $22.00 (include membership number from Science).

Order from Westview Press, Dept. AAAS, 5500 Central Avenue, Boulder, CO 80301. Please add $2.50 postage and handling for one copy, 75¢ for each additional copy.

Variability and Management of Large Marine Ecosystems
Edited by Dr. Kenneth Sherman, Director, Narragansett Laboratory, National Oceanic and Atmospheric Administration, and Dr. Lewis M. Alexander, Director, Center for Ocean Management Studies, University of Rhode Island

Large marine ecosystems (LMEs) are being subjected to increasing stress from industrial and urban wastes, aerosol contaminants, and heavy exploitation of renewable resources. This book is a state-of-the-art review of effective means for measuring changes in populations and productivity, physical-chemical environments, and management options for LMEs. For the first time, this volume treats LMEs holistically as regional management units by bringing together the all too often fragmented efforts to optimize ocean resources. 319 pp, 1986.

$31.85; AAAS members $25.50 (include membership number from Science).
Order from: Westview Press, Dept. AAAS, 5500 Central Avenue, Boulder, CO 80301
Add $2.50 postage and handling for the first book ordered; 75¢ for each additional book.
Published by Westview Press for AAAS

AAAS Announces a New Report on:
Science Policy Careers
Graduate Education and Career Directions in Science, Engineering and Public Policy, by Albert H. Teich, Barry D. Gold, and June M. Wiaz

Educational programs and professional practice in the field of science policy are in a state of continual evolution, shifting their focus in response to the changing demands of today's society. This study provides an up-to-date and comprehensive assessment of graduate education and career patterns in science policy. Conducted under the auspices of the AAAS Committee on Science, Engineering and Public Policy and supported by AAAS and the National Science Foundation, the project presents empirical data from the programs, graduates, and employers in the field.

...a must for policy makers, students, employers, and anyone interested in gaining insight into science policy programs.

1986; 168pp; softcover; $10.00 ($8.50 for AAAS members)
ISBN 0-87168-290-7; AAAS Publication 86-17
Order from: AAAS Marketing, Dept. AT2, 1333 H Street, NW, Washington, DC 20005. (Please add $1.50 postage & handling per order. Allow 4-6 weeks for delivery.)
Take A Closer Look

INTRODUCING NARISHIGE USA

Now you can purchase famous NARISHIGE products directly from NARISHIGE in the USA. We are the exclusive USA source for NARISHIGE CO., JAPAN. NARISHIGE USA now offers you immediate delivery, prompt reliable service, and exceptional values on NARISHIGE instruments.

Our products are the newest, most sophisticated instruments to come from this world renowned manufacturer; including new
- Microdrives  •  Micromanipulators
- Micropipette Pullers  •  Microgrinders
- Microforges  •  Microinjectors. All available with a One-Year Warranty and local service.

All NARISHIGE USA instruments are offered through a select group of local dealers, who will be happy to demonstrate our products to you.

For more information or the name of your local dealer call or write:

NARISHIGE USA, INC.
One Plaza Road, Greenvale, New York 11548
(516) 621-4588
(800) 445-7914

Circle No. 336 on Readers' Service Card
**8TH INTERNATIONAL CONGRESS OF HISTOCHEMISTRY AND CYTOCHEMISTRY**

**JULY 31–AUGUST 5, 1988**

*Sponsored by the American Histochemical Society*  
Omni Shoreham Hotel, Washington, D.C. U.S.A.

**PRELIMINARY PROGRAM—SYMPOSIA**

Use of *in situ* hybridization, R. Angerer and L. Angerer; Immunohistochemistry in Diagnostic Pathology, S. Spicer and K. Ogawa; Aspects of Golgi Trafﬁc, Jurgen Roth; Hematologic Cytochemistry, L. Kaplow and L. Yam; Molecular Biology of Steroid Hormone Receptors, G. Greene; Cell Cycle and Growth Regulation, E. Wang; Lysosomal Function; D. Bainton; Transgenic Animals, H. Westphal.

*Mini Symposia and Poster Sessions open to proffered papers:*  
Neuroendocrine Peptides; Neurochemistry of Opiate Peptides; Neurotransmitters and Related Peptides; Lectins; Histochmistry of Botanical Samples; Protease Histochemistry; Viral Disease Diagnosis; AIDS; Basement Membranes; Immunocytochemistry; Histochemistry in pathology; Cytochemistry in cell biology; Enzyme histochemistry; Image analysis; Flow cytometry; X-ray microanalysis; Cell differentiation; Histochemistry of extracellular matrix; Cytochemistry of cell surface; Radioautography; In situ hybridization; NA. K-ATPase in Nervous Tissue.

*Workshops and Tutorials*  
Advances in colloidal gold, *in situ* hybridization; autoradiography, and immunocytocchemistry. Corporate and commercial sponsors welcome to suggest additional topics.


For Your Science Library

Biotechnology: The Renewable Frontier, D.E. Koshland, Jr., ed. Like its predecessor, this volume covers the latest and most important topics in biological R&D. It illustrates the extraordinary cross-disciplinary aspects of modern biology and its tremendous impact on the future with sections ranging from new techniques, immunology, developmental biology, cancer, hormones, sensory phenomena, and more.
1986; case $29.95, $23.95 for AAAS members; paper $17.95, $14.35 for AAAS members; 384pp

AIDS, R. Kulstad, ed. Research papers and reports on acquired immune deficiency syndrome (AIDS) published between August 1982 and September 1985 show how far AIDS research has come and provide an indication of the direction in which it might go. An overview of research in AIDS is provided by Myron Essex, chairman of the Department of Cancer Biology, Harvard University School of Public Health.
1986; case $32.95, $26.35 for AAAS members; paper $19.95, $15.95 for AAAS members; 654pp

Frontiers in the Chemical Sciences, W. Spindel, R.M. Simon, eds. Focuses on the themes of fundamental chemical change and extreme molecular complexity. Details progress in all areas of chemistry, including new work in ultrafast reactions, catalysis, conduction organics, enzyme mechanisms, and materials and analysis.
1986; case $29.95, $23.95 for AAAS members; paper $17.95, $14.35 for AAAS members; 624pp

Astronomy & Astrophysics, M.S. Roberts, ed. From the solar system to the pulsars at the very edge of the observable universe, this volume reveals a broad, coherent, and contemporary picture of our astronomical universe. Topics range from the solar system, the structure and content of the galaxy, galaxies and cosmology, and instrumentation.
1985; case $29.95, $23.95 for AAAS members; paper $17.95, $14.35 for AAAS members; 384pp

Neuroscience, P.H. Abelson, E. Butz, S.H. Snyder, eds. Neuroscience research ranging from genetic engineering to clinical therapy is presented. Provides an integrative treatment of brain anatomy, physiology, and chemistry and addresses fundamental questions concerning nervous system functioning.
1985; case $29.95, $23.95 for AAAS members; paper $14.95, $11.95 for AAAS members; 454pp

Biotechnology & Biological Frontiers, P.H. Abelson, ed. Covers the most important topics at the forefront of biological R&D and deals with both fundamental research techniques and practical applications. For researchers and students in all fields of biology, agriculture, and the health sciences.
1984; case $29.95, $23.95 for AAAS members; paper $14.95, $11.95 for AAAS members; 550pp

Order from AAAS Marketing, Dept. SA, 1333 H Street, NW, Washington, DC 20005. Please add $1.50 for postage & handling per order. Allow 4-6 weeks for delivery.
Have you ever wondered why some ideas fly and others don't? Could it be that the right information at the right time makes a difference? For instance, when it comes to finding information on industry trends, intelligence on setting standards, and applications of a material process, DIALOG helps you locate sources quickly. You can search for information in databases such as CA SEARCH with instant access to millions of items indexed by Chemical Abstracts Service. Or in Inspec from the Institution of Electrical Engineers, covering electronics.

Or in Paperchem, containing technical literature and patent information on raw materials. Or in Metadex, covering international literature on metallurgy and composites. Or in Aerospace, with extensive coverage of advanced materials composites. And in SCISEARCH, covering the world's scientific and technical literature.

These are just a few examples of how DIALOG provides the most valuable databases in one easy to use service. All you need is a personal computer or terminal and a telecommunications link. And you pay only for the time you use DIALOG. There's no minimum usage requirement. Instant delivery of essential information will make a difference and get your ideas off the ground. In fact, your company may already be using DIALOG. Check to see. To get acquainted, DIALOG offers $100 worth of free time to first time users. Call 800-3-DIALOG. Or write DIALOG, 3460 Hillview Avenue, Palo Alto, CA 94304.

DIALOG INFORMATION SERVICES, INC.
A SUBSIDIARY OF LOCKHEED CORP
The world's largest online knowledgebank
800-3-DIALOG

Ever wonder why some things never get off the ground?
Explore
New Directions
in Chemical Research

Frontiers in the Chemical Sciences
Selected and with an introduction by
William Spindel and Robert M. Simon, National Research Council

This collection of 38 articles from the pages of Science shows chemists unraveling the mysteries of molecular reactivity, developing powerful analytical and theoretical tools, exploring and exploiting new pathways for catalysis and synthesis, and contributing to disciplines as diverse as biology and materials science. Focusing on such themes as fundamental chemical change and extreme molecular complexity, this volume takes the reader on a tour of the contemporary research frontiers in chemistry. Articles by some of the leading scientists in their respective fields cover new work in seven key areas: understanding chemical reactivity, chemical analysis, theoretical chemistry, chemical catalysis, organic synthesis, the chemistry of life processes, and the chemistry of new materials. Two Nobel lectures are included.

592 pp.; fully indexed and illustrated
Hardcover $29.95 ($23.95 for AAAS members)
Softcover $17.95 ($14.35 for AAAS members)

Order from: AAAS Marketing, Dept. C, 1333 H St., NW, Washington, DC 20005. Add $1.50 postage and handling per order. Allow 4–6 weeks for delivery.

American Association for the Advancement of Science

Yes! Please send me the following copies of Frontiers in the Chemical Sciences

___ hardcover $29.95 (AAAS member price $23.95) $ _____
___ softcover $17.95 (AAAS member price $14.35) $ _____
Postage and handling $ 1.50
TOTAL $ _____

☐ Check ☐ VISA ☐ MasterCard

Name
Street Address
City __________________________ State __________________________ Zip________________________
AAAS member number (from Science mailing label) __________________________

Thank you for your order. Please send it to: AAAS Marketing, Dept. C, 1333 H Street, NW Washington, DC 20005. Please allow 4–6 weeks for delivery.
Author Index to Volume 236
April–June 1987

Publisher: Alvin W. Trivelpiece
Editor: Daniel E. Koshland, Jr.
Deputy Editors
Philip H. Abelson (Engineering and Applied Sciences)
John I. Brauman (Physical Sciences)

Editorial Board
Elizabeth E. Bailey
David Baltimore
William F. Brinkman
Philip E. Converse
Joseph L. Goldstein
James D. Idol, Jr.
Leon Knopoff
Seymour Lipset
Oliver E. Nelson
David V. Ragone
David M. Raup
Vera C. Rubin
Larry L. Smarr
Solomon H. Snyder
Robert M. Solow
James D. Watson

Board of Reviewing Editors
John Abelson
Qais Al-Awqati
James P. Allison
Don L. Anderson
Elizabeth H. Blackburn
Floyd E. Bloom
Charles R. Cantor
James H. Clark
Bruce F. Eldridge
Stanley Falkow
Theodore H. Geballe
Roger I. M. Glass
Stephen P. Goff
Robert B. Goldberg
Corey S. Goodman
Stephen J. Gould
Richard M. Held
Glória Hepner
Eric F. Johnson
Konrad B. Krauskopf
I. Robert Lehman
Karl L. Magleby
Joseph B. Martin
John C. McGiff
Alton Meister
Mortimer Mishkin
Peter Olson
Gordon H. Orians
Carl O. Pabo
John S. Pearse
Vera C. Rubin
Jean Paul Revel
James E. Rothman
Thomas C. Schelling
Ronald H. Schwartz
Stephen M. Schwartz
Otto T. Solbrig
Robert T. N. Tjian
Virginia Trimble
Geerat J. Vermeij
Martin G. Weisberg
Harold Weintraub
Irvig L. Weissman
George M. Whitesides
Owen N. Witte
William B. Wood

Published by the
American Association for the Advancement of Science
1333 H Street, NW, Washington, DC 20005

Printed in Richmond, Virginia, by The William Byrd Press
Copyright 1987 by the American Association for the Advancement of Science
Author Index to Volume 236
April–June 1987

A

Aaronson, S. A. See Giese, N. A.
Adler, Joshua E. See Black, Ira B.
Aggarwal, Bharat B. See Pennica, Diane.
Ahrens, Thomas J. See Williams, Quentin.
Akiyama, Miroshi. See Langlois, Richard G.
Alderson, Richard W.: Solc, Charles K.
Alpers, James D. See Reed, John C.
Alvarez, Richard A. See Bridges, C. David.
Ames, Bruce N.; Magaw, Renae, Gold, Lois.
Asaka, Yoshihori. See Ono, Yoshitaka.
Ase, Katsuhiro. See Ono, Yoshitaka.
Ashkenazi, Avi. See Peralta, Ernest G.

B

Baggieroer, Arthur B. See Dyer, Ira.
Baldwin, B. A. See Kendrick, K. M.
Ballhorn, R. See Gayed, J. M.
Ballou, W. Ripley. See Egan, James E.
Barin, Francis. See Kanki, Phyllis J.
Barker, Robert H., Jr. See Wirth, Diann F.
Barnes, David W. See Loc, Denny T.
Basler, Konrad. See Hafen, Ernst.
Bass, Jay. See Williams, Quentin.
Bathmann, Ulrich V. See Grant, Jonathan.
Baty, B. See Barker, D.
Bead, Michael A. See Langlois, Richard G.
Bedard, Donna L. See Brown, John F., Jr.
Bednorz, J. Georg; Müller, K. Alex; Takashige, Massaki: Superconductivity in alkaline earth substituted La2CuO4+y. p373 3 Apr 1987.
Bell, W. A. See Henning, W.
Benedict, William F. See Fung, Yuen-Kai T.
Bennett, M. V. L. See Saez, J. C.
Bergstrom, Debra A. See Walters, Judith R.
Bigbee, William L. See Langlois, Richard G.
Bigner, Darel D. See Kinzler, Kenneth W.
Bigner, Sandra H. See Kinzler, Kenneth W.
Billquist, P. J. See Henning, W.
 Birnbaumer, Lutz. See Codina, Juan.
Bishop, D. T. See Barker, D.
Black, David C. See Banks, Peter M.
Blackwelder, Brent. See Wirth, David A.
Blaker, Scott N. See Davis, George E.
Blattner, Frederick R. See Zahn, Kenneth.
Blattner, William. See Mann, Dean L.
Botchan, Michael R. See Stenlund, Arne.
Boutin, David. See Lander, Eric S.
Boye, Chiekh. See Kanki, Phyllis J.
Brackenbury, Robert. See Cunningham, Bruce A.
Bradbury, E. M. See Gayed, J. M.
Bramble, Barbara. See Wirth, David A.
Braun, Allen R. See Walters, Judith R.
Bream, Gary L. See Stenlund, Arne.
Breitman, Martin L. See Dennis, James W.
Brennan, Michael J. See Brown, John F., Jr.
Brent, David A. See Kull, Frederick C., Jr.
Brinster, Ralph L. See Goldman, Michael A.
Brosky, Frances M. See Moore, Mary Shanon.
Brown, Arthur M. See Caftrey, John M. See also Coit, Elwood. See also: Gondos, Juan.
Buchanan, James T. and Grillner, Sten: Newly identified 'glutamate interneurons' and their role in locomotion in the lamprey spinal cord. p312 17 Apr 1987.
Burastero, Samuele E. See Casali, Paolo.
Burkot, Thomas R. See Wallicker, David.
Burmeister, Margit. See Michiels, Frank.
Burns, B. A. See Shuchman, R. A.

C
Caffrey, John M.; Brown, Arthur M.; Schneider, Michael D.: Mitochondrial and nuclear genomes can block the induction of specific voltage-gated ion channels. p570 1 May 1987.
Caillet, Jacques C. See Bartell, Lawrence S.
Calhoun, Dorothy B. See Vanderkooi, Jane M.
Campbell, William J. See Johannessen, O. M. See also Shuchman, R. A.
Cannon, L. See Barker, D.
Cantor, Charles R. See Smith, Cassandra L.
Caplan, Daniel J. See Peralta, Ernest G.
Carrey, J. See Bartell, D.
Carle, Georges F.; Burke, David T.
Carlson, Joanne H. See Walters, Judith R.
Carnahan, James C. See Brown, John F., Jr.
Carter, Richard. See Wallicker, David.
Casali, Paolo; Burastero, Samuele E.; Nakamura, Minoru; Inghirami, Giorgio; Notkins, Abner Louis: Human lymphocytes making rheumatoid factor and antibody to ssDNA belong to Leu-1 B-cell subset. p77 3 Apr 1987.
Casavant, N. Carol. See Farmerie, William G.
Caskey, C. Thomas: Disease diagnosis by recombinant DNA methods. p1223 5 June 1987. See also Gibbs, Richard A.
Caspar, William. See Tennant, Raymond W.
Cassedy, John H. See Kobler, James B.
Catterall, William A. See Takahashi, Masami.
Chaplin, Leo K.; Sia, Barry.
Chan, Denny. See Kay, Robert M.
Chaplot, S. L. See Rao, K. R.
Croce, Carlo M. See Reed, John C.
Crossway, Anne. See Goodman, Robert M. See also Goodman, Robert M.
Cuartecasas, Pedro. See Kull, Frederick C., Jr.

D
Daly, Mark. See Kay, Robert.
Danner, David B. See Nussenzweig, Michel C.
Davey, Michael R. See Cocking, Edward C.
David, Donald W. See Hibbard, Lyndon S.
Davis, George E.; Blaker, Scott N.; Eving, Eva; Vias, Silvio; Mantheor, Mariam; Gage, Fred H.: Human amnion membrane serves as a substrate for growing axons in vitro and in vivo. p1106 29 May 1987.
Davis, John S. See Farese, Robert V.
De Vos, Claudine J.; Verdijn, Eric M.
De Vries, Walter D.; See O'Neil, Kayryn T.
Dennis, François. See Kanik, Phyllis J.
Dennis, James W.; Laferté, Suzanne; Whagrome.
Lakens, Gene E. See Galloway, James N.
Liu, Z. See Henning, W.
Livingston, Katherine: review of The Coy sage Macaques, edited by Richard G.
Lawson, Todd W. See Longnecker, David.
Longnecker, Richard and Rozman, Bernard: Clustering of genes dispensable for growth in the C component of the HSV-1 genome. p575 1 May 1987.
Loomis, William F. See Knecht, David A.
Lopez-Barneo, Jose. See Armstrong, Clay M.
Lucas, H. F. See Henneman, W.
Lumpkin, Gregory R. See Chakoumakos, Bryan C.

Lund, P. Kay. See Han, Victor K. M.
Lynn, Steven P. See Verdin, Eric M.

M
Macleish, P. R. See Stern, J. H.
Magaw, Renae. See Arnes, Bruce N.
Mahlaff, David T. See Moore, Mary Shannon.
Malley, Robert W. See Ignatius, Michael J.
Majarian, William R. See Egan, James E.
Maler, Bonnie A. See Miestfeld, Roger.
Maloy, W. Lee. See Egan, James E. See also Koning, Frits.
Marley, T. O. See Steinman, R. A.
Matterson, Christopher S. See Blair, Neil E.
Martin, Larry D.; See Rothchild, Bruce.
Martin, R. Bruce. See MacDonald, Timothy L.
Martuzza, Robert L. See Seizing, Bernd R.
Maturano, R. J. and Kirschau, T.
M'Boup, Souleymane. See Kanki, Phyllis J.
McBride, Whitney J. See Warshaw, David M.
McCormick, Frank. See Koran, Laurence J.
McCutchan, Thomas F. See Willicker, David.
McDonald, H. Gregory. See Shaw, Christopher M.
McGlone, James S. See Hibbard, Lyndoon S.
McKnight, G. Stanley. See Goldman, Michael A.
McPherson, Jon; See Kay, Robert.
Mehrora, Mukund M.; See Corey, E. J.
Meneely, Philip M. See Sedensky, Margaret M.
Merrill, Jean E. See Koyanagi, Yoshio.
Michiels, Frank; Burmeister, Margit; Lehrach, Hans: Derivation of clones close to met by preparative field inversion gel electrophoresis. p1305 8 June 1987.
Mikhailevsky, Peter N. See Dyer, Iris.
Miles, Steven. See Koyanagi, Yoshio.
Miller, J. Houston. See Smyth, Kermit C.
Miller, T. See Dahl, G.
Minor, Robert. See Tennant, Raymond W.
Mitsuyasu, Ronald T. See Koyanagi, Yoshio.
Modreski, Peter J. See Bohor, Bruce F.
Monroe, J. J. See Kirchhausen, T.
Morgan, Robert P. See Barber, Elinor G.
Morley, John E. See Flood, James F.
Morse, Herbert C., III. See Nusseenzweig, Michel C.
Moul, John. See Herzberg, Onat.
Müller, K. Alex. See Bednorz, J. Georg.
Mulligan, Richard. See Cone, Roger D.
Murakami, Takashi: See Chakoumakos, Bryan C.
Murphy, A. Linn. See Fung, Yuei-Kai T.
Murphy, Andrew. See Tuszynski, George P.
Murray, Ben A. See Cunningham, Bruce A.
Murty, T. S. See Kielne, Jürgen.

N
Nakamura, Minoru. See Casal, Paolo.
Nakamura, Nori. See Langlois, Richard G.
Nakamura, Y. See Barker, D.
NarenS, Louis. See Luce, R. Duncan.
Neuner, Annemarie. See Steerer, Karl O.
Newman, Mark. See Mann, Dean L.
Ng, Shi-Chung. See Kans, Larry R.
Nguyen, K. See Barker, D.
Nick, H. See Pauli, U.
Nishizuka, Yasutomi. See Ono, Yoshitaka.
Pankh, Indu. See Kull, Frederick C., Jr.
Pasquale, Steve R. See Weissman, Bernard E.
Patan, I. See Thorgeirsson, S. S.
Paul, D. See Dahl, G.
Paul, M. L. See Henning, W.
Paul, William E. See Snapper, Clifford M.
Perlman, Aleta E.; Winslow, John W.; Peterson, Gary L.; Smith, Douglas H.; Ashkenazi, Avi; Ramachandran; J.; Schimerlik, Michael I.; Capon, Daniel J.: Epitope structure and biochemical properties of an M2 muscarinic receptor. p600 1 May 1987.
Pfeifer, Andrea. See Mann, Dean L.
Phillips, Fred M. See Elmore, David.
Piatsigoryan, Joram. See Wizov, Graeme.
Pierce, Jacqueline W. See Lenardo, Michael.
Pitats, Robert E. See Ignatius, Michael J.
Poller, Robert J. See Farese, Robert V.
Popovic, Mikulas. See Mann, Dean L.
Powell, Brian M. See Bartlett, Lawrence S.
Prediger, Ellen A. See Cunningham, Bruce A.
Price, D. L. See Rao, K. R.
Pumpuni, Charles B. See Hawley, William A.
Q and R
Qian, Jin. See Fung, Yuen-Kai T.
Quayki, Isabella A. See Walslecker, David.
Ramachandran, J. See Perona, Ernest G.
Ramachandran, K. L. See Kirchhausen, T.
Rayon, Carmen; Tso, Deryk T.
Rehm, K. E. See Henning, W.
Reif, John H. See Pan, Victor.
Reilly, Edward B. See Cone, Roger D.
Reiter, Paul. See Hawley, William A.
Riedel, Michael. See Woon, D.; Simmers, Phyllis J.; Avery, Bruce. See Wirth, David A.
Richards, R. I. See Simmers, R. N.
Rips, Lance J. See Bradburn, Norman M.
Roach, Arthur H. See Black, Ira B.
Robbins, K. C. See Giese, N. A.
Roberson, R. M. See Diment, J. P. C.
Roizberg, Bernard D. See Mather, Monica H.; Roizman, Bernard. See Longnecker, Richard.
Romet-Lemonne, Jean-Loup. See Kanki, Phyllis J.
Roth, Richard A. See Koran, Laurence Jay.
Rodman, Vicki. See Tsuzuki, George P.
Rodul, Michael. See Woon, D.; Simmers, Phyllis J.; Avery, Bruce. See Wirth, David A.
Ruprecht, Rudolf M. See Sharpe, Arlene H.
Russell, Milton and Gruber, Michael: Risk assess...
Information for Contributors

**The Editors of Science**

Manuscripts should be addressed to the Editor, *Science*, 1333 H Street, NW, Washington, DC 20005. Submit three copies together with a letter of transmittal giving
1) the names and telephone numbers of the authors;
2) the title of the paper and a statement of its main point;
3) three to eight keywords to be used for indexing;
4) the names, addresses, telephone numbers, and fields of interest of four to six persons outside your institution who are qualified to referee the paper;
5) the names of colleagues who have reviewed the paper;
6) the total number of words (including text, references, and figure and table legends) in the manuscript; and
7) a statement that the material has not been published and is not under consideration for publication elsewhere.

In addition, include with your manuscript:
(i) any paper of yours that is in press or under consideration elsewhere and includes information that would be helpful in evaluating the work submitted to *Science*;
(ii) written permission from any author whose work is cited as a personal communication, unpublished work, or work in press but is not an author of your manuscript;
(iii) for review of manuscripts based on crystallographic data, two copies of the coordinates.

Before being reviewed in depth, most papers are rated for their interest and overall suitability by a member of the Board of Reviewing Editors. Papers submitted in disciplines for which there is no appropriate member of the Board of Reviewing Editors may be screened by editorial staff members in consultation with outside experts. Papers that are not highly rated are returned to the authors within about 2 weeks; the title page and abstract from one copy are retained for our files. The others are reviewed in depth by two or more outside referees. Authors are notified of acceptance, rejection, or need for revision, usually within 6 to 10 weeks. Papers cannot be resubmitted, either after initial screening or after in-depth review.

**Conditions of Acceptance**

When a paper is accepted for publication in *Science*, it is understood by the editors that (i) any materials necessary to verify the conclusions of the experiments reported will be made available to other investigators under appropriate conditions; (ii) all authors have seen and approved the final version of the manuscript; (iii) sequence and crystallographic data will be offered for deposit to the appropriate data bank; and (iv) a paper will not be released to the press or the public before its publication. If there is a need in exceptional cases to publicize data in advance of publication, the AAAS Office of Communications (202-326-6440) must be consulted.

**Selection of Manuscripts**

In selecting papers for publication, the editors give preference to those of general significance that are well written, well organized, and intelligible to scientists in different disciplines. An attempt is made to balance the subject matter in all sections of *Science*. Membership in the AAAS is not a factor in selection.

Accepted papers are edited to improve the accuracy and effectiveness of communication and to bring them within the specified length limits. When the author's meaning is not clear, the editor may consult the author by telephone; when editing is extensive, the manuscript may be returned for approval and retyping before the type is set.

Categories of signed papers include: general articles, research articles, reports, letters, technical comments, book and software reviews, perspectives, and policy forums.

**General Articles.** General articles (up to 5000 words) are expected to (i) review new developments in one field that will be of interest to readers in other fields; (ii) describe a current research problem or a technique of interdisciplinary significance; or (iii) discuss some aspect of the history, logic, policy, or administration of science. Readers should be able to learn from a general article what has been firmly established and what are unresolved questions; speculation should be kept to a minimum.

Many of the general articles are solicited by the editor, but unsolicited articles are welcome. Both solicited and unsolicited articles undergo review.

**Research Articles.** A research article (up to 4000 words) is expected to contain new data representing a major breakthrough in its field. The article should include an author note, abstract, introduction, and sections with brief sideheads. A maximum of 40 references is suggested. Figures and tables together should occupy no more than one printed page.

**Reports.** Reports (up to 2000 words) are expected to contain important research results. They should include an abstract (no more than 100 words) and an introductory paragraph. A maximum of 30 references is suggested. Figures and tables together with their legends should occupy no more than one printed page.

**Letters.** Letters are selected for their pertinence to material published in *Science* or because they discuss problems of general interest to scientists. Letters pertaining to material published in *Science* may correct errors; provide support or agreement; or offer different points of view, clarifications, or additional information. Personal remarks about another author are inappropriate. Letters may be reviewed by outside consultants. Letters selected for publication are intended to reflect the range of opinions received. The author of the *Science* paper in question is usually given an opportunity to reply.

All letters are acknowledged by postcard; authors are notified if their letters are to be published. Preference is given to letters that do not exceed 250 words. Letters accepted for publication are frequently edited and shortened in consultation with the author.

**Technical Comments.** Technical comments (up to 500 words) may criticize articles or reports published in *Science* within the previous 6 months or may offer useful additional information. Minor issues should be resolved by private correspondence. The authors of the original paper are asked for an opinion of the comment and are given an opportunity to reply in the same issue if the
comment is published. The comments, and sometimes the reply, are subject to the usual review procedures. Priority disputes undergo extensive review and are published only when action is recommended.

**Book and Software Reviews.** The selection of books and software packages to be reviewed and of reviewers is made by the editors. Instructions or two explaining specific items accompany items to be reviewed when they are sent to reviewers.

**Manuscript Preparation**

**Typing.** Use double-spacing throughout the text, tables, figure legends, and references and notes and leave margins of at least 2.5 centimeters. Put your name on each page and number the pages starting with the title page.

**Titles.** Titles should be short, specific, and amenable to indexing. For general articles the maximum length is 80 characters and spaces; for research articles and reports the maximum is 100 characters.

**Summaries or abstracts.** These should include a sentence or two explaining the general reader why the research was undertaken and why the results should be viewed as important. The abstract should convey the main point of the paper and outline the results or conclusions.

**Text.** A brief introduction should indicate the broad significance of the paper. The whole text should be intelligible to readers in different disciplines. Technical terms should be defined. All tables and figures should be cited in the text in numerical order.

**Symbols and abbreviations.** Define all symbols, abbreviations, and acronyms.

**Units of measure.** Use metric units. If measurements were made in English units, give metric equivalents.

**References and notes.** Number references and notes in the order in which they are cited, first through the text and then through the table and figure legends. List a reference only one time. References that are always cited together may be grouped under a single number. Use conventional abbreviations for well-known journals; provide complete titles for other journals. For references with up to five authors provide all the names; for more than five, provide the name of the first author only. See issues of the journal for examples.

**Unpublished observations.** Reference to unpublished data should be given a number in the text and placed, in correct sequence, in the references and notes.

**Acknowledgments.** Gather all acknowledgments into a brief statement at the end of the references and notes.

**Informed consent.** Investigations on human subjects must include a statement indicating that informed consent was obtained after the nature and possible consequences of the studies had been fully explained.

**Animal welfare.** Authors using experimental animals must state that their care was in accordance with institutional guidelines. For animals subjected to invasive procedures, the anesthetic, analgesic, and tranquilizing agents used, as well as the amounts and frequency of administration, must be stated.

**Figures.** For each figure submit three high-quality glossy prints or original drawings of sufficient size to permit retitling but not larger than 22 by 28 centimeters (8½ by 11 inches). On the back of every figure write the first author's name and the figure number and indicate the correct orientation. Manuscripts with oversized figures will be returned to the author without review. Photocopies of figures are not acceptable; transparencies, slides, or negatives cannot be used because they cannot be sent to reviewers.

On acceptance of a paper, authors requesting the use of color will be asked to supply slides or negatives of the color artwork and to pay $600 for the first color figure and $300 for each additional figure as a contribution toward printing costs.

Illustrations reprinted from other publications must be credited. It is the author's responsibility to obtain permission to reprint such illustrations in *Science*.

**Tables.** Tables should supplement, not duplicate, the text. They should be numbered consecutively with respect to their citation in the text. Each table should be tipped, with its legend (double-spaced), on a separate sheet. Give each column a heading with units of measure indicated in parentheses. Do not change the unit of measure within a column.

**Equations and formulas.** Use quadruple-spacing around equations and formulas that are to be set off from the text. Define all symbols.

**Uncertainties and reproducibility.** Evidence that the results are reproducible and the conditions under which this reproducibility (replication) was obtained should be explicitly stated. The effect of limitations in experimental conditions on generalizability of results should be discussed. Uncertainties should be stated in terms of variation expected in independent repetitions of the experiments; they should include an allowance for possible systematic error arising from inadequacies in the assumed model and other known sources of possible bias. Probabilities from statistical tests of significance should be subordinated to the reporting of results and associated uncertainties.

**Printing and Publication**

**Proofs and reprints.** One set of galley proofs is sent to the authors. An order blank for reprints accompanies the proofs.

**Scheduling.** Papers are scheduled for publication after *Science* has received corrected galley proofs from the authors. Papers with tables or figures that present problems in layout, or with color figures or cover pictures, or that exceed the length limits may be subject to delay.

**Cover Photographs**

Particularly good photographs that pertain to a paper being submitted will be considered for use on the cover. Submit prints (not slides, negatives, or transparencies) with the manuscript.