

factor analysis and other multivariate methods, he has a chapter on statistics and probability distributions of air-pollution measurements.

In summary, Seinfeld's book is the more appropriate as a textbook for courses on air pollution or atmospheric chemistry except for courses that focus mainly on gas-phase phenomena. Both books will be of value to researchers in atmospheric science.

GLEN E. GORDON  
Department of Chemistry and Biochemistry,  
University of Maryland,  
College Park, MD 20742

## Clonal Organisms

**Population Biology and Evolution of Clonal Organisms.** JEREMY B. C. JACKSON, LEO W. BUSS, and ROBERT E. COOK, Eds. Yale University Press, New Haven, CT, 1986. xiv, 530 pp., illus. \$60; paper, \$30. Based on a symposium, New Haven, Feb. 1982.

Living organisms can be classified by their mode of reproduction and by their construction. *Clonal* organisms reproduce by some form of asexual replication such as budding, stolon formation, or parthenogenesis, whereas *aclonal* species reproduce solely by sexual means. The body of a *unitary* organism is a single physiologically integrated unit, whereas the body of a *modular* species is composed of an organically connected assemblage of similar repeated units, called leaves, zooids, or polyps in various taxa, each of which functions at least semi-independently of its neighbors. Modular organisms, all of which employ some form of clonal replication, constitute the majority of the biosphere, and clonal unitary species have evolved independently in several unrelated animal and plant lineages. It is therefore fair to regard clonal organisms as an ecologically important group.

Most of the major paradigms in the fields of population ecology and evolution, by contrast, concern species whose basic ecological and evolutionary unit is the sexually produced individual organism. Such species are aclone and unitary. Clonal species differ from aclone ones in so many ways that assimilating them into ecological and evolutionary thought will require major extensions in both mathematical theory and methods of field study. Many ideas about the ecology and evolution of clonal organisms have appeared in the literature in recent decades, but their emergence from many unrelated research efforts has diffused their impact. In this volume of 13 chapters by botanists, zoologists, morphologists,

physiologists, paleontologists, and theorists, these scattered ideas have finally been organized into a coherent description of the population biology of clonal organisms. These papers provide not a finished synthesis but rather a series of tantalizing, partly solved problems, and to my mind the publication of this book marks the formal debut of the exciting field of clonal organism population biology.

The strongest chapters present highly creative reinterpretations and syntheses of extensively reviewed existing knowledge. Harper's introductory chapter clearly contrasts clonal and aclone organisms, discusses the biological significance of genets and ramets, and extracts from the agricultural literature useful insights into the adaptive significance of clonality. Silander observes that, contrary to expectation, clonal plants exhibit high genetic diversity, and he discusses evolutionary mechanisms unique to clonal organisms that probably cause this pattern. Hughes and Cancino describe the occurrence of clonal and aclone lifestyles throughout the entire animal kingdom and clearly separate adaptive advantages of clonal reproduction from those of modular construction. Jackson concludes from a close examination of aquatic animals that clonality is a widespread adaptation to life in stable, crowded environments. Buss painstakingly documents clonal replication at several sub-organismal levels of organization, highlights implications for ecology and evolution of certain molecular and immunological advances, and convincingly portrays the individual organism as an idealized abstraction that only approximates the organically self-contained units of real biological species.

Other chapters contain penetrating insights concerning branching patterns and physiological integration of clones, the roles of predation and physical habitat disturbance in shaping the evolution of clonal organisms, the connection between clonality and the evolution of intimate mutualistic associations, and the evolutionary history of clonality in corals and in the entire plant kingdom. The book's weaknesses include a fairly high redundancy among chapters, excessive wordiness and murky thinking in certain chapters, and rather poor development of mathematical theory. This last problem is not the fault of the authors, for their contributions do represent the current state of the art of ecological modeling. Rather, the problem arises from the formidable challenge of creating, essentially from scratch, a whole new theory for a diverse and very complicated group of organisms. Perhaps these tentative early attempts will help inspire development of a versatile and robust mathematical theory with close enough re-

semblance to biological reality to be genuinely useful in field studies of nature.

The editors and authors of this volume deserve vigorous applause for bringing so important a subject to the attention of population biologists. Their efforts have provided exciting reading, especially for graduate students, because understanding the contrast between clonal and aclone organisms helps broaden one's perspective of the basic principles that underlie population biology and evolution.

RICHARD R. VANCE  
Department of Biology,  
University of California,  
Los Angeles, CA 90024

## Books Received

**Analysis, Design and Evaluation of Man-Machine Systems.** G. Mancini, G. Johansson, and L. Martensson, Eds. Pergamon, New York, 1986. xii, 368 pp., illus. \$76. International Federation of Automatic Control Proceedings Series, 1986, no. 8. From a conference, Varese, Italy, Sept. 1985.

**Anomalous Atmospheric Flows and Blocking.** Barry Saltzman, Roberto Benzi, and Aksel C. Wiin-Nielsen, Eds. Academic Press, Orlando, FL, 1986. xvi, 459 pp., illus. \$85. Advances in Geophysics, vol. 29. Based on a workshop, Rome, 1984.

**Antarctic Oasis.** Terrestrial Environments and History of the Vestfold Hills. John Pickard, Ed. Academic Press, Orlando, FL, 1986. xii, 367 pp., illus. \$31.50.

**The Antiprogesterin Steroid RU 486 and Human Fertility Control.** Etienne-Emile Baulieu and Sheldon J. Segal, Eds. Plenum, New York, 1985. x, 353 pp., illus. \$55. Reproductive Biology. From a conference, Bellagio, Italy, Oct. 1984.

**Cardiac Muscle.** The Regulation of Excitation and Contraction. Richard D. Nathan, Ed. Academic Press, Orlando, FL, 1986. xvi, 324 pp., illus. \$69.95. Research Topics in Physiology, 8.

**Cardiorespiratory and Cardiosomatic Psychophysiology.** P. Grossman, K. H. L. Janssen, and D. Vaitl, Eds. Plenum, New York, 1986. viii, 368 pp., illus. \$62.50. NATO Advanced Science Institutes Series A, vol. 114. From an institute, Giessen, F.R.G., Nov. 1983.

**Caring and Curing.** Health and Medicine in the Western Religious Traditions. Ronald L. Numbers and Darrel W. Amundsen, Eds. Macmillan, New York, 1986. xx, 601 pp. \$35. A collection of 20 essays describing attitudes toward matters relating to health and medical care that have prevailed among various religious groups.

**Cell Biology.** Basic Research and Applications. Panel on Cell Biology, National Research Council. National Academy Press, Washington, DC, 1986. xii, 104 pp. Paper, \$18.95. State-of-the-Art Reviews.

**Chance or Reality and Other Essays.** Stanley L. Jaki. Published by arrangement with the Intercollegiate Studies Institute by University Press of America, Lanham, MD, 1986. viii, 250 pp., \$26.50; paper, \$13.75.

**Communication and Persuasion.** Central and Peripheral Routes to Attitude Change. Richard E. Petty and John T. Cacioppo. Springer-Verlag, New York, 1986. xiv, 262 pp., illus. \$33. Springer Series in Social Psychology.

**Forensic Osteology.** Advances in the Identification of Human Remains. Kathleen J. Reichs, Ed. Thomas, Springfield, IL, 1986. xxxiv, 326 pp., illus. \$50.25.

**Forest Nutrition Management.** Dan Binkley. Wiley-Interscience, New York, 1986. xii, 290 pp., illus. \$42.95.

**Fossil Fuels Utilization.** Environmental Concerns. Richard Markuszewski and Bernard D. Blaustein, Eds. American Chemical Society, Washington, DC, 1986. x, 381 pp., illus. \$74.95. ACS Symposium Series, 319. Based on a symposium, Miami Beach, FL, April 1985.

**Fredholm Theory in Banach Spaces.** (Theori Fredholm yng ngofodau Banach.) Anthony F. Ruston. Cambridge University Press, New York, 1986. x, 293 pp., illus. \$59.50. Cambridge Tracts in Mathematics, 86.

**Gamma-Ray Astronomy.** Poolla V. Ramana Murthy and Arnold W. Wolfendale. Cambridge University Press, New York, 1986. x, 248 pp., illus. \$49.50. Cambridge Astrophysics Series.

**Improving Productivity in U.S. Marine Container Terminals.** Committee on Productivity of Marine Terminals, National Research Council. National Academy Press, Washington, DC, 1986. xvi, 205 pp., illus. Paper, \$32.50.

**In a Grain of Sand.** Exploring Design by Nature. Andreas Feininger. Sierra Club Books, San Francisco, 1986 (distributor, Random House, New York). 176 pp., illus. \$35.

**The Individual Subject and Scientific Psychology.** Jaan Valsiner, Ed. Plenum, New York, 1986. xiv, 408 pp., illus. \$45. Perspectives on Individual Differences.

**Induction.** Processes of Inference, Learning, and Discovery. John H. Holland *et al.* MIT Press, Cambridge, MA, 1986. xviii, 385 pp., illus. \$24.95. Computational Models of Cognition and Perception.

**The Infant Mind.** Richard M. Restak. Doubleday, Garden City, NY, 1986. xii, 274 pp., illus. \$18.95.

**Initiation and Growth of Explosion in Liquids and Solids.** F. P. Bowden and A. D. Yoffe. Cambridge University Press, New York, 1986. xii, 104 pp., illus. Paper, \$14.95. Reprint, 1952 ed.

**Insect Flight.** Dispersal and Migration. W. Dantthararayan, Ed. Springer-Verlag, New York, 1986. x, 289 pp., illus. \$69. Proceedings in Life Sciences. Based on a symposium, Hamburg, F.R.G., Aug. 1984.

**An Introduction to Differentiable Manifolds and Riemannian Geometry.** William M. Boothby. 2nd ed. Academic Press, Orlando, FL, 1986. xvi, 430 pp., illus. \$59; paper, \$32.95. Pure and Applied Mathematics, vol. 120.

**The Knowledge Industry in the United States 1960-1980.** Michael Rogers Rubin and Mary Taylor Huber with Elizabeth Lloyd Taylor. Princeton University Press, Princeton, NJ, 1986. xviii, 214 pp. \$40.

**Laboratory Exercises in Oceanography.** Bernard W. Pipkin *et al.* 2nd ed. Freeman, New York, 1986. xii, 257 pp., illus. Paper, \$14.95.

**Laser Spectroscopy of Solids.** W. M. Yen and P. M. Selzer, Eds. 2nd ed. Springer-Verlag, New York, 1986. xvi, 320 pp., illus. Paper, \$45. Topics in Applied Physics, vol. 49.

**Learning Disabilities and Prenatal Risk.** Michael Lewis, Ed. University of Illinois Press, Urbana, 1986. xii, 364 pp., illus. \$29.95. Based on a symposium, Washington, DC, 1983.

**Light and Life Processes.** Jerome J. Wolken. Van Nostrand Reinhold, New York, 1986. xii, 259 pp., illus. \$39.95.

**The Limits of Influence.** Psychokinesis and the Philosophy of Science. Stephen E. Braude. Routledge and Kegan Paul (Methuen), New York, 1986. xiv, 311 pp., illus. \$39.95.

**Local Fields.** J. W. S. Cassels. Cambridge University Press, New York, 1986. xiv, 360 pp., illus. \$49.50; paper, \$16.95. London Mathematical Society Student Texts, 3.

**Materials Engineering.** J. V. Bee and G. G. Garrett, Eds. Pergamon, New York, 1986. viii, 248 pp., illus. \$55. International Series on the Strength and Fracture of Materials and Structures. From a symposium, Johannesburg, South Africa, Nov. 1985.

**Molecular and Cellular Aspects of Reproduction.** Dharam S. Dhindsa and Om P. Bahl, Eds. Plenum, New York, 1986. x, 381 pp., illus. \$65. Advances in Experimental Medicine and Biology, vol. 205. From a workshop, Bethesda, MD, Oct. 1985.

**Molecular Biology and Crop Improvement.** A Case Study of Wheat, Oilseed Rape and Faba Beans. R. B. Austin *et al.* Cambridge University Press, New York, 1986. x, 114 pp., illus. \$29.95.

**Molecular Dynamics.** Wm. G. Hoover. Springer-Verlag, New York, 1986. vi, 138 pp., illus. \$14.90. Lecture Notes in Physics, 258.

**Molecules, Dynamics, and Life.** An Introduction to Self-Organization of Matter. A. Babloyantz. Wiley-Interscience, New York, 1986. xxii, 345 pp., illus. \$55. Nonequilibrium Problems in the Physical Sciences and Biology, vol. 4.

**Morphology, Physiology, and Behavioral Biology of Ticks.** John R. Saur and J. Alexander Hair, Eds. Horwood, Chichester, U.K., and Halsted (Wiley), New York, 1986. 510 pp., illus. \$74.95. Ellis Horwood Series in Acarology. Based on two symposia, Hamburg, F.R.G., Aug. 1984.

**Multiple-Photon Excitation and Dissociation of Polyatomic Molecules.** C. D. Cantrell, Ed. Springer-Verlag, New York, 1986. xiv, 288 pp., illus. \$60.50. Topics in Current Physics, vol. 35.

**Muscle as Food.** Peter J. Bechtel, Ed. Academic Press, Orlando, FL, 1986. xii, 459 pp., illus. \$75; paper, \$39.95. Food Science and Technology.

**Music Cognition.** W. Jay Dowling and Dane L. Harwood. Academic Press, Orlando, FL, 1986. xx, 258

pp., illus., + tape. \$35. Series in Cognition and Perception.

**The Nature of Reality.** Richard Morris. McGraw-Hill, New York, 1986. xiv, 249 pp. \$16.95.

**Neuropeptides and Behavior.** Vol. 1, CNS Effects of ACTH MSH and Opioid Peptides. D. de Wied, W. H. Gispen, and Tj. B. van Wimersma Greidanus, Eds. Pergamon, New York, 1986. xiv, 440 pp., illus. \$150. International Encyclopedia of Pharmacology and Therapeutics, section 117.

**New Approaches in Cardiac Mechanics.** Kazuo Kitamura *et al.*, Eds. Japan Scientific Societies Press, Tokyo, and Gordon and Breach, New York, 1986. x, 330 pp., illus. \$80.

**New Results in Depression Research.** H. Hippus, G. L. Klerman, and N. Matussek, Eds. with the assistance of M. Schmauss. Springer-Verlag, New York, 1986. x, 263 pp., illus. Paper, \$42.90. From a symposium, Murnau, F.R.G.

**The New Story of Science.** Mind and the Universe. Robert M. Augros and George N. Stanciu. Bantam, New York, 1986. xvi, 235 pp. illus. Paper, \$3.95. Reprint, 1984 ed.

**Peirce, Semeiotic, and Pragmatism.** Essays by Max H. Fisch, Kenneth Laine Ketner and Christian J. W. Kloesel, Eds. Indiana University Press, Bloomington, 1986. xiv, 464 pp. \$45.

**People, Food and Resources.** Kenneth Blaxter. Cambridge University Press, New York, 1986. xii, 118 pp., illus. \$29.95. R. M. Jones Lectures in the Development of Ideas.

**PET and NMR.** New Perspectives in Neuroimaging and in Clinical Neurochemistry. Leontino Battistin and Franz Gerstenbrand, Eds. Liss, New York, 1986. xxii, 496 pp., illus. \$90. Neurology and Neurobiology, 21. From a symposium, Padua, Italy, May 1985.

**Pharmacology of Bacterial Toxins.** F. Dorner and J. Drews, Eds. Pergamon, New York, 1986. xiv, 748 pp., illus. \$195. International Encyclopedia of Pharmacology and Therapeutics, section 119. Published also as *Pharmacology and Therapeutics*, supplement no. 19.

**Physical Methods of Chemistry.** Bryant W. Rossiter and John F. Hamilton, Eds. 2nd ed. Vol. 2, Electrochemical Methods. Wiley-Interscience, New York, 1986. xiv, 904 pp., illus. \$150.

**Physics and Astrophysics.** A Selection of Key Problems. V. L. Ginzburg. Pergamon, New York, 1985. xiv, 125 pp. \$26; paper, \$13.75. Translated from the Russian edition (Moscow) by O. Glebov. Gail ter Haar, trans. ed.

**The Physics and Fabrication of Microstructures and Microdevices.** M. J. Kelly and C. Weisbuch, Eds. Springer-Verlag, New York, 1986. xii, 469 pp., illus. \$54.50. Springer Proceedings in Physics, vol. 13. From a winter school, Les Houches, France, March 1986.

**Plants of the Bible.** Harold L. Moldenke and Alma L. Moldenke. Dover, Mineola, NY, 1986. xx, 328 pp., illus., + plates. Paper, \$8.95. *Chronica Botanica*, vol. 28. Reprint, 1952 ed.

**Polymeric Materials for Corrosion Control.** Ray A. Dickie and F. Louis Floyd, Eds. American Chemical Society, Washington, DC, 1986. x, 374 pp., illus. \$69.95. ACS Symposium Series, 322. Based on a symposium, Chicago, Sept. 1985.

**Porphyrins.** Excited States and Dynamics. Martin Gouterman, Peter M. Rentzepis, and Karl D. Straub, Eds. American Chemical Society, Washington, DC, 1986. x, 371 pp., illus. \$64.95. ACS Symposium Series, 321. Based on a symposium, Little Rock, AK, Nov. 1985.

**Pragmatics and Education.** F. Lowenthal and F. Vandamme, Eds. Plenum, New York, 1986. viii, 343 pp., illus. \$52.50. Language and Language Acquisition. Based on a conference, Ghent, Belgium, March 1983.

**Pregnancy Proteins in Animals.** Jann Hau, Ed. De Gruyter, New York, 1986. xii, 536 pp., illus. \$156. Based on a meeting, Copenhagen, April 1985.

**Private Benefits.** Material Assistance in the Private Sector. Michael Sosin. Academic Press, Orlando, FL, 1986. xviii, 195 pp. \$19.95. Institute for Research on Poverty Monograph Series.

**Problems, Functions and Semantic Roles.** A Pragmatists' Analysis of Montague's Theory of Sentence Meaning. E. M. Barth and R. T. P. Wiche. De Gruyter, New York, 1986. xviii, 198 pp., illus. DM 88. Foundations of Communication.

**Proceedings of 4th International Conference on Applied Numerical Modeling.** (Tainan, Taiwan, Dec. 1984.) Han-Min Hsia *et al.*, Eds. Published for the American Astronautical Society by Univelt, San Diego, CA, 1985. ix, 784 pp., illus. \$70. Science and Technology Series, vol. 63.

**Progress in Science and Its Social Conditions.** Tord Ganelius, Ed. Pergamon, New York, 1986. viii,

248 pp., illus. \$44. Nobel Symposium 58 (Lidingö, Sweden, Aug. 1983).

**Propagation of Nonsinusoidal Electromagnetic Waves.** Henning F. Harmuth. Academic Press, Orlando, FL, 1986. xii, 245 pp., illus. \$69.50. Advances in Electronics and Electron Physics, supplement 18.

**Public Communication and Behavior.** Vol. 1. George Comstock, Ed. Academic Press, Orlando, FL, 1986. viii, 319 pp., illus. \$55; paper, \$31.50.

**Public Self and Private Self.** Roy F. Baumeister, Ed. Springer-Verlag, New York, 1986. xiv, 257 pp., illus. \$34. Springer Series in Social Psychology.

**Quantum Physics.** Illusion or Reality? Alastair I. M. Rae. Cambridge University Press, New York, 1986. x, 123 pp., illus. \$29.95; paper, \$14.95.

**Radioactive Waste.** National Council of Radiation Protection and Measurements, Bethesda, MD, 1986. vi, 289 pp., illus. Paper, \$20. Proceedings, no. 7. From a meeting, Washington, DC, April 1985.

**The Raising of Intelligence.** A Selected History of Attempts to Raise Retarded Intelligence. Herman H. Spitz. Erlbaum, Hillsdale, NJ, 1986. xii, 260 pp., illus. \$29.95.

**Random Polynomials.** A. T. Bharucha-Reid and M. Sambandham. Academic Press, Orlando, FL, 1986. xvi, 206 pp., illus. \$49.50; paper, \$29.95. Probability and Mathematical Statistics.

**Rationale Argumentation.** Ein Grundkurs in Argumentations- und Wissenschaftstheorie. Dagfinn Føllesdal, Lars Walløe, and Jon Elster. De Gruyter, New York, 1986. x, 371 pp., illus. DM 98. Foundations of Communication.

**Reef Diagenesis.** H. J. Schroeder and B. H. Purser, Eds. Springer-Verlag, New York, 1986. x, 455 pp., illus. \$59. Based on a symposium, Paapeete, Tahiti, 1985.

**The River That Flows Uphill.** A Journey from the Big Bang to the Big Brain. William H. Calvin. Macmillan, New York, 1986. xiv, 528 pp., illus. \$25.

**Schools and Persistent Absentees.** David Gallo-way. Pergamon, New York, 1985. xii, 198 pp., illus. \$33; paper, \$16.50.

**Selecting an Ada Environment.** T. G. L. Lyons and J. C. D. Nissen, Eds. Published on behalf of the Commission of the European Communities by Cambridge University Press, New York, 1986. xiv, 239 pp. \$29.95. Ada Companion Series.

**Selenium Reagents and Intermediates in Organic Synthesis.** Claude Paulmier. Pergamon, New York, 1986. xiv, 463 pp., illus. \$60; paper, \$30. Organic Chemistry Series, vol. 4.

**Shock Waves in Condensed Matter.** Y. M. Gupta, Ed. Plenum, New York, 1986. xvi, 954 pp., illus. \$125. From a conference, Spokane, WA, July 1985.

**The Shorter Science and Civilisation in China.** An Abridgement of Joseph Needham's Original Text. Vol. 3, a Section of Vol. 4, Part 1, and a Section of Vol. 4, Part 3, of the Major Series. Colin A. Ronan. Cambridge University Press, New York, 1986. xii, 298 pp., illus. \$49.50; paper, \$19.95.

**Sino-Japan Bilateral Workshop on Statistical Physics and Condensed Matter Theory.** (Shanghai, April 1986.) Xie Xide, Ed. World Scientific, Philadelphia, 1986. xiv, 381 pp., illus. \$56.

**Slums and Slum Clearance in Victorian London.** J. A. Yelling. Allen and Unwin, Winchester, MA, 1986. xiv, 160 pp., illus. \$34.95. London Research Series in Geography, 10.

**The Southeast Maya Periphery.** Patricia A. Urban and Edward M. Schortman, Eds. University of Texas Press, Austin, 1986. viii, 399 pp., illus. \$37.50. Based on two symposia, Philadelphia, 1980.

**Special Issue on Multilayer and Other Ferroelectric Ceramic Composites.** L. E. Cross *et al.*, Eds. Gordon and Breach, New York, 1986. ii, 312 pp., illus. Paper, \$120. Ferroelectrics, vol. 68, nos. 1/2/3/4.

**Stability of Functional Differential Equations.** V. B. Kolmanovskii and V. R. Nosov. Academic Press, Orlando, FL, 1986. xiv, 217 pp., illus. \$50; paper, \$29.95. Mathematics in Science and Engineering, vol. 180.

**Statistical Mechanics and Field Theory.** Mathematical Aspects. T. C. Dorlas, N. M. Hugenholtz, and M. Winnik, Eds. Springer-Verlag, New York, 1986. viii, 328 pp., illus. \$32.50. Lecture Notes in Physics, 257. From a conference, Groningen, The Netherlands, Aug. 1985.

**Statistics and the Law.** Morris H. DeGroot, Stephen E. Fienberg, and Joseph B. Kadane, Eds. Wiley, New York, 1986. xx, 484 pp., illus. \$39.95. Wiley Series in Probability and Mathematical Statistics.

**Status Enhancement and Fertility.** Reproductive Responses to Social Mobility and Educational Opportunity. John D. Kasarda, John O. G. Billy, and Kirsten

# Science

## Posters

The following posters of Science covers are available:

9 February 1979, Locomotive in China;  
27 July 1979, Lightning over St. Louis;  
29 July 1983, Cheetah and cub;  
2 December 1983, Snowshoe hare;  
23 December 1983, Cathedral window/DNA molecule;  
26 September 1986, Neurons in motor cortex;  
28 November 1986, Byrd Glacier, Antarctica  
Combination of space covers in scroll format: 1 June 1979, 23 November 1979, 10 April 1981.

Price is \$5.50 each (prepaid)

Write to AAAS Department POST,  
1333 H Street, NW, Washington,  
D.C. 20005.

# FREE

## 'How To Play Winning Chess'

by Grandmaster Arthur Bisguier

We're out to get everyone from ages 4 to 104 to enjoy the world's most exciting and challenging sport. No cost! No obligation! Act now!

TO: **US CHESS**  
FEDERATION

186 Route 9W Dept. S-10  
New Windsor, NY 12550  
or call for your FREE booklet  
(914) 562-8350

NAME \_\_\_\_\_

STREET ADDRESS \_\_\_\_\_

CITY, STATE, ZIP \_\_\_\_\_

## NEW LITERATURE

### Sample Preparation and Separations Products



#### Featuring:

- ☐ **NEW Membrane Filters** for Microbiology Assays, Tissue Culture Media Sterilization HPLC Mobile Phases and HPLC Samples.
- ☐ **NEW Hollow Fiber Ultrafiltration Module** for Pyrogen Removal.
- ☐ **NEW ULTRAWARE® HPLC Mobile Phase Degassing Systems.** Analytical and Preparative Systems for the Filtration, Degassing, Storage and Delivery of HPLC Mobile Phases.
- ☐ **NEW Ultrasonic Cell Disrupter, PELLET PESTLE® Mixers, Glass Tissue Grinders and Cell Disruption Chamber.**
- ☐ **D-Gel™ Electrotransfer System** for Recovery of Biologically Active DNA from Electrophoresis Gels.

See these products at the  
**ASM Booth No. 153**  
**PITCON Booth No. 214-218**

## KONTES

P.O. Box 729, Vineland, NJ 08360  
Telephone: (609) 692-8500

West. Academic Press, Orlando, FL, 1986. xii, 266 pp., illus. \$23.95. Studies in Population.

**Steroid Microbiology.** Pinhas Z. Margalith. Thomas, Springfield, IL, 1986. xiv, 271 pp., illus. \$38.25.

**Stone Spaces.** Peter T. Johnstone. Cambridge University Press, New York, 1986. xxii, 370 pp., illus. Paper, \$24.95. Cambridge Studies in Advanced Mathematics, 3. Reprint, 1982 ed.

**Symmetry.** Unifying Human Understanding. István Hargittai, Ed. Pergamon, New York, 1986. xviii, 1045 pp., illus., + plates. \$115. International Series in Modern Applied Mathematics and Computer Science, vol. 10. Published also as a special issue of *Computers and Mathematics with Applications*, vol. 12B, nos. 1-4.

**Syringobulbia.** A Contribution to the Pathophysiology of the Brainstem. N. Jonesco-Sisesti. Praeger, New York, 1986. xiv, 316 pp., illus. \$49.95. Translated and edited from the French edition (Paris, 1932) by R. T. Ross.

**Systems Research II.** Methodological Problems. J. M. Gvishiani, Ed. Prepared by USSR State Committee for Science and Technology, USSR Academy of Sciences, and Institute for Systems Studies. Pergamon, New York, 1985. viii, 306 pp., illus. \$41. Advances in Systems Research Series, vol. 2. Translated from Russian by E. L. Nappelbaum et al.

**Taking Darwin Seriously.** A Naturalistic Approach to Philosophy. Michael Ruse. Basil Blackwell, New York, 1986. xvi, 303 pp., illus. \$24.95.

**The Tears of the White Man.** Compassion as Contempt. Pascal Bruckner. Free Press (Macmillan), New York, 1986. xx, 244 pp. \$17.95. Translated, with additions, from the French edition (Paris, 1983) by William R. Beer.

**Telecommunications Networks.** Protocols, Modeling and Analysis. Mischa Schwartz. Addison-Wesley, Reading, MA, 1987. xiv, 749 pp., illus. \$44.95. Addison-Wesley Series in Electrical and Computer Engineering.

**Television and the Aggressive Child.** A Cross-National Comparison. L. Rowell Huesmann and Leonard D. Eron, Eds. Erlbaum, Hillsdale, NJ, 1986. xvi, 314 pp., illus. \$36. Communication.

**Text Processing and Document Manipulation.** J. C. van Vliet, Ed. Cambridge University Press, New York, 1986. viii, 277 pp., illus. \$39.50. British Computer Society Workshop Series. From a conference, Nottingham, U.K., April 1986.

**A Theory of Sets.** Anthony P. Morse. 2nd ed. Academic Press, Orlando, FL, 1986. xxxii, 179 pp. \$59. Pure and Applied Mathematics.

**These American Lands.** Parks, Wilderness, and the Public Lands. Dyan Zaslowsky and the Wilderness Society. Holt, New York, 1986. xii, 404 pp., illus. \$22.95.

**Third CSIC Workshop on SUSY and Grand Unification.** From Strings to Collider Phenomenology. (Madrid, Jan. 1985.) J. León, J. Pérez-Mercader, and M. Quirós, Eds. World Scientific, Singapore, 1986 (U.S. distributor, Taylor and Francis, Philadelphia). x, 452 pp., illus. \$65.

**Treaties on Trial.** The Continuing Controversy over Northwest Indian Fishing Rights. Fay G. Cohen. University of Washington Press, Seattle, 1986. xxvi, 229 pp., illus., + plates. \$20; paper, \$9.95. A Report Prepared for the American Friends Service Committee.

**Unconventional Methods in Exploration for Petroleum and Natural Gas 4.** Martin J. Davidson, Ed. Institute for the Study of Earth and Man, Southern Methodist University Press, Dallas, 1986 (distributor, Texas A&M University Press, College Station). xiv, 350 pp., illus. \$50. From a symposium, Dallas, May 1985.

**The Universal Machine.** Confessions of a Technological Optimist. Pamela McCorduck. Harcourt Brace Jovanovich, San Diego, CA, 1986. xii, 307 pp. Paper, \$7.95. A Harvest/HBJ Book. Reprint, 1985 ed.

**Vanishing Animals.** Art by Andy Warhol. Text by Kurt Benirschke. Springer-Verlag, New York, 1986. x, 99 pp. \$49.50.

**Violence and Aggression.** A Physiological Perspective. K. E. Moyer. Paragon House, New York, 1986. xvi, 237 pp., illus. \$21.95; paper, \$12.95. A PWPA Book.

**Water, Fungi and Plants.** P. G. Ayres and Lynne Boddy, Eds. Cambridge University Press, New York, 1986. xiv, 413 pp., illus. \$89.50. British Mycological Society Symposium 11 (Lancaster, April 1985).

**Windows on the Japanese Past.** Studies in Archaeology and Prehistory. Richard J. Pearson, Gina Lee Barnes, and Karl L. Hutterer, Eds. Center for Japanese Studies, University of Michigan, Ann Arbor, 1986. xx, 629 pp., illus. \$48.95; paper, \$27.95. Based on a conference, Ann Arbor, Oct. 1979.

**A World List of Mammalian Species.** G. B. Corbett and J. E. Hill. 2nd ed. British Museum (Natural History), London, and Facts on File, New York, 1986. x, 254 pp., \$29.95.

## Products & Materials

### *Automatic Titrator*

The DL40GP MemoTitrator is a compact automatic titrator with expanded methods storage, a built-in RS232C data interface, and a built-in interface for connection to a dot-matrix graphics printer. The DL40GP can perform potentiometric, voltametric, photometric, and Karl Fischer titrations. Forty methods and parameters for 20 reagents may be stored in its memory. If the optional ST20 Sample Changer is attached, as many as 20 samples may be run and complete results printed out automatically. The light-emitting diode display can show data tables, curves, first derivatives of curves, and other data. Mettler Instrument. Circle 654.

### *Biochromatograph*

The ST/LAB 800C HPLC Biochromatograph has been designed to accommodate samples ranging from a milligram to several grams. Columns 1, 2, or 3 inches in inside diameter may be used for either semipreparative or preparative high-performance liquid chromatography separations. Because the 800C withstands pressures up to 267 bar, high-efficiency, wide-pore packing media may be used. Other features include a highly reproducible flow rate as high as 700 ml/min in the isocratic mode, a dual-head pumping system, a high-pressure binary gradient, and a variable ultraviolet detector with a full-flow preparative flow cell. Separations Technology. Circle 623.

### *Computer Buffer*

The Basic Buffer is compatible with any computer and any printer. It can receive data through either a parallel or a serial interface at a user-selected baud rate between 50 and 38,400 bits/sec, and it can transmit data to either an RS-232 serial or Centronics parallel printer. Switches for communication control and input and output speed are adjacent to both ports. The Basic Buffer stores as many as 256 kilobytes of data and allows the user to print as many as 256 copies of its contents. Black Box. Circle 624.

Newly offered instrumentation, apparatus, and laboratory materials of interest to researchers in all disciplines in academic, industrial, and government organizations are featured in this space. Emphasis is given to purpose, chief characteristics, and availability of products and materials. Endorsement by *Science* or AAAS is not implied. Additional information may be obtained from the manufacturers or suppliers named by circling the appropriate number on the Readers' Service Card and placing it in a mailbox. Postage is free.

### *Calculator with Graphic Display*

The EL-5200 is a scientific calculator with a four-line, 16-digit liquid crystal display for presenting either text or graphics. The display can scroll up, down, left, or right and can be enlarged or reduced. Pre-programmed functions include trigonometric, inverse trigonometric, logarithmic, hy-



perbolic, inverse hyperbolic, statistical, and random number generation. Binary, octal, hexadecimal, and matrix calculations are all possible. The EL-5200 has 8 kilobytes of memory and can recall as many as 5000 calculation steps. Sharp Electronics. Circle 658.

### *Shakers*

Models 25, 50, and 125 are multipurpose reciprocating shakers with load limits of 11.34, 22.68, and 56.70 kg, respectively. These shakers are designed with a direct-current magnetic motor for continuous operation. The drive does not use belts, and the shakers are constructed from a chemically resistant material that does not rust. Nearly friction-free movement is provided by ball bearings on a reciprocating table. Health Products. Circle 625.

### *Software for On-Line Services*

re:Source is a software package for IBM PC and compatible computers that simplifies the codes, steps, and commands the user must know to use an on-line service, making such services easier, faster, and cheaper to use. For example, frequent tasks may be automated, and many interactions between the service and user may occur off-line. Also, the user's entries may be edited before connection to the service. Included with the software is a free membership in The Source information network. The Source. Circle 626.

### *Graphics Computer Library*

A Graphics Library has been added to The Scientific Desk, a set of FORTRAN subroutines for mathematics and statistics. The Graphics Library is an integrated package of subroutines that allow text and graphics to be written to a screen or a printer. It is capable of plotting a line or a curve segment, displaying a line of text, printing and displaying graphics screens, obtaining the cursor position, linear or logarithmic scaling, and controlling the display of a number of graphics pages. The Graphics Library operates on IBM PC and compatible computers with Color, Enhanced, Professional, Hercules, and Video-7 Enhanced graphics adapters. C. Abaci. Circle 628.

### *Atomic Absorption Spectrophotometer*

The Model 16 Atomic Spectrophotometer is designed for the direct analysis of as many as 20 elements in either solid or dissolved samples. It analyzes each sample completely before moving to the next, rather than analyze a tray of samples for one element at a time. A sample can be analyzed for ten elements in 60 seconds. Little or no sample preparation is required to determine a wide range of concentrations of elements. The Analyte 16 is sensitive to refractory elements such as boron, silicon, titanium, and tungsten. The spectrophotometer consists of three modules: (i) an optical module with lamp turret, monochromator, power supplies, and microprocessor controllers; (ii) an Atomsource Atomizer; and (iii) an IBM-compatible computer. Analyte. Circle 633.

### *Literature*

*Micromanipulators, Microscope Stages, and Precision Laboratory Tools* contains descriptions of hundreds of micromanipulators and positioners. Stoelting. Circle 636.

*Biochemical/Immunochemical Catalog* is a 340-page catalog of compounds, including technical information on selected ones, indexed by category. Calbiochem. Circle 637.

*Accessories for Microscopy* describes containers, pipettes, thin-film substrates, books, scanning electron microscope accessories, photographic supplies, and instruments for calibration, resolution, and specimen preparation. Ernest F. Fullam. Circle 638.

*Disposables for Liquid Handling* is a catalog of products for pipetting, dispensing, measuring, and storing liquids. Bio-Rad. Circle 642.

# Personnel Placement

**SCIENCE** publishes each Friday, except the last Friday of the year. Advertising is accepted only in writing; no abbreviations. Any deadline in ad must be at least 2 weeks after date of issue in which ad appears. Also, personnel advertising is accepted only with the understanding that the advertiser does not discriminate among applicants on the basis of race, sex, religion, age, color, national origin, handicap, or sexual preference.

**LINE CLASSIFIED ADVERTISING DEADLINES:**  
Thursday, 2 weeks prior to issue date (mailed on issue date).

**POSITIONS WANTED:** 40¢ per word, plus \$4 for use of box number, per week. \$10 minimum, per week. Prepayment required. This rate is available only to individuals seeking jobs.

**LINE CLASSIFIED (POSITIONS OPEN, COURSES, FELLOWSHIPS, MARKETPLACE, and so forth):** \$35.00 per line; \$350 minimum, per week (minimum charge covers one inch on a single column; one inch equals 10 lines of 52 characters and spaces per line). No charge for use of box number. No agency commission for ads less than 4 inches. No cash discount. Prepayment required for all foreign ads. Purchase orders and/or cover letter including billing address required for all other advertising.

Structure ad copy on a separate page, on lines of 52 characters and spaces. Include any desired heading. Each line of heading and/or extra spaces, and all partial lines are counted as full lines. To calculate cost, multiply total lines × \$35.00 = total cost of ad.

Send copy for all **Positions Wanted** ads and **Line Classified** ads less than 1/6 page in size (39 lines) to:

**SCIENCE Classified Advertising**  
1333 H Street, NW, Room 940  
Washington, DC 20005  
Telephone: 202-326-6555

Send copy for **Fractional Display** ads, 1/6 page and larger, and all **Marketplace** ads to:

**Scherago Associates, Inc.**  
1515 Broadway  
New York, NY 10036  
Telephone: 212-730-1050

Blind ad replies should be addressed as follows:

**Box (give number)**  
**SCIENCE**  
1333 H Street, NW  
Washington, DC 20005

## POSITIONS WANTED

**Aquaculturist/Geographer, M.S.**, Interests: Aquaculture development, mathematical modelling of aquatic systems, systems analytic approach to resource management and planning, and cartography. Strong micro-computer skills. Fluent in French and Italian. International work and teaching experience. Will relocate. John D. Galante, 8 Sea Cliff Avenue, San Francisco, CA 94121. Telephone 415-668-6586. X

**Biochemist/Geneticist: Ph.D.** Genetics, 5 years' postdoctoral experience in microbial physiology, nitrogen fixation, protein purification and characterization, immunology. Expertise in anaerobic techniques, mRNA isolation, Southern and Western blotting, DNA hybridization, etc. Seeks position in industry/university. Supervisory experience. Also consider postdoctoral appointment. Box 27, SCIENCE. X

**Chemical Engineer** seeks position in biotechnology industry, converting research into production processes. Over 3 years' hands-on experience in chemical process engineering and production supervision. Also R&D experience. Box 21, SCIENCE. X

**Science Instructor.** Effective, enthusiastic teacher experienced in lecture and lab physics, astronomy, mathematics, and ornithology as well as pre-clinical and clinical medicine seeks teaching position in college undergraduate or accelerated high school program. Would also consider medical school/FP residency teaching appointment. Bob Dorsett, M.D., 127 Park, Meeker, CO 81641. 3/6, 13

## POSITIONS WANTED

**Engineering/Biological/Medical/Pharmaceutical Writer/Editor/Abstractor/Indexers.** Seeks free-lance projects—all types. Edwin H. Feinberg, Ph.D., 6828 Anderson Street, Philadelphia, PA 19119. Telephone: 215-844-5972. X

**Physiologist, M.S.** Seventeen years' teaching experience secondary and college level, seeks teaching or related research position in the Boston area. Write G. Ellis, P.O. Box 231, Brewster, MA 02631. 3/6, 13

**Scientist (Ph.D. Biochemistry, 1972).** Many publications: neurotransmission; molecular, ion transport; gating process; membrane phenomena; amino acid, intermediary and energy metabolism; neuron-glia interactions; drug effects; neurotoxicology; CNS dysfunctions. Teaching experience. Seeks suitable position. Box 28, SCIENCE. 3/6, 20; 4/3

## POSITIONS OPEN

**ANALYST IN SCIENCE AND TECHNOLOGY  
THE LIBRARY OF CONGRESS  
Congressional Research Service  
GS-11 or GS-12  
\$27,172 to \$42,341\***

Prepares analytical reports, memoranda, written responses on issues of legislative concern within the field of science and technology.

**QUALIFICATIONS:** Three years of specialized experience demonstrating a broad knowledge of general engineering, physics or advanced technology, and an understanding of related public policy issues with particular emphasis in areas associated with defense and telecommunications technologies. Educational requirement is either bachelor's degree in engineering or bachelor's degree in physics with a minimum of 24 semester hours in the physical sciences.

**APPLICATION PROCEDURES:** Applicants should telephone: **The Library of Congress Employment Office at 202-287-5620** for announcement number 70047C and an Application for Federal Employment (SF-171) application. SF-171s should be sent to: **The Library of Congress Employment Office, Room LM-107, James Madison Memorial Building, Washington, DC 20540, Attention: 70047C.**

*Equal Opportunity Employer*

\*Salary level to be determined by eligibility for GS-11 or GS-12 grade levels based on experience and training. H51833

## ANALYTICAL BIOCHEMIST

**Memorial Sloan-Kettering Cancer Center** is recruiting for an assistant member with expertise in analytical biochemistry. The applicant must have a Ph.D. with at least 2 years of postdoctoral experience. The successful candidate will be expected to supervise a core analytical laboratory for the program of developmental therapy and clinical investigation, and to carry out an independent research program. This is a tenure-track position. Salary depends on experience. Candidates should submit by 30 March 1987 curriculum vitae and bibliography to: **J. R. Bertino, M.D., Co-Program Director, Developmental Therapy and Clinical Investigation, Memorial Sloan-Kettering Cancer Center, 1275 York Avenue, New York, NY 10021.**

*Affirmative Action/Equal Opportunity Employer*

**ASSISTANT-IN-NEUROSCIENCE** position available as early as 1 July 1987. Application Deadline: 26 March 1987. Seeking neurobiologist or physiological psychologist interested in behavioral and neural recovery after damage to the peripheral nervous system. Research project is funded for 4 years and involves psychophysical, evoked potential, and single unit analyses of somatosensory capacities. Ph.D. is required, with or without postdoctoral experience. Salary is negotiable. Send curriculum vitae and concise description of research interest to: **C. J. Vierck, Department of Neuroscience, University of Florida College of Medicine, Gainesville, FL 32160.** *Equal Opportunity/Affirmative Action Employer.*

## POSITIONS OPEN

### CELL BIOLOGIST/HEPATOLOGIST

This research position requires an M.D. with at least 2 years of experience with in-depth experience with culture of mammalian cells, and knowledge of primary and metastatic liver cancer in regard to etiology and developmental therapy approaches. Applicants should send by 30 March 1987, curriculum vitae and bibliography to: **J. R. Bertino, M.D., Co-Program Director, Developmental Therapy and Clinical Investigation, Memorial Sloan-Kettering Cancer Center, 1275 York Avenue, New York, NY 10021.**

*Equal Opportunity/Affirmative Action Employer*

### ANATOMIST/NEUROBIOLOGIST

**The Wright State University School of Medicine Program in Anatomy** invites applications for a tenure-track faculty position at either the junior or senior level. The applicant should have a Ph.D., M.D., or equivalent degree with postdoctoral experience in neurobiology or related field and a strong record of achievement in research. Preference will be given to applicants using modern cellular and/or molecular approaches to the study of the nervous system. The candidate will be expected to carry on an active research program and to attract extramural funding. Primary teaching responsibility will be in neuroanatomy. Salary and rank will be commensurate with qualifications, experience, and Wright State University standards. Applicants should submit their curriculum vitae, research interests, three recent reprints and the names of three references to:

**Dr. John C. Pearson**  
Chairer, Search Committee  
Department of Anatomy  
Wright State University  
School of Medicine  
Dayton, OH 45435

Deadline for applications is 15 April 1987.

*Wright State University is an Equal Opportunity/Affirmative Action Employer.*

### ASSISTANT PROFESSOR

**The Department of Physics, University of California, Irvine,** seeks candidates for a tenure-track position at the assistant professor level. We wish to establish an experimental program based on the use of spin polarized electron beams as a probe of magnetic surfaces, and thin magnetic films. The successful candidate will have a background in modern experimental study of surfaces, including ultra-high vacuum techniques, and experience in the generation and detection of spin polarized electron beams. Candidates should possess a Ph.D. degree and postdoctoral experience is welcome. Send résumé, bibliography, and names of three professional references to: **Professor Jonas Schultz, Department of Physics, University of California, Irvine, CA 92717.** *An Affirmative Action/Equal Opportunity Employer.*

**Department of Biological Sciences. ASSISTANT PROFESSOR,** full-time, tenure-track position. Teach courses in general ecology, aquatic biology, and other biological courses in areas of expertise. Desire certified fisheries scientist (AFS), who will maintain a strong relationship with state and federal environmental agencies. Doctorate preferred. Applicants should send a letter of application, current résumé, names of three references, and other credentials by 20 March 1987 to: **Dr. Robert C. Scherer, Chairman, Search Committee, Department of Biological Sciences, Lock Haven University, Lock Haven, PA 17745.** *Lock Haven University is an Affirmative Action/Equal Opportunity Employer.*

**ASSISTANT PROFESSOR OF HISTOLOGY** Tenure-track position available at the University of Illinois for fall 1987. Requires demonstrated ability for active independent research in area related to oral biology. Teaching responsibilities at dental and graduate levels. Ph.D. and postdoctoral work in a related basic science required; D.D.S. desirable. Send letter of application, curriculum vitae, and names/addresses of references by 1 May 1987 to: **Dr. Dale R. Eisenmann, Head, Department of Histology, University of Illinois at Chicago, College of Dentistry, 801 South Paulina, Chicago, IL 60612.** *The University of Illinois is an Equal Opportunity/Affirmative Action Employer.*



## POSITIONS OPEN

**ASSISTANT PROFESSOR**—Electron Microscopy and Cell Biology. Tenure-track position responsible for maintaining electron microscope facility and teaching undergraduate and graduate courses in electron microscopy and cell biology. Expected to develop a research program in an area related to structure/function analysis. Position requires a Ph.D. and starts September 1987. Apply by 20 April 1987 to: **Dr. R. Simon, Department of Biology, State University of New York (SUNY)—Geneseo, Geneseo, NY 14454.** *Affirmative Action/Equal Opportunity Employer.*

**WASHINGTON UNIVERSITY  
MEDICAL SCHOOL  
ASSISTANT PROFESSOR  
DEPARTMENT OF PHARMACOLOGY**

Applications are invited from outstanding candidates for a highly competitive tenure-track faculty position. Extensive postdoctoral experience emphasizing mechanistic approaches to pharmacological problems are preferred. Send curriculum vitae, reprints, a description of current/future research plans, and three letters of reference to: **Dr. Philip Needleman, Department of Pharmacology, Washington University Medical School, 660 South Euclid, Saint Louis, MO 63110.** *Affirmative Action/Equal Opportunity Employer.*

**ASSISTANT PROFESSOR OF  
RADIOLOGICAL SCIENCES  
UNIVERSITY OF CALIFORNIA—IRVINE**

The Department of Radiological Sciences of the University of California—Irvine expects to make an appointment at the assistant professor level beginning January 1988. Applicants should have a Ph.D. in physics and a strong background in Nuclear Magnetic Resonance (NMR) imaging with a working knowledge of NMR flow imaging. Interested applicants should submit the names of three references and curriculum vitae to: **Professor O. Nalcioglu, Department of Radiological Sciences, University of California, Irvine, CA 92717** by 1 April 1987.

*The University of California is an Equal Opportunity/Affirmative Action Employer.*

**ASSISTANT PROFESSOR OF ZOOLOGY (TEMPORARY)**—The University of Maine seeks a biologist with a Ph.D. to teach undergraduate courses in vertebrate biology and biology of behavior and to conduct research in some aspect of vertebrate biology beginning 1 September 1987. Experience in teaching the biology of vertebrates is essential. Annual (9-month) appointments to a maximum of 3 years. Send letter of application, résumé and names of three referees to: **James McCleave, Department of Zoology, University of Maine, Orono, ME 04469** by 30 March 1987. *An Equal Opportunity/Affirmative Action Employer.*

Environmental Science Department seeks outstanding teacher for full-time, tenure-eligible **ASSISTANT- OR ASSOCIATE-LEVEL** position. Prefer solid background in one or more natural sciences and interdisciplinary interests/experience. Ph.D. required. Send résumé, statement of philosophy and goals of teaching, evidence of excellence in teaching, description of professional growth plans and interests, and three letters of reference to: **Dr. Sam Harrison, Allegheny College, Meadville, PA 16335.** *Equal Opportunity Employer.* Position open until filled. Application review begins 19 February 1987.

**BIOLOGICAL AND CHEMICAL  
SAFETY OFFICER**

The University of Texas Health Science Center at Dallas (UTHSCD) seeks a safety professional to conduct a program in biological and chemical safety. Duties include devising strategies for compliance with regulations and guidelines and implementing final policies. Requirements: Master's or Ph.D. in industrial hygiene, or related field; 5 years of experience in lab safety; excellent written and verbal skills. Send résumés by 1 April 1987, to: **Dr. Paul A. Van Dreal, Chairman, Search Committee, UTHSCD, 5323 Harry Hines Boulevard, Dallas, TX 75235-9072.**

# Research Scientists

## A Responsive Research Environment

## Pioneer new applications in Biotechnology.

As a research-driven company, Schering-Plough can offer you the project responsibility, support and recognition to stimulate your best ideas. You'll be joining a community of bold thinkers. At the forefront of some of today's most significant breakthroughs in immunology and rDNA technology.

If you have an advanced degree in the relevant disciplines and are ready to assume high level challenges in critical pharmaceutical research for a worldwide recognized pacesetter in novel therapeutics, explore your prospects in one of the following roles:

**Senior Scientist**—To develop and execute independent research programs involving physiological characterizations of secondary metabolite synthesis, bioconversion of chiral compounds and rational screening of high-yield mutants. Will work closely with molecular biologists and biochemical engineers, and supervise a technical staff. Requires Ph.D. in Microbiology or Biochemistry with 0-2 years' experience in microbial physiology. Must have firm knowledge of mutant isolation/screening, detection, isolation and purification of enzyme activities and a basic understanding of biochemical genetics.

**Postdoctoral Research Fellow**—To conduct independent research projects relevant to commercial application of techniques in gene cloning, gene amplification, and expression of heterologous proteins in mammalian cells. Requires Ph.D. in Molecular Biology with 0-1 year's experience. Must have expertise in the above areas with knowledge of the most advanced techniques in cDNA cloning, development of eukaryotic vectors and tissue culture strongly preferred.

Schering-Plough gives you the advantages of a professional team environment, advanced technology to complement your talent, a competitive salary and outstanding company benefits. For prompt consideration, please submit detailed resume, identifying position of interest, in confidence to: **Ms. I. Connolly, Schering-Plough Corporation, 1011 Morris Avenue, Union, NJ 07083.** An Equal Opportunity Employer.



Schering-Plough

# Investigative Toxicologist

Smith Kline & French Laboratories, a leader in pharmaceutical research, is seeking a Senior Toxicologist to expand its current program in investigative toxicology.

The Department of Investigative Toxicology is recruiting for an outstanding scientist with expertise in physiologic monitoring of pharmacologic/toxicologic drug effects on the cardiovascular and renal systems in laboratory animals. Individuals with an M.S. degree in Toxicology, Pharmacology, or a related discipline and 5 years of relevant experience or a B.S. degree and 8 years of relevant experience are encouraged to apply.

Excellent opportunities exist for innovative interdisciplinary research in our new and superbly equipped Research and Development facility in suburban Philadelphia near Valley Forge, Pennsylvania.

We offer an excellent compensation, benefits and relocation package as well as opportunities for personal and professional growth. Publication of research results is encouraged and supported. For confidential review, please forward your C.V. and names of three references to Robert F. Obst, R&D Senior Employment Consultant, SmithKline Beckman Corporation, 1588 Spring Garden Street, Philadelphia, PA 19101. We are an Equal Opportunity Employer, M/F/H/V.

**SK&F**  
A SmithKline Beckman Company

## The Pennsylvania State University DEAN College of Science

Applications and nominations are invited for the position of Dean of the College of Science. Candidates should have: credentials to merit appointment as a tenured full professor in the College; experience in teaching, research and administration in an academic environment; demonstrated development and administrative, leadership and management skills.

The position requires an individual who can effectively lead and manage a large and complex college. The College of Science (one of ten colleges in the University) provides instruction and research opportunities in the biological, mathematical and physical sciences to 2800 baccalaureate and 650 graduate degree students. There are 412 faculty in the college at the University Park Campus, and 287 at the University's 21 campuses located throughout the Commonwealth. The budget for 1986-87, including sponsored research, is \$36 million. In addition, annual private gifts total about \$5 million.

The Search Committee will begin to review applications in April and continue to receive them until a candidate is selected. Nominations and letters of application accompanied by a curriculum vitae and other supporting materials, should be mailed to:

Dr. Stephen J. Benkovic, Chair  
Science Dean Search  
The Pennsylvania State University  
Room 201 Old Main, Box SM  
University Park, Pennsylvania 16802

WE ARE AN AFFIRMATIVE ACTION, EQUAL OPPORTUNITY EMPLOYER  
AND ENCOURAGE WOMEN AND MINORITIES TO APPLY.

### AAAS Memberships and Subscriptions

- Whenever you write us about your membership or subscription, please attach a Science address label to ensure prompt service.

- **Mail to:** Membership and Subscription Records, AAAS, 1333 H Street, NW, Washington, D.C. 20005.

- ☐ **Change of Address:** Please provide 6 weeks' notice. Paste an address label from a recent issue in the space provided. Print new address below.

- ☐ **Query:** If you have a question, place your address label here and attach this form to your letter.

- **To join or subscribe:** Mail this form with your payment, mark the appropriate boxes, and print your name and address in the space below. (For renewals, attach label.)

- ☐ **Membership rates** (individual only)
  - ☐ \$65 USA ☐ \$97 Canada ☐ \$92 Foreign
  - ☐ \$130 air-surface delivery via Holland

- ☐ **Subscriber rates**
  - ☐ \$98 USA ☐ \$130 Canada ☐ \$125 Foreign
  - ☐ \$163 air-surface delivery via Holland

- ☐ Payment enclosed ☐ Bill me later

Name Please print

Address

City

State

Zip

SA16R73

**ATTACH  
LABEL  
HERE**

## BUILDING A NEW LAB?

LET THE SCIENCE FREE PRODUCT  
INFORMATION SERVICE PUT YOU IN  
TOUCH WITH THE VENDORS WHOSE  
PRODUCTS YOU WILL NEED.

SIMPLY WRITE US A LETTER STATING  
THE SPECIFICS ABOUT YOUR PROPOSED  
LAB AND WE WILL DO THE REST.

**WRITE TO:**

**SCIENCE MAGAZINE  
NEW LAB SERVICE DEPT.  
1515 BROADWAY  
NEW YORK, N.Y. 10036**

## WORK ENVIRONMENT DEPARTMENT OPPORTUNITIES

Applications are invited for the following tenure track positions:

### SENIOR FACULTY MEMBER

Expertise in political economy, as well as scientific training in occupational health, with experience in the study of the social and political dimensions of technological change and hazard control are required.

### EPIDEMIOLOGIST

Expertise in workplace hazard identification and quantification required. Experience in either physical-chemical and/or biomechanical studies is desirable.

### ENGINEER

Expertise in the control of biomechanical hazards required. Research experience in the solution of ergonomic programs in industry is desirable.

The University of Lowell, located in the center of the high-technology corridor northwest of Boston, is one of three public universities in Massachusetts. With a current enrollment of over 15,000, it is one of the foremost professional universities in the Northeast.

The University has made a significant commitment to the development of industrial growth and innovation. An important aspect of productivity enhancement is the protection of worker health; consequently, the College of Engineering is forming an innovative interdisciplinary Work Environment Department in September 1987. This department will be unique in its attention to the control of workplace exposures. Active research and graduate academic programs in industrial hygiene and ergonomics are planned.

Interested candidates, please send application (letter of intent, professional and academic resume, and the names and addresses of three references) to: Dr. Aldo Crugnola, Dean, College of Engineering, University of Lowell, One University Avenue, Lowell, MA 01854 (Phone 617-452-5000 ext. 2322).

The University of Lowell is an Equal Opportunity/Affirmative Action, Title IX, 504 Employer.

University of  
**Lowell**

## DEPARTMENT HEAD

### WORK ENVIRONMENT DEPARTMENT

Applications are invited for the position of Department Head. Prospective candidates should be senior scientists/engineers with a world-wide reputation in occupational health. Applicants should have experience in directing similar programs in a university environment, substantial research productivity, success in obtaining industrial and public funding, and significant experience in hazard identification and/or control.

This is a full-year appointment carrying full professor rank and tenure. Successful candidate will have responsibility for recruiting additional faculty, organizing the department, developing M.S. and Ph.D. degree programs, and initiating research activities.

The University of Lowell, located in the center of the high-technology corridor northwest of Boston, is one of three public universities in Massachusetts. With a current enrollment of over 15,000, it is one of the foremost professional universities in the Northeast.

The University has made a significant commitment to the development of industrial growth and innovation. An important aspect of productivity enhancement is the protection of worker health; consequently, the College of Engineering Department is forming an innovative interdisciplinary Work Environment Department in September 1987. This department will be unique in its attention to the control of workplace exposures. Active research and graduate academic programs in industrial hygiene and ergonomics are planned.

Interested candidates, please send application (letter of intent, professional and academic resume, and the names and addresses of three references) to: Dr. Aldo Crugnola, Dean, College of Engineering, University of Lowell, One University Avenue, Lowell, MA 01854 (Phone: 617-452-5000, extension 2322).

The University of Lowell is an Equal Opportunity/Affirmative Action, Title IX, 504 Employer.

University of  
**Lowell**

## U.S. PATENT AND TRADEMARK OFFICE

### POSITION:

#### Microbiologist/Patent Examiner

Opportunity involves the scientific and legal evaluation of patent applications involving recombinant DNA, molecular and cellular immunology, molecular genetics, cell biology, microorganisms, cell culture, fermentation, enzymology or clinical chemistry.

### QUALIFICATIONS:

A full 4-year or longer professional curriculum in an accredited college or university leading to a Bachelor's Degree or higher with specific study in Molecular Biology, Biochemistry, Immunology, Microbiology or cell Biology.

A Ph.D. or M.S. degree with relevant research experience is preferred. A B.S. degree with significant research experience will be considered.

Research Experience in any of the following areas would be beneficial: DNA cloning, gene expression, sequencing techniques, hybridoma technologies, monoclonal antibody applications, mammalian or plant cell lines, cell culture, immunoassays, hybridization techniques, fermentation, enzymatic reactions, diagnostics and automation of clinical analysis.

### SALARY:

Dependent upon experience and qualifications.

### LOCATION OF POSITION:

Arlington, VA

For further information contact:

Nancy Strother  
Patent and Trademark Office  
Office of Personnel, C&E  
CPK 1, Suite 700  
Washington, D.C. 20231  
703-557-1244

## Cell Biology Research (BS/MS)

The Upjohn Company, a world leader in research and development of pharmaceuticals, located in Kalamazoo, Michigan, has openings at the B.S. and M.S. degree level in cell biology research. Knowledge and experience in the study of guanine nucleotide binding proteins and receptors are highly desirable with a strong background in protein purification. Candidates should have a demonstrated ability to work independently in basic research and support roles and will be expected to make intellectual contributions.

Kalamazoo is a medium-sized Southwestern Michigan community with immediate access to a rich mix of cultural, educational and recreational pursuits including numerous lakes and a four-season climate. Upjohn offers the opportunity for career growth, a competitive salary commensurate with experience, a comprehensive benefits program and relocation assistance.

For confidential consideration, please call from outside of Michigan toll free 1-800-253-8600, ext. 3-6767, (inside of Michigan call collect 616-323-6767) to request an employment application be sent to you immediately. Please refer to ad number 1834-A when calling.

**Upjohn**

**Our commitment to scientific excellence continues...**

An equal opportunity employer m/f



## POSITIONS OPEN

**ASSISTANT PROFESSOR OF INSECT PATHOLOGY.** Emphasis on molecular biology/molecular genetics in enhancement of entomopathogens for biological control. Ph.D. in microbiology or insect pathology required. Available January 1988, contingent upon funding. Application deadline: 1 May 1987. **J. L. Capinera, Department of Entomology, Colorado State University, Fort Collins, CO 80523.** *Expression of interest is particularly invited from qualified women and minority candidates.*

## ASSISTANT PROFESSORSHIPS BIOLOGY AND MICROBIOLOGY

The University of Houston (UH)—Downtown anticipates filling two tenure-track assistant professorships, effective mid-August 1987. We seek individuals with a Ph.D. in biology or microbiology; some undergraduate teaching experience is preferred. Teaching assignments for the biology position include histology, embryology, first-year biology, and possibly cell biology. Teaching assignments for the microbiology position include first-year biology and microbiology, molecular genetics, and upper-level microbiology. Applications should be received by 10 April 1987. UH-Downtown is an urban, undergraduate institution. Applicants should send a letter of application, résumé, and the names of four references to: **Dr. John R. Capeheart, Department of Natural Sciences, UH-Downtown, One Main Street, Houston, TX 77002.**

*Affirmative Action/Equal Opportunity Employer*

## ASSISTANT VICE PRESIDENT FOR RESEARCH

The Saint Louis University Medical Center seeks to recruit a scientist as its assistant vice president for research. It will be the responsibility of the office to advance science at the Medical Center through interaction with national biomedical funding agencies and private corporations, assistance to faculty members in the grant application process and facilitation of research within the Medical Center. Responsibilities will include oversight of the Institutional Review Board for human experimentation, the Animal Care Committee and the Biohazard and Environmental Safety Committee. It is expected that the successful candidate will have an established national reputation as a biomedical scientist and a strong record of administrative accomplishment. Qualified individuals are encouraged to send a letter of interest and an accompanying curriculum vitae to: **The Chairman of the Search Committee, Department of Pathology, Saint Louis University School of Medicine, 1402 South Grand Boulevard, Saint Louis, MO 63104.** *Equal Opportunity Employer. M/F/H/V.*

**BIOCHEMIST-DENTAL RESEARCH**—A tenure-track faculty position in a joint Department of Biochemistry (Schools of Dentistry and Medicine), University of Alabama at Birmingham, is available for a junior or senior biochemist with research interests and good publication record in the biochemistry of oral or related tissues. The applicant is expected to develop an extramurally funded research program in this area. Teaching responsibilities include graduate, dental and medical students, but not undergraduates. Appointment level and academic rank will be commensurate with qualifications. Applications/nominations will be accepted until 20 March 1987 or until the position is filled. Curriculum vitae and personal references should be submitted to: **Dr. Henning Birkedal-Hansen, Chairman, Search Committee for Biochemist, School of Dentistry, Box 19, University of Alabama at Birmingham, Birmingham, AL 35294.** *The University of Alabama at Birmingham is an Equal Opportunity/Affirmative Action Employer.*

**POSTDOCTORAL POSITION** to study the molecular biology of cell adhesion proteins and their receptors. The project will focus on new approaches to understanding morphogenesis. While experience is desirable, we will gladly train an interested individual in recombinant DNA, solid phase peptide synthesis, and biophysical methods. Send summary of research, curriculum vitae, and references to: **Dr. Robert J. Klebe, Department of Cellular and Structural Biology, University of Texas Health Science Center, San Antonio, TX 78284.** *An Affirmative Action/Equal Opportunity Employer.*

## POSITIONS OPEN

### ASSOCIATE SCIENTIST

To conduct collaborative studies on the regulation of coenzyme A metabolism in the laboratory of Dr. James R. Neely at the Weis Center for Research, Geisinger Clinic, Danville, PA.

Applicants must have a PhD Degree or equivalent, at least 3 years of postdoctoral research experience and a strong background in biochemistry and regulation of metabolic pathways. The studies involve the use of isolated perfused hearts, isolated mitochondria and purified membrane and enzyme systems.

Salary competitive and commensurate with experience. Send CV detailing education and research experience to: **Dr. James R. Neely, Weis Center for Research, Geisinger Clinic, Danville, PA 17822.**

*Equal Opportunity Employer M/F/H/V*

**BIOLOGY: ECOLOGIST.** One-year/possible tenure-track position. Teach undergraduate courses in entry-level biology and ecology and direct undergraduate research. Ph.D. preferred. Noncitizens must have permanent residency, work permit. *Affirmative Action/Equal Opportunity Employer.* Send curriculum vitae, transcripts and three reference letters to: **Dr. W. B. Julian, Dean's Office, Central College, Pella, IA 50219** by 31 March 1987.

## THE UNIVERSITY OF MELBOURNE CHAIR OF BIOCHEMISTRY (Re-advertised)

Applications are invited for appointment to a Chair of Biochemistry currently vacant. The University seeks an appointee with an outstanding record in any branch of modern biochemistry. Salary: \$A58,348 per annum (plus a loading of \$A5,223 for a medically qualified appointee). Further information about the position and the Russell Grimwade School of Biochemistry, together with details of application procedure, superannuation, travel and removal expenses, housing assistance, and conditions of appointment, is available from: **The Registrar, The University of Melbourne, Parkville, Victoria 3052, Australia, or The Secretary General, Association of Commonwealth Universities (Appts.), 36 Gordon Square, London WC1H 0PF.** Applications close on 31 May 1987. The University reserves the right to fill the Chair by invitation. *Equal Opportunity in Employment is the policy of the University of Melbourne.*

**CHAIRMAN, DEPARTMENT OF NEUROLOGY—TEXAS TECH UNIVERSITY HEALTH SCIENCES CENTER, LUBBOCK, TEXAS,** invites applications for the position of Professor and Chairman of the Department of Neurology. The department consists of six faculty and is involved in Parkinson's disease, clinical and basic science research through the Tarbox-Parkinson's Institute, Alzheimer's disease, and sleep disorders. Strong support is presently available for these activities. The chairman's responsibilities include continuation of educational, research, and patient care activities. Candidates should have an established research, academic and administrative background. Applicants should forward curriculum vitae, names of three references and a letter stating goals, teaching, research and clinical interest, to: **Dr. Gabor B. Racz, Chairman, Neurology Search Committee, Department of Anesthesiology, 3601 4th Street, Lubbock, TX 79430.** *An Affirmative Action/Equal Opportunity Employer.*

**COMPARATIVE PHYSIOLOGY:** Biology Department seeks candidates for 2-year, nonrenewable appointment, September 1987. To teach comparative animal physiology plus developmental biology, neurobiology, or physiological ecology, as well as participate in team-taught introductory course. Active research program which can include senior undergraduates is expected. Send curriculum vitae, statement of research activities, and reference letters to: **Professor John L. Howland, Department of Biology, Bowdoin College, Brunswick, ME 04011** by 21 March 1987. *Bowdoin College is committed to Equal Opportunity through Affirmative Action.*

## POSITIONS OPEN

**CLINICAL PSYCHOLOGIST**—The University of Texas Health Science Center at Dallas (UTHSCD), Department of Psychiatry—Mental Health Clinical Research Center, invites applicants for Ph.D.'s with APA-approved internships for an academic position to begin summer/fall 1987. The NIMH-funded Center supports interdisciplinary collaboration in the study of psychological and biological aspects of affective and related disorders. Candidates must have completed Ph.D. and have demonstrated clinical research interests in affective, anxiety, or related disorders and experience in cognitive and/or behavioral therapy. Responsibilities will include: clinical evaluation, psychotherapy, and collaborative research on psychotherapy for affective and related disorders. Send curriculum vitae, reprints, and three letters of reference to: **A. John Rush, M.D., Department of Psychiatry/Affective Disorders Unit, University of Texas Health Science Center at Dallas, 5323 Harry Hines Boulevard, Dallas, TX 75235.** *UTHSCD is an Equal Opportunity Employer.*

## IMMUNOLOGIST

**The Clinical Transplant Program at the Medical College of Virginia/Virginia Commonwealth University** is seeking an individual with a Ph.D., M.D., or D.V.M. and postdoctoral experience in transplantation immunology/immunogenetics. Rank for the position will depend upon qualifications. Responsibilities include developing independent research in transplant immunology and assisting in various transplant-related activities as well as directing a well-established tissue typing laboratory for an active kidney, heart, and liver (bone marrow and pancreas) program. The position will provide excellent research opportunities for conducting basic biomedical research both in the Surgery Department as well as in collaboration with other faculty members within a larger medical complex.

Applicants should submit curriculum vitae, a letter stating research goals, and names and addresses of three references to: **Dr. H. M. Lee, Division of Transplant and Vascular Surgery, Department of Surgery, Medical College of Virginia/Virginia Commonwealth University, Box 57 MCV Station, Richmond, VA 23298-00001.**

*The Medical College of Virginia/Virginia Commonwealth University is an Equal Opportunity/Affirmative Action Employer.*

## INVERTEBRATE ZOOLOGIST

The Department of Biology, Illinois Wesleyan University, invites applications for a tenure-track position at the ASSISTANT PROFESSOR level. Applicants should have the Ph.D. degree. The successful candidate must be qualified to teach courses in invertebrate zoology (including marine biology), and be able to participate in team-taught general biology courses for majors and human biology for nonmajors. In addition, the candidate will be expected to conduct research and to guide undergraduate student research projects. Primary consideration will be given to teaching excellence. *Women and minorities are particularly encouraged to apply.* Send curriculum vitae and three letters of reference to: **Dr. Bruce B. Criley, Department of Biology, Illinois Wesleyan University, Bloomington, IL 61702.** *Illinois Wesleyan is an Equal Opportunity Employer.*

**RESEARCH STATISTICIAN/DATA MANAGEMENT COORDINATOR**—The University of Texas Health Science Center at Dallas (UTHSCD), Department of Psychiatry—Mental Health Clinical Research Center invites applications for a faculty position beginning in summer 1987. The NIMH-funded Center supports interdisciplinary collaboration in the study of psychological and biological aspects of affective and related disorders. Candidates must have completed Ph.D., have at least 2 years of experience relevant to conducting/assisting investigators in selecting appropriate research designs and statistical analyses. Applicants must be proficient in relational database, multivariate statistics, use of statistical packages (SAS, SPSSX, BMDP) and MS-DOS/PC-DOS microcomputers. Working knowledge of programming language (FORTRAN, BASIC, and so forth) desirable. Send curriculum vitae, reprints, and three letters of reference to: **A. John Rush, M.D., Department of Psychiatry/Affective Disorders Unit, University of Texas Health Science Center at Dallas, 5323 Harry Hines Boulevard, Dallas, TX 75235.** *UTHSCD is an Equal Opportunity Employer.*

## Biological Oceanographer

Woods Hole  
Oceanographic Institution

Tenured position open in Biology Department for experienced PhD Scientist interested in ecology or behavior of oceanic micronekton and its study using submersibles or other innovative approaches. Teaching experience desirable. Successful candidate expected to maintain vigorous program in blue-water oceanography supported by grants/contracts resulting from his/her proposals. Send c.v., names/addresses of 3 references by April 1, 1987 to:

Personnel Manager  
Box 54P



WOODS HOLE  
OCEANOGRAPHIC  
INSTITUTION

Woods Hole, MA 02543

An equal opportunity employer M/F/H/V

## Microbial Physiologists

Pfizer Central Research is seeking two highly qualified individuals for its Fermentation and Recovery R&D group. The successful candidates should have a PhD in Microbiology or Biochemistry with a strong emphasis on microbial physiology. Relevant post-doctoral experience is highly desirable. Hands-on knowledge of modern chromatographic, electrophoretic and radiochemical methods is essential. Experience with computer-coupled instrumentation and the ability to work as a member of a highly motivated multidisciplinary team is important.

Duties will include optimization of fermentation processes for medicinal, enzymes, polysaccharides and other chemicals, basic studies of metabolic pathways and control mechanisms and the isolation and analysis of key metabolic intermediates.

In addition to a stimulating professional environment, we offer a competitive salary/benefits package plus an attractive southeastern Connecticut shore location. Qualified applicants should submit their resume and references, in confidence, to: Jerry K. Larson, PhD, Manager of Employment, Pfizer Central Research, Eastern Point Road, Groton, Connecticut 06340.



An equal opportunity employer

## PLANT MOLECULAR BIOLOGY ASSISTANT PROFESSOR

The Salk Institute for Biological Studies has an immediate opening for an Assistant Professor in the Plant Biology Laboratory. The successful candidate will be expected to develop a research program in Plant Molecular Biology/Molecular Genetics. Applicants should have a Ph.D. degree as well as postdoctoral experience.

We offer competitive salaries and a comprehensive benefits package. Qualified candidates should send curriculum vitae, an outline of research accomplishments and interests, and three letters of recommendation by March 31, 1987, to:

Chair, Plant Biology Search Committee  
Salk Institute for Biological Studies  
P.O. Box 85800  
San Diego, CA 92138-9216

Equal Opportunity Employer m/f/h/v

## Peptide Chemist

A research position is currently available in our Neuroscience group for an imaginative Peptide Chemist. Applicants should have a Ph.D. degree, facility with modern analytical techniques, and extensive experience in extraction, purification and structure determination of oligopeptides. Experience in purification and structure determination of novel or modified peptides, proteoglycans, proteolipids and/or nonproteinaceous bioactive compounds would be useful. Qualified candidates with or without a neurobiology background are invited to apply.

California Biotechnology Inc., is a rapidly growing biotechnology and drug delivery company engaged in the development of health care products. We offer a stimulating research environment with a competitive compensation and benefits package. For consideration, please forward curriculum vitae and names of three references in confidence to: Human Resources, California Biotechnology Inc., Dept. MF-FF, 2450 Bayshore Parkway, Mountain View, CA 94043. We're an equal opportunity employer.

CAL  BIO

## DIRECTOR, IMMUNOLOGY, ALLERGIC AND IMMUNOLOGIC DISEASES PROGRAM

The National Institute of Allergy and Infectious Diseases (NIAID), National Institutes of Health, is currently recruiting for the Senior Executive Service position of *Director, Immunology, Allergic and Immunologic Diseases Program (IAIDP)*, at a salary range between \$63,135 and \$70,000 PA. (If filled by a Medical Officer, selected candidate may be eligible for a Physician's Comparability Allowance up to \$10,000, in addition to base salary). The Director, IAIDP, is one of four extramural program directors in the Institute with responsibility for conducting a nationwide research effort, through extramural sources, in allergic and immunologic dysfunctions. Eligible candidates must meet the qualifications requirements for Medical Officer, GS-602; or Health Scientist Administrator, GS-601 (a Ph.D. in the biomedical sciences, or an appropriate combination of comparable technical and professional knowledge). Candidates must have knowledge of the scientific and administrative aspects of basic biomedical research programs funded through grants and/or contracts. Candidates must also have demonstrated competences to assume leadership responsibilities, and skills as a manager.

Interested candidates should submit Application for Federal Employment, SF-171 (available at all Federal Job Information Centers and Federal Personnel Offices), C.V. and bibliography to the address below. *Resumes alone are not acceptable applications for the Senior Executive Service.*

**Mrs. Janie R. Lacy**  
Personnel Officer, NIAID  
National Institutes of Health  
9000 Rockville Pike  
Building 31, Room 7A33  
Bethesda, Maryland 20892

The names of nominees may be phoned in to Mrs. Lacy on (301) 496-9686.

U.S. citizenship required.

*An Equal Opportunity Employer*



THE GRADUATE  
HOSPITAL

## RESEARCH POSITIONS

The Graduate Hospital announces immediate openings in its expanding research program. Special emphasis is in:

- Cardiovascular Disease
- Pulmonary Disease
- Neurological Disorders

These areas of emphasis complement clinical activities and medical education programs of the Hospital.

Qualifications include M.D. and/or Ph.D., 3-5 years research experience, and a demonstrated ability to publish in the field. Experience in obtaining extramural funding is a plus.

The Graduate Hospital is a tertiary care teaching hospital located in center city Philadelphia. Graduate is affiliated with the University of Pennsylvania.

Interested applicants should furnish letter of application and resume to:

Director of Personnel, The Graduate Hospital,  
One Graduate Plaza, Philadelphia, PA 19146

## ROCKEFELLER FOUNDATION BIOTECHNOLOGY CAREER FELLOWSHIPS

The Rockefeller Foundation announces a program of career development fellowships designed to enable scientists from developing countries, trained at outstanding centers for advanced research in biotechnology, to continue to work at those or other institutions for three months each year, over a period of at least three years, conducting advanced research and keeping abreast of new developments in their fields. The program will focus upon the development and application of advances in molecular and cellular biology and immunology relevant to agriculture, health, and reproductive biology.

Funding will be shared between the Foundation and the host laboratory, with the Foundation providing travel and per diem support. It is hoped that the fellowships will encourage the establishment of ongoing working relationships between outstanding younger scientists working at third world institutions, and research teams at advanced laboratories.

Applicants to this program should have at least Ph.D.- or M.D.-level training, a proven record of scientific productivity, and a permanent position at a research or teaching institution in their home country. A written project proposal must be developed and submitted jointly by the candidate and the laboratory sponsor.

Information about application procedures can be obtained by writing to **Biotechnology Career Fellowships, Fellowship Office, Rockefeller Foundation, 1133 Avenue of the Americas, New York, New York 10036, USA.**

## Senior Chemist

Sigma Diagnostics, a world renowned manufacturer of diagnostic reagents is seeking a Ph.D. biochemist to join its research and development staff. The successful candidate will have a strong interest in developing diagnostic reagent kits. Candidates knowledgeable in enzymatic and/or immunological assay procedures are invited to apply. Experience in a clinical chemistry laboratory or in the diagnostic industry and proven leadership abilities are desired. Sigma offers competitive salary and full company-paid benefits.

Send resume in confidence to:

**Director**  
Research and Development  
Sigma Diagnostics  
P.O. Box 14508  
St. Louis, MO 63178

# SIGMA DIAGNOSTICS

Equal Opportunity Employer M/F



**THE  
GEORGE  
WASHINGTON  
UNIVERSITY**

## **SCIENCE, TECHNOLOGY AND INNOVATION INFORMATION SYSTEMS**

Two tenure track positions at the assistant/associate level in the Management Science Department, School of Government and Business Administration, George Washington University.

### **Information Systems.**

One position in this program. Expertise is expected in some combination of the following areas: Decision Support Systems, Programming Languages, Telecommunications, Operating Systems, Database Management, Management Information Systems, Expert Systems, Artificial Intelligence, Quantitative Analysis.

### **Management of Science, Technology and Innovation.**

One position in this program. Expertise is expected in some combination of the following areas: Project Management, Technological Entrepreneurship, R&D Management, Science, Technology and Society, Innovation. Some industrial expertise is desirable.

Doctorate is required for each position. Candidates must be able to accept appointment by September 1, 1987. Send resumes and inquiries to: SEARCH COMMITTEE, Erik K. Winslow, Chairman, Management Science Department, George Washington University, Washington, D.C. 20052.

The George Washington University is an Equal Employment Opportunity Employer.

## **Discover Your Future In Biotechnology!**

GENETICS INSTITUTE, INC., located in Cambridge, Mass., is a recognized leader in the field of biotechnology. Our research is committed to the development and application of recombinant DNA technology to human health care, agriculture, and chemicals.

Current expansion of our research and development efforts has created the following opening:

### **Robotics/Molecular Biology**

We currently have positions available for highly motivated, talented individuals to take part in our robotics research. Qualifications include a B.S./M.S./Ph.D. degree in biology or biochemistry and a minimum of two years' experience in molecular biology. Demonstrated abilities in biochemistry protocol development desirable.

We offer a stimulating scientific environment in addition to a competitive salary and comprehensive benefits package. Qualified candidates should forward their resume, in confidence, to Cindy Molnar, Employment Representative.

## **Genetics Institute**

**87 CambridgePark Drive, Cambridge, MA 02140**

*An Equal Opportunity Employer*

## **SENIOR RESEARCH BIOCHEMISTS**

The LILLY RESEARCH LABORATORIES and the BIOCHEMICAL DEVELOPMENT DIVISION of Eli Lilly and Company have immediate openings for Senior Biochemists.

### **Bioanalytical Chemist**

Applicants must have a doctoral degree in biochemistry, immunology, or analytical chemistry, with 2-4 years of post-doctoral experience in use of monoclonal antibodies as probes of enzyme or receptor function, and in their application to immunoassay development.

### **Biochemist**

A doctoral degree in biochemistry with post-doctoral experience in some aspect

of diabetes research is required to join a multidisciplinary research group exploring mechanistic aspects of diabetes and potential approaches to alternative therapies.

### **Biochemist-Biosynthetic Development**

Applicants must have a doctoral degree and post-doctoral experience in protein biochemistry. The Senior Scientist will join a group which is concerned with the isolation, purification, and characterization of protein products. The work involves the application of state-of-the-art purification techniques from laboratory to production scale operations.

Qualified candidates should send their curriculum vitae to:

**John W. Crooks**  
Manager, College Relations (SRB)  
Eli Lilly and Company  
Lilly Corporate Center  
Indianapolis, Indiana 46285  
Equal Opportunity Employer



## POSITIONS OPEN

### CRYSTALLOGRAPHER

A faculty position in macromolecular x-ray crystallography will be available in **The School of Life Sciences at the University of Illinois at Urbana-Champaign**, effective August 1987. The appointment will be at either the associate or professor level, although junior candidates will be considered. Experienced, active investigators with recognized standing in the field are encouraged to apply. Candidates must have demonstrated an ability and commitment both to teaching and to development of a strong independent research program. The successful candidate will join two other crystallographer/diffractionists in supporting a complete facility for the study of macromolecular structure. Other related campus facilities include a CRAY X-MP/48 supercomputer, NMR, EPR, fluorescence dynamics and genetic engineering facilities. Salary is negotiable and commensurate with experience. Please send curriculum vitae, a brief description of research plans, and the names of individuals who may be contacted for letters of reference to:

**Dr. Edward W. Voss, Jr.**  
Chair, Search Committee  
School of Life Sciences  
393 Morrill Hall  
505 South Goodwin Avenue  
Urbana, IL 61801  
Telephone: 217-333-0299

To receive full consideration, applications should be received by 15 March 1987. Some interviews may be conducted before the deadline. However, all applications received by 15 March 1987 will be given equal consideration. *The University of Illinois is an Affirmative Action/Equal Opportunity Employer.*

**CYTOGENETIC TECHNOLOGISTS**—Experienced technologists needed for high volume private laboratory located in the mountains of northern New Mexico. These positions offer excellent salaries and benefits, and the chance to become part of a dynamic rapidly growing company through an employee stock purchase participation program.

Send résumé and salary history to:  
**K. E. Richkind, Ph.D.**  
Vivigen, Inc.  
435 St. Michael's Drive  
Santa Fe, NM 87501  
Telephone 505-988-9744

### THE UNIVERSITY OF CHICAGO

**The Joseph P. Kennedy, Jr. Mental Retardation Research Center and the Department of Pharmacological and Physiological Sciences** are recruiting new faculty with research interests related to the molecular and cellular biology of the nervous system. Applicants should send their curriculum vitae and bibliography, a brief statement of research interests and plans, and the names of three references to:

**Dr. Robert L. Perlman, Director**  
Kennedy Mental Retardation Research Center  
Department of Pediatrics  
The University of Chicago  
5841 South Maryland Avenue, Box 413  
Chicago, IL 60637

*From the time of its original charter, the principle of the University of Chicago has been to appoint scholars without regard to race, color, religion, sex or national origin.*

### USDA Human Nutrition Research Center on Aging at Tufts University HEALTH PHYSICIST

Successful candidate will be responsible for the operation of the Nutrition Center's whole body counter. Responsibilities will involve the design of experiments to examine nutrient absorption using radioisotope tracers in humans, measurements of whole body endogenous 40K, and quality control of data. Candidate will also be expected to collaborate in ongoing and new research programs. He/she will act as the radiation safety officer for the HNRC and monitor all equipment which could present a radiation hazard to human subjects. Ph.D. in physics, health physics, or related field required. Experience in whole body counting highly desirable.

Please send résumés to: **Joanne Rosen, Human Nutrition Research Center (HNRC), Personnel Office, 711 Washington Street, Boston, MA 02111. An Affirmative Action/Equal Opportunity Employer.**

## POSITIONS OPEN

**CYTOGENETICIST**—Position available for **ASSISTANT DIRECTOR** of Cytogenetics Laboratory, Ph.D. or M.D., Board-certified or 1987 Board-eligible.

Vivigen has an opening for an assistant director for its high volume, high quality clinical cytogenetics laboratory. This position offers the opportunity to join the executive staff of a rapidly growing genetic diagnostic laboratory located in the beautiful city of Santa Fe, in the northern mountains of New Mexico. Vivigen provides competitive salaries and excellent benefits in an environment conducive for career development. Send curriculum vitae, salary history, and references to:

**Dr. Kathleen Richkind**  
Vivigen, Inc.  
435 St. Michael's Drive  
Santa Fe, NM 87501

### FACULTY POSITIONS IN PHARMACOLOGY AND THERAPEUTICS

The University of Calgary, Department of Pharmacology and Therapeutics, invites applications for faculty positions dedicated primarily to research activities. Individuals at any professorial rank, who have a Ph.D. and/or M.D. degree and a demonstrated ability for independent research in pharmacology or a related discipline are encouraged to apply. Areas of particular interest to the department are: smooth muscle function; molecular and cellular toxicology; and transmembrane signaling/cell regulation. Candidates must have research accomplishments that would merit scholarship support from granting agencies such as the Medical Research Council of Canada or the Alberta Heritage Foundation for Medical Research. Academic rank and salary commensurate with experience and qualifications.

*In accordance with Canadian immigration requirements, priority will be given to Canadian citizens and permanent residents of Canada.*

The deadline for receipt of applications is 15 May 1987. Applicants should apply in writing, enclosing curriculum vitae, the names of three referees and a research program summary to: **Dr. M. D. Hollenberg, Head, Department of Pharmacology and Therapeutics, The University of Calgary, Faculty of Medicine, 3330 Hospital Drive NW, Calgary, Alberta, Canada T2N 4N1**

**MATHEMATICIAN**—Participate in research involving investigation of methods for performing reconstruction of object distributions from projections using injected radionuclides and mathematical investigations directed toward solving physiological and medical science kinetic problems. An important applied mathematics emphasis is on the statistical parameterization of data and the derived physiological inferences. Duties include the creation and execution of applied mathematical concepts with computers and the execution of programs on small, medium, and supercomputers. Ph.D. or equivalent experience in mathematics. Requires experience in problem solving and simulations using small and medium size computational equipment; ability to solve multi-dimensional inverse problems, differential equations, and to perform Monte Carlo simulations and integral transforms. Candidate must be able to create computational algorithms independently and have some responsibility for interfacing computer-related hardware. Must have demonstrated ability to carry out independent research. Salary DOE and excellent benefits. Send curriculum vitae and names and addresses of three references to: **Dr. Ronald Huesman, c/o Ms. Jaquie Schilling, Lawrence Berkeley Laboratory, Employment Office, 90-1042, #1 Cyclotron Road, Berkeley, CA 94720. Please refer to Job #B/4038. An Affirmative Action/Equal Opportunity Employer M/F/H.**

### MICROBIOLOGIST

Veterinary biologics manufacturer has a position available for a microbiologist/virologist to develop new in vitro test methods and to perform virus testing in the Quality Control Department. The position requires an individual with an M.S. degree with experience. A B.S. degree with relevant research experience and demonstrated ability would be considered. Please send application and current résumé to:

**Personnel Manager**  
Beecham Laboratories  
P.O. Box 221  
White Hall, IL 62092

*Equal Opportunity/Affirmative Action Employer.*

## POSITIONS OPEN

### LIBRARIAN

The U.S. Geological Survey Library System, Reston, VA, is accepting application for **ASSISTANT LIBRARIAN** for Collection Management and Access, GM-13/14, minimum starting salary at \$38,727 per annum. A successful candidate should have knowledge of the earth sciences, experience in and aptitude for the support of collection management and access services in a large research library system, excellent analytical skills, strong leadership qualities, organizational ability to manage a broad variety of tasks, and experience with database management to administer acquisition, analysis and processing, preservation, and database programs. Interested applicants send letter of application, résumé, SF-171 (Application for Federal Employment), by 27 March 1987, to: **U.S. Geological Survey, 215 National Center, Attn: Personnel-Sally Hutchison, 12201 Sunrise Valley Drive, Reston, VA 22092. An Equal Opportunity/Affirmative Action Employer.**

### MICROBIOLOGIST/VIROLOGIST

The West Virginia School of Osteopathic Medicine invites applications for a tenure-track position at the assistant or associate professor level. Qualified applicants must have a Ph.D. in virology or microbiology with virology specialty. Candidates with teaching experience are preferred. Research opportunities are available and encouraged. Teaching responsibilities include team-taught general microbiology plus general and medical virology to medical students.

Applicants should submit a letter describing teaching and research experience and interests, curriculum vitae and three current letters of reference to: **Chairperson, Microbiology Search Committee, c/o Human Resources Office, West Virginia School of Osteopathic Medicine (WVSOM), 400 North Lee Street, Lewisburg, WV 24901.** Applications must be postmarked no later than 31 March 1987.

*WVSOM is an Affirmative Action/Equal Opportunity Employer.*

**MOLECULAR/DEVELOPMENTAL BIOLOGIST:** The Department of Pediatric Dentistry of the University of Texas Health Science Center at San Antonio invites applications for a tenure-track, assistant professor position. Preference will be given to developmental biologists working on craniofacial development using state-of-the-art molecular and biochemical approaches. Applicants will be judged on potential for independent research and securing extramural funding as well as ability to interact with current strengths at the health science center in extracellular matrix and molecular biology. Candidates should have a Ph.D. and a strong background in research coupled with a keen interest in graduate education. This position offers the opportunity to join a rapidly expanding research group at the dental school of the University of Texas Health Science Center which is aggressively developing its potential as a national center for basic and applied research. Curriculum vitae, a brief statement of present and future research interests, and three letters of recommendation should be sent to: **Dr. Frank A. Catalanotto, D.M.D., Chairman, Department of Pediatric Dentistry, University of Texas Health Science Center, 7703 Floyd Curl Drive, San Antonio, TX 78284-7888. An Equal Opportunity/Affirmative Action Employer.**

**MOLECULAR GENETICIST**—Psychiatric Genetics Program, Department of Psychiatry, Medical College of Virginia/Virginia Commonwealth University (MCV/VCU) is recruiting a full-time research scientist interested in applying molecular genetic techniques to neuropsychiatric diseases. This person will join an active research team with a strong emphasis on quantitative genetic methods, with several major psychiatric genetic field studies currently under way. Responsibilities will include supervision of linkage analyses using RFLPs and establishment of immortalized cell lines. The candidate will be strongly encouraged to establish his/her own research program in an area relevant to the molecular biology of neuropsychiatric disorders. Must have Ph.D. or equivalent and advanced research training in molecular genetics. This will be a tenure-track position. Send curriculum vitae and references to: **Dr. K. Kendler, Departments of Psychiatry and Human Genetics, MCV, Box 710, Richmond, VA 23298. MCV/VCU is an Equal Opportunity/Affirmative Action Employer. Women and minorities are encouraged to apply.**



## POSITIONS OPEN

### MOLECULAR BIOLOGIST/CELL BIOLOGIST

The Biology Department, Central Michigan University, invites applications from qualified candidates for a tenure-track, assistant professor position to begin August 1987. A Ph.D. and demonstrated potential for teaching excellence is required. The person will be expected to establish a vigorous research program and direct student research (B.S./M.S. level). The appointee will teach introductory biology on a rotating basis and undergraduate and graduate courses in his/her specialty. Send curriculum vitae, transcripts, description of research plans and needs, a list of course teaching competence and preference, and the names, addresses, and telephone numbers of three references to: **Dr. Lawrence Koehler, Chairperson, Department of Biology, Central Michigan University (CMU), Mount Pleasant, MI 48859.** Deadline: 27 March 1987. Telephone: 517-774-3227. *CMU is an Affirmative Action/Equal Opportunity Institution.*

### NATIONAL INSTITUTES OF HEALTH MOLECULAR BIOLOGY/TRANSGENIC MICE

**MOLECULAR BIOLOGIST, M.D., Ph.D., D.D.S.,** or equivalent, with experience in recombinant DNA technology and construction of vectors to work on transgenic mice and autoimmune diseases. The candidate should have at least 3 years of postdoctoral experience. The initial appointment will be for 2 years with renewals on a yearly basis. Starting salary range, depending on experience, is \$24,000 to \$46,000 per year. U.S. citizenship required. The position is available immediately. Send curriculum vitae to: **Dr. Lois Salzman, Assistant Scientific Director, National Institute of Dental Research, National Institutes of Health, 9000 Rockville Pike, Building 30, Room 121, Bethesda, MD 20892.** *An Equal Opportunity Employer.*

### MOLECULAR—CELLULAR BIOLOGIST

Two grant-supported research positions for studying hormone and age-dependent regulation of hepatic gene expression. (i) **RESEARCH ASSOCIATE** (Ph.D. in biology/biochemistry); (ii) **ASSISTANT RESEARCHER** (at least 2 years of postdoctoral experience). Experience in nucleic acid biochemistry/recombinant DNA or cell culture is required. Send curriculum vitae and names of three references to: **Dr. Arun K. Roy, Professor of Biological Sciences, Oakland University (OU), Rochester, MI 48063.** *OU is an Equal Opportunity/Affirmative Action Employer and offers attractive salary and fringe benefits.*

### NMR SPECTROSCOPIST

**National Institutes of Health, National Institute on Aging, Public Health Service, Department of Health and Human Services.** Applications are invited for the above position. This position is located in the Laboratory of Cellular and Molecular Biology, National Institutes of Health, National Institute on Aging, Intramural Research Program, in Baltimore, Maryland. This is a civil service position and salary depends upon the qualifications of the applicant selected for the position.

The Laboratory of Cellular and Molecular Biology (**Dr. Gunther L. Eichhorn, Chief**) is conducting a number of studies that involve NMR. The structure of the active site of RNA polymerase is being investigated with a Varian XL200. A Bruker Biospec 1.9T/31 cm is used to study the effect of aging on metabolic changes during human exercise, and the effect of aging on various metabolic phenomena in animals. Other NMR instruments, including 500 MHz, are available in the area, and active collaborations are in progress with Johns Hopkins University.

The successful applicant will have primary responsibility for NMR operations in the laboratory. He or she will collaborate on the ongoing programs as well as initiate other studies. Technical assistance will be provided.

An application for Federal Employment (SF-171) with a current curriculum vitae and bibliography should be submitted no later than 20 March 1987 to: **Mrs. Delores F. Davenport, Personnel Office, Room 1-D-09, National Institutes of Health, National Institute on Aging, Intramural Research Program, 4940 Eastern Avenue, Baltimore, MD 21224.** Further information may be obtained by contacting **Mrs. Davenport at 301-955-1734.** *U.S. citizenship is required. An Equal Opportunity Employer.*

## FACULTY POSITIONS IN MOLECULAR GENETICS CENTER FOR MOLECULAR AND CELLULAR MEDICINE

### DARTMOUTH MEDICAL SCHOOL

Dartmouth Medical School is planning a new medical center campus, to be completed in 1991. As part of this process, a Center for Molecular and Cellular Medicine is being established. Several tenure-track faculty positions are available now in **Molecular Genetics** and may be filled at any level (Assistant, Associate or Full Professor). These appointments will strengthen existing activities in molecular genetics and complement those in immunology, endocrinology, neuroscience, oncology, virology and cell biology. We are particularly interested in individuals whose research interests in molecular genetics relate to these other areas.

Applicants in all areas of molecular genetics are encouraged to apply. Candidates should hold the Ph.D. or M.D. degree and have a minimum of two years of postdoctoral experience. Successful candidates will become members of the Program in Molecular Genetics and will hold an academic appointment in an appropriate basic science or clinical department of Dartmouth Medical School. All faculty will be expected to maintain a strong research program and participate in the teaching of medical and graduate students.

Please send a curriculum vitae, statement of research plans, and the names of at least three references to:

**MOLECULAR GENETICS SEARCH COMMITTEE  
CENTER FOR MOLECULAR AND CELLULAR MEDICINE  
DARTMOUTH MEDICAL SCHOOL  
HB 7200  
HANOVER, NH 03756**

*Dartmouth Medical School is an equal opportunity employer. Women and members of minority groups are encouraged to apply.*

## FACULTY POSITIONS IN NEUROSCIENCE CENTER FOR MOLECULAR AND CELLULAR MEDICINE

### DARTMOUTH MEDICAL SCHOOL

Dartmouth Medical School is planning a new medical center campus, to be completed in 1991. As part of that process, a Center for Molecular and Cellular Medicine is being established. Several tenure-track faculty positions are available now in **Neuroscience** and may be filled at any level (Assistant, Associate or Full Professor). These appointments will strengthen existing activities in neuroscience, and complement those in molecular genetics, immunology, endocrinology and cell biology. We are particularly interested in individuals whose research interests in neuroscience relate to these other areas.

Applicants in all areas of cellular and molecular neuroscience are encouraged to apply. Candidates should hold the Ph.D. or M.D. degree and have a minimum of two years of postdoctoral experience. Successful candidates will participate in the development of the Program in Neuroscience and will hold an academic appointment in an appropriate basic science or clinical department of Dartmouth Medical School. All faculty will be expected to maintain a strong research program and participate in the teaching of medical and graduate students.

Please send a curriculum vitae, statement of research plans, and the names of at least three references to:

**NEUROSCIENCE SEARCH COMMITTEE  
CENTER FOR MOLECULAR AND CELLULAR MEDICINE  
DARTMOUTH MEDICAL SCHOOL  
HB 7200  
HANOVER, NH 03756**

*Dartmouth Medical School is an equal opportunity employer. Women and members of minority groups are encouraged to apply.*

## CLINICAL RESEARCH SCIENTISTS Clinical Pharmacology

The Squibb Institute for Medical Research has a challenging opportunity available for a clinical pharmacologist to participate in our new drug development programs for cardiovascular agents, primarily antihypertensive and lipid-lowering drugs. The facilities of a 24-bed clinical pharmacology unit and analytical laboratory are available at a local medical center for the conduct of human investigation. This position also affords the opportunity to work closely with preclinical scientists at all levels.

Primary responsibilities involve the design, conduct, and reporting of Phase I and early Phase II clinical studies. Interest and experience in clinical pharmacokinetics and pharmacodynamics are desirable. Candidates should have an MD degree with two or more years research experience or a PhD with two or more years of clinical research in the pharmaceutical industry. A strong record of achievement including publication should be evident.

In addition to an excellent salary and comprehensive benefits package. The Squibb Institute for Medical Research offers the opportunity for exceptional scientists to pursue stimulating careers. This position is based at our Corporate Headquarters, a pleasant, semi-rural setting in Princeton, NJ convenient to both New York City and Philadelphia. Interested candidates should submit their C.V. in confidence to: **The Squibb Institute for Medical Research, Human Resources Dept. #462, P.O. Box 4000, Princeton, NJ 08543-4000.** An equal opportunity employer.



**SQUIBB**

*Where science comes to life.*

## POSITIONS OPEN

### U.S. DEPARTMENT OF AGRICULTURE (USDA) AGRICULTURAL RESEARCH SERVICE (ARS)

**NATURAL PRODUCTS CHEMIST POSITION**—Northern Regional Research Center, Peoria, Illinois. ARS is seeking an individual to join new multidisciplinary team (biochemist, microbiologist, and molecular geneticist) conducting fundamental research on trichothecene fungal toxins. Research involves isolation and synthesis of toxins, derivatives, precursors, and metabolites. Applicant should have a strong background in organic chemistry, MS, tracer analysis, and <sup>13</sup>C-NMR. A Ph.D. is desired, U.S. citizenship is required. The position is GS 11/12 (\$27,172 to \$32,567). Additional information may be obtained by calling: Dr. Shorwell at 309-685-4011, extension 579. Applications in response to this advertisement must be marked 7N002. Send résumé to: O. L. Shorwell, Northern Regional Research Center, 1815 North University, Peoria, IL 61604, by 20 March 1987.

*Equal Opportunity Employer*

**NEUROSCIENCE. THE KINSMEN LABORATORY (DEPARTMENT OF PSYCHIATRY, UNIVERSITY OF BRITISH COLUMBIA (UBC))** invites applications for a tenure-track position at the rank of ASSISTANT PROFESSOR. The appointee will be expected to develop an independent research program in neuroscience. Applicants should have a Ph.D. and/or M.D. degree and have shown clear evidence of a capacity for productive original research. Applicants should send curriculum vitae, list of publications, a brief summary of research plan, and the names and addresses of three references to: Dr. E. G. McGeer, Division of Neurological Sciences, Department of Psychiatry, University of British Columbia, 2255 Wesbrook Mall, Vancouver, B.C., Canada, V6T 1W5. *In accordance with Canada Employment and Immigration regulations, priority for this position will be given to Canadian citizens and permanent residents.*

**Ph.D. RESEARCH SCIENTIST:** Prospective investigator will join a Gynecologic/Oncology Research Group using nucleic acid hybridization techniques, protein chemistry and cytogenetic techniques to investigate the causes, mechanisms and significance of changes in cell ploidy in neoplasia. The successful candidate will show a sustained record in refereed journals and be eligible for a faculty appointment. Will also be responsible for interacting with Residents and Fellows in the Department of Obstetrics and Gynecology. Send résumé to: Susan Heyner, Ph.D., Director of Research, Department of Obstetrics and Gynecology, Albert Einstein Medical Center, Northern Division, Klein Professional Office Building, Suite 410, York and Tabor Roads, Philadelphia, PA 19141. *Equal Opportunity Employer.*

**PHARMACOLOGIST (RESEARCH SCIENTIST):** Requires Ph.D. in pharmacetics with course work in in vitro irritation evaluation. High-level research to optimize stability and quality of products. Study bioavailability problem for new drugs based upon application of physical pharmacy concepts and pharmacokinetic principles utilizing HPLC, x-ray diffractometer, IR, DSC, and knowledge of in vitro irritation evaluation techniques. Formulate and characterize various new drug delivery systems. Five-day, 40-hour week. \$40,000 per year. Mail résumé to: NYS Job Service, 68 West Huron Street, Buffalo, NY 14202—order #0100997-041.061 074.

**PHYSICAL SCIENCE EDUCATION:** Full-time, tenure-track appointment. Rank and salary open. Requires Ph.D. in chemistry or physics with experience in science education or a doctorate in science education with experience in chemistry or physics. Responsibilities include instruction in lower-division physics, or chemistry courses and program development in physical science education. Interested applicants send curriculum vitae and three letters of recommendation to: Dr. Melvyn Dutton, Chair, Physical Science Education Search Committee, Department of Chemistry, California State College, Bakersfield, 9001 Stockdale Highway, Bakersfield, CA 93311-1099. Applications completed by 30 March 1987 will be given full consideration. (The application deadline for this position has been extended from 15 February 1987.) *California State College is an Affirmative Action/Equal Opportunity Employer.*

## POSITIONS OPEN

**PHARMACOKINETICS: NIEHS TOXICOLOGY TRAINEESHIP POSTDOCTORAL** position available for U.S. citizen or persons with permanent visa. Individuals with a recent Ph.D. in pharmacokinetics, applied mathematics, or statistics with an interest in biomedical applications should apply. Work will involve modeling percutaneous drug and xenobiotic absorption in a novel isolated perfused skin preparation and derive physiological pharmacokinetic models of toxic drugs and chemicals. The appointment is renewable annually for a maximum of 3 years, with a minimum starting salary of \$15,996. Available immediately. Send résumé and three letters of reference to: Dr. J. E. Riviere, Laboratory of Toxicokinetics, School of Veterinary Medicine, North Carolina State University, Raleigh, NC 27606; telephone: 919-829-4200.

### POSTDOCTORAL FELLOW

Applications are invited for a postdoctoral fellow interested in utilizing the techniques of molecular biology to study the synthesis and structure of intestinal mucus glycoproteins in normal and pathological conditions (for example, cystic fibrosis and inflammatory bowel disease). Prior experience in the field of molecular biology is highly desirable but knowledge of glycoprotein biochemistry is not essential.

Starting salary will be approximately \$20,000 (Canadian) according to qualifications and experience.

In accordance with Canadian immigration requirements, priority will be given to Canadian citizens and permanent residents of Canada.

Inquiries and applications, including curriculum vitae and the names and addresses of three referees, should be sent to: Dr. M. Mantle, Department of Medical Biochemistry, The University of Calgary, Health Sciences Centre, 3330 Hospital Drive NW, Calgary, Alberta T2N 4N1.

**The Australian National University.** Applications are invited from suitably qualified men and women for appointment to the position of POSTDOCTORAL FELLOW/RESEARCH FELLOW OR SENIOR RESEARCH FELLOW in the Department of Biogeography and Geomorphology, Research School of Pacific Studies. Applicants should be geomorphologists with research experience in fluvial processes and landforms. Numerical modeling abilities and interests in semiarid environments are desirable but not essential. The post is available from 1 August 1987. Interested persons must seek further information from Professor D. Walker (062) 492235 or Dr. J. M. A. Chappell (062) 494340. Closing date: 27 March 1987. Ref: PA.21.1.1. Salary will be in accordance with qualifications and experience within the range: Senior Research Fellow \$A38,917 to \$A46,420 per annum; Research Fellow \$A27,859 to \$A36,600 per annum; Postdoctoral Fellow Grade 1 (at a fixed point) \$A24,013 to \$A27,507 per annum. Appointment will be: Senior Research Fellow/Research Fellow normally up to 3 years with the possibility of extension to maximum of 5 years. Postdoctoral Fellow normally 2 years, with the possibility of extension to maximum of 3 years. Superannuation, maternity leave, and assistance with travel available. The University reserves the right not to make an appointment or to make an appointment by invitation at any time. Applicants should quote the reference number when submitting applications to: R. V. Dubs, Registrar, GPO Box 4, Canberra, ACT, 2601 Australia. *The University is an Equal Opportunity Employer.*

**POSTDOCTORAL POSITION** available in July 1987 in a laboratory using molecular genetic and biochemical approaches to study the structure and function of the guanine nucleotide binding proteins which couple hormone receptors to membrane enzymes and ion channels. Experience in molecular biology is desirable. Please send applications to: Dr. Eva J. Nee, Harvard Medical School, Brigham and Women's Hospital, 75 Francis Street, Boston, MA 02115.

### POSTDOCTORAL POSITIONS

Research involves biochemical and electrophysiological studies of the role of phosphoinositide metabolism in phototransduction. Biochemist position available immediately, physiologist position September 1987. Send curriculum vitae and three letters of reference to: Dr. Alan Fein, Marine Biological Laboratory, Woods Hole, MA 02543 no later than 1 April 1987. *An Affirmative Action/Equal Opportunity Employer.*

## POSITIONS OPEN

**POSTDOCTORAL ASSOCIATE POSITION** available to study transmitters involved in pain-perception. Ph.D. in biological sciences is required. One or two years of experience working in a research laboratory doing either receptor binding, HPLC or autoradiography is desirable. Beginning date is 6 April 1987 or later. Salary negotiable from \$18,000 per year. Send curriculum vitae and three letters of reference by 31 March 1987 to: Dr. Alice Larson, Department of Veterinary Biology, University of Minnesota, 295 Animal Science/Veterinary Medicine Building, 1988 Fitch Avenue, St. Paul, MN 55108. *The University of Minnesota is an Equal Opportunity Educator and Employer and specifically invites and encourages applications from women and minorities.*

**The Australian National University.** Applications are invited from suitably qualified men and women for appointment to the position of POSTDOCTORAL FELLOW/RESEARCH FELLOW (MOLECULAR BIOLOGIST/PROTEIN CHEMIST) in the Department of Medicine and Clinical Science, John Curtin School of Medical Research. The department seeks to appoint a Postdoctoral Fellow or Research Fellow with a background in molecular biology and/or protein chemistry, to work with the mucosal group which has established interests in the cell biology of inflammation, immunity and cancer relevant to human intestinal disease. Current projects include the regulation of plasminogen activator by transforming human colon epithelial cells, growth factor production by lamina propria cells and antigen presentation in the intestine by dendritic-like cells. Close collaboration exists with basic research groups in the School, including cancer biology, developmental haematology and medical molecular biology. Closing date: 20 March 1987. Ref: JC.21.1.1. Salary will be in accordance with qualifications and experience within the range: Research Fellow \$A27,859 to \$A36,600 per annum; Postdoctoral Fellow Grade 1 (at a fixed point) \$A24,013 to \$A27,507 per annum; appointment will be: Research Fellow normally up to 3 years with the possibility of extension to maximum of 5 years. Postdoctoral Fellow normally 2 years, with the possibility of extension to maximum of 3 years. Superannuation, maternity leave, and assistance with travel available. The University reserves the right not to make an appointment or to make an appointment by invitation at any time. Applicants should quote the reference number when submitting applications to: R. V. Dubs, Registrar, GPO Box 4, Canberra, ACT, 2601 Australia. *The University is an Equal Opportunity Employer.*

### POSTDOCTORAL FELLOWS IN MOLECULAR GENETICS AND BIOCHEMISTRY

To study peptide hormone receptors toward understanding the mechanisms of signal transduction in hormone action. Projects include (i) construction and expression of the receptor genes for insulin and insulin-like growth factor (IGF)-I, (ii) characterization of the recombinant receptors, (iii) structural and functional analyses of the receptors, and (iv) purification and characterization of insulin sensitive enzymes. Experience in recombinant DNA technology and/or protein biochemistry is required.

Please send curriculum vitae and names and addresses of three references to:

Yoko Fujita-Yamaguchi, Ph.D.  
Department of Molecular Genetics  
Beckman Research Institute of  
The City of Hope  
1450 East Duarte Road  
Duarte, CA 91010  
Telephone: 818-357-9711 extension 2797

**POSTDOCTORAL POSITION**—The Dana-Farber Cancer Institute is seeking to fill one research position at the postdoctoral level for a person interested in taking a combined molecular-genetic and biochemical approach to understanding the role of growth factors (aFGF, bFGF, NGF and others) in regulating neural development and differentiation. We are interested in establishing how transmembrane signaling events and protein kinases are involved in regulating gene expression and other differentiated properties. Experience in molecular biology and/or protein chemistry is extremely desirable. Send curriculum vitae and names of three references to: Dr. John A. Wagner, J621, Dana-Farber Cancer Institute, 44 Binney Street, Boston, MA 02115. *An Affirmative Action/Equal Opportunity Employer.*

**NATIONAL INSTITUTE ON AGING  
NATIONAL INSTITUTES OF HEALTH  
Public Health Service**

The Laboratory of Neurosciences, National Institute on Aging, National Institutes of Health, invites applications for a Staff Fellowship position to study molecular biological aspects of aging brain and human neuropathological disorders. The successful candidate will be expected to carry out research that will complement some of the following areas of investigation: (1) characterization of the molecular changes in the aging rat brain and in the postmortem human brain in relation to Alzheimer's disease; (2) examination of proto-oncogene and growth factor expression in the CNS and in specific neuronal populations; (3) examination of altered gene expression in a trisomic mouse model of Down's syndrome.

Applications are invited from individuals having a Ph.D., M.D., or combined degrees plus experience in either of the following: molecular approaches to gene expression, in situ hybridization or neuroanatomy. Salary range is \$17,000 to \$47,788 per annum commensurate with qualifications. Interested candidates should submit their Curriculum Vitae to **Stanley I. Rapoport, M.D., Chief, Laboratory of Neurosciences, National Institute on Aging, Building 10, Room 6C 103, 9000 Rockville Pike, National Institutes of Health, Bethesda, Maryland 20892.**

*An Equal Opportunity Employer*

**MANAGEMENT AND TECHNICAL SERVICES COMPANY**  
A Subsidiary of General Electric Company

JOIN THE MATSCO TEAM PROVIDING SUPPORT TO THE NASA LIFE SCIENCES DIVISION AT HEADQUARTERS. MATSCO IS PARTICIPATING IN A DYNAMIC AND EXPANDING PROGRAM OF LIFE SCIENCES EXPERIMENTS SCHEDULED TO FLY ON FUTURE SPACE SHUTTLE AND SPACE STATION MISSIONS.

We are seeking a number of qualified, talented self starters for the following positions:

• **Senior Project Engineer (Life Sciences Flight Experiments Program)**

Experience in space flight project management required, 10 or more years aerospace experience with experience in life sciences helpful. Position requires a degree in an engineering discipline with preferable candidates having a Masters degree in engineering or business. The candidate for this position will act as the direct interface with the Chief of Flight Programs at NASA Headquarters. The candidate will direct the efforts of several other engineers in providing support to the Flight Programs Branch for planning major activities for future missions. The group will provide analysis of factors affecting mission implementation, development, hardware requirements, and provide recommended options.

• **Engineers (Life Sciences Flight Experiments Program)**

Candidates for these positions must have a degree in an engineering discipline, and have 5 or more years of aerospace experience. Candidates for these positions will support the Flight Programs Branch at NASA Headquarters in developing new life sciences missions for Space Shuttle and Space Station. The group will provide analysis of factors affecting mission implementation, development, and hardware requirements.

• **Senior Scientist (Biomedical)**

The candidate for this position shall have a Ph.D. or M.D. in medicine or related medical fields. The candidate should have 5-10 years of experience in aerospace medicine and/or life sciences. The candidate will be the key interface with the NASA Chief for Medical Operations at NASA Headquarters and will direct the efforts of other personnel in providing support for this group. A key element of the work will be to support the evaluation of responses to Announcements of Opportunity for experiments to fly on future Space Shuttle and Space Station missions. Other position requirements include planning, analysis, and documentation to support the implementation of experimental programs.

• **Senior Scientist (Biological)**

The candidate for this position shall have a Ph. D. in biological sciences and 5-10 years of related experience in one or more of the following areas: Exobiology, Biospherics, and/or Closed Ecological Life Support Systems (CELSS). The candidate for this position will act as the principal bioscience interface between MATSCO and the NASA Life Sciences Division. The candidate will provide support to Life Sciences Division in the above three areas. The candidate will provide analysis and documentation to support NASA planning in the above three program areas. The candidate will research options and provide the documentation to support these options.

Please address responses to:

Ms. Susan Wallace  
Manager, Administration  
Management and Technical Services Company  
600 Maryland Avenue  
Suite 209, West Wing  
Washington, D.C. 20024

**MOLECULAR NEUROBIOLOGY**

**Institute for Advanced Biomedical Research  
The Oregon Health Sciences University**

Applications are invited for a senior level appointment in the general area of molecular neurobiology. This position will be on the tenure track and will carry affiliate appointments as associate or full professor in one of the basic science departments of the medical school. An equivalent appointment will be made in the Institute.

The research interests of the Institute focus on the cellular and molecular bases of nervous system function. Of particular interest are applications from researchers applying modern molecular genetic techniques to analyze the development or function of the nervous system in either vertebrates, invertebrates or simple model systems.

Generous start-up packages are available and laboratory space will be assigned in the Institute's recently completed 80,000 square foot facility on the OHSU campus.

Although there are no formal teaching obligations, members are encouraged, through affiliate appointments, to participate in the graduate education program of the School of Medicine. Included will be the opportunity to participate in the further development of the Institute, in the development of interdisciplinary research programs in molecular and cellular neurobiology, and in setting up graduate and post-doctoral training programs jointly with the basic science and clinical departments of the medical school.

Applicants should have an established, independent research program, a record of extramural research funding and the promise of further scientific accomplishment. Applications should include a curriculum vitae with a description of current research support, the names of at least three references, selected reprints, and a description of current and future research goals. Applications should be submitted by April 1, 1987 and addressed to:

**Dr. Michael Forte**  
Molecular Neurobiology Search Committee  
Institute for Advanced Biomedical Research  
The Oregon Health Sciences University  
3181 S.W. Sam Jackson Park Road  
Portland, Oregon 97201

*The OHSU is an equal opportunity/affirmative action employer.*

# Senior Product Development Scientists

Join a Leader  
in the  
Springfield area

TAMBRANDS INC., makers of First Response Diagnostic Kits, Tampax tampons, and Maxithin pads, with revenues approaching \$500 million, is seeking to fill two positions in its Research and Development Center in Palmer, Massachusetts.

Candidates will have an M.S. or Ph.D. in Bacteriology, Immunology, Biochemistry or a related field of study and 2-3 years of relevant experience in the conception, formatting, optimization, development and scale-up of commercial diagnostic tests. Excellent communication, writing and interpersonal skills are required.

Responsibilities will include development of consumer diagnostic immunoassay formats, direction and evaluation of monoclonal and polyclonal antibodies, development and implementation of product testing procedures and protocols, and coordination of outside vendors in implementing product development and competitive product evaluation and equivalence testing.

We offer an attractive compensation package which includes paid health and life insurances, pension plan, educational assistance, a 401k thrift plan, and more.

Qualified applicants should forward their resume and salary history in strict confidence to: **Manager of Employee Relations, TAMBRANDS, INC., P.O. Box 271, Palmer, MA 01069.** We are an equal opportunity employer m/f/h/v.

# TAMBRANDS INC.

# TECHNICAL CHALLENGE; NATIONAL RECOGNITION

The Group on Science and Technology within the American Medical Association continues its commitment to furthering advances in the practice of medicine through extensive scientific activities. We are seeking individuals with medically-oriented credentials to assume these key administrative/scientific roles. Both positions will entail efforts within the scientific areas mentioned, and eventually into broader, related areas.

## Division of Clinical Sciences

Carries academic appointment (anticipated to be at Associate Professor level, or higher) and responsibilities including directing administrative and scientific aspects within present departments of Public Health, Mental Health, Substance Abuse, and Personal Health.

## Division of Basic Sciences

Newly created position with academic status as detailed above, and responsibility for directing administrative and scientific aspects within present departments of Technology Assessment, Technology Management, and Biotechnology.

Candidates must possess an MD or earned Doctorate in a basic science discipline or in the medical sciences, along with an established record of scholarly achievement. Must have research and administrative experience entailing budgetary and writing responsibilities, plus a record of creative service to the medical community. Ability to effectively interact with colleagues and external agencies is essential.

The AMA offers numerous advantages including national visibility and stature, a highly professional environment, and compensation fully commensurate with qualifications. Please submit curriculum vitae to:

**Karen D. Nixon**  
Div. of Placement/HCA-HEE  
AMERICAN MEDICAL ASSOCIATION  
535 N. Dearborn St.  
Chicago, IL 60610  
Equal Opportunity Employer



## TRANSPLANTATION IMMUNOLOGIST

The Cleveland Clinic Foundation invites applications for a full-time position involving a primary appointment in the Department of Immunology & Cancer and a joint clinical appointment. Interested applicants must have an M.D. and/or Ph.D. degree with considerable postdoctoral experience in basic transplantation immunology. Candidates must be established investigators with evidence of high quality independent research, and a consistent history of external funding support. Essential qualities of the successful applicant are the ability to develop a research program bridging basic laboratory investigation with relevant problems in transplantation science, and a willingness to interact with basic scientists as well as transplant clinicians. Please submit a letter of application, curriculum vitae, and research interests to:

**Andrew C. Novick, M.D.**  
Chairman, Department of Urology



**THE CLEVELAND CLINIC FOUNDATION**  
9500 Euclid Avenue Cleveland, Ohio 44195  
A National Referral Center An International Health Resource

*The Cleveland Clinic Foundation is an Equal Opportunity/Affirmative Action Employer.*

## AUSTRALIA

### CSIRO

#### RESEARCH SCIENTISTS (2 POSITIONS)

**A\$28,107-A\$41,339**

#### SPACE RESEARCH AND SATELLITE REMOTE SENSING DIVISION OF ATMOSPHERIC RESEARCH ASPENDALE, VIC.

**GENERAL:** The Division has for some years been developing a major system (CSIDA) for reception and analysis of data from the operational meteorological satellites (AVHRR data in particular). The Division is also involved in collaboration with laboratories in the United Kingdom in the development and scientific applications of the ATSR instrument to be flown on the ERS 1 satellite in 1989. In addition it is performing feasibility studies for new satellite instruments which are potential candidates for future space platforms (e.g. an imager/sounder for a geostationary satellite, an instrument for remotely sensing surface pressure from a polar-orbiter, and an on-board data compression device for studies of cloud distribution).

Space Research is a priority area within CSIRO and the Division is currently strengthening the resources devoted to the above activities.

#### 1. Scientist—Satellite Remote Sensing—Reference number A1830

**DUTIES:** In association with other Divisional scientists—in general to pursue research associated with the developing international ATSR programme and with the rapidly expanding capabilities of the CSIDA system. In particular to pursue research into applications of ATSR, AVHRR and associated satellite data—mainly for purposes of investigating atmospheric phenomena, but also for monitoring surface parameters such as vegetation indices, sea surface temperature etc.

**QUALIFICATIONS:** A PhD degree or equivalent qualifications in physics or applied mathematics, with relevant experience in atmospheric science and remote sensing and (preferably) some experience in satellite data handling.

#### 2. Scientist/Engineer in Satellite Instrumentation—Reference A1825

**DUTIES:** In association with other Divisional scientists, to undertake research into the engineering design and development of prototype satellite hardware, and in the logistic planning of subsequent phases of development of that hardware. The appointee would need to interact with local and overseas aerospace companies to achieve the maximum possible technology transfer to Australia.

**QUALIFICATIONS:** A PhD degree or equivalent qualifications in Physics or Engineering and experience in the overall process of satellite instrument development. Demonstrated ability to interact well with industry.

#### Both Positions—

**TENURE:** Indefinite with Australian Government superannuation benefits available. However, applicants interested in a term appointment of three to five years will be considered.

**APPLICATIONS:** Stating relevant personal particulars, including details of qualifications and experience, the names of at least two professional referees and quoting the appropriate reference number should be directed to:

The Chief  
CSIRO Division of Atmospheric Research  
Private Bag No 1  
MORDIALLOC VIC 3195, AUSTRALIA  
By April 3, 1987.

CSIRO IS AN EQUAL OPPORTUNITY EMPLOYER

## NATIONAL INSTITUTE ON AGING NATIONAL INSTITUTES OF HEALTH Public Health Service

The Laboratory of Neurosciences, National Institute on Aging, National Institutes of Health, invites applications for a Staff Fellowship position to study electrical properties of neuronal cell membranes during development in tissue culture. Research will involve: (1) growing mammalian neurons in culture; (2) examining action potential and membrane properties with intracellular microelectrodes; (3) performing voltage and current clamping to identify and characterize individual membrane currents; (4) using patch clamp recording techniques to characterize kinetics of individual ionic channels and analyze channel number. Experiments will be done in relation to morphological and neurochemical analyses. The position is that of a Staff Fellow, Senior Staff Fellow or Medical Staff Fellow, with a salary of \$17,000 to \$47,788 per annum commensurate with qualifications. Appointments vary in duration from 1 to 7 years. The position is located in Bethesda, Maryland, and is available immediately.

Applications are invited from qualified individuals having a Ph.D., M.D., or both, and pertinent research experience. Interested candidates should submit their Curriculum Vitae to **Stanley I. Rapoport, M.D., Chief, Laboratory of Neurosciences, National Institute on Aging, Building 10, Room 6C 103, 9000 Rockville Pike, National Institutes of Health, Bethesda, Maryland 20892.**

*An Equal Opportunity Employer*

## DIRECTOR, MICROBIOLOGY AND INFECTIOUS DISEASES PROGRAM

The National Institute of Allergy and Infectious Diseases (NIAID), National Institutes of Health, is currently recruiting for the Senior Executive Service position of *Director, Microbiology and Infectious Diseases Program (MIDP)*, at a salary range between \$63,135 and \$70,000 PA. (If filled by a Medical Officer, selected candidate may be eligible for a Physician's Comparability Allowance up to \$10,000, in addition to base salary). The Director, MIDP, is one of four extramural program directors in the Institute with responsibility for conducting a nationwide and international research effort, through extramural sources, on the clinical and epidemiological aspects of infectious diseases. Eligible candidates must meet the qualifications requirements for Medical Officer, GS-602; or Health Scientist Administrator, GS-601 (a Ph.D. in the biomedical sciences, or an appropriate combination of comparable technical and professional knowledge). Candidates must have knowledge of the clinical and epidemiological aspects of infectious diseases, and with laboratory, clinical and epidemiological research, and be conversant with the mechanisms used to accomplish research through extramural sources. Candidates must also have demonstrated competences to assume leadership responsibilities, and skills as a manager.

Interested candidates should submit Application for Federal Employment, SF-171 (available at all Federal Job Information Centers and Federal Personnel Offices), C.V. and bibliography to the address below. *Resumes alone are not acceptable applications for the Senior Executive Service.*

**Mrs. Janie R. Lacy**  
Personnel Officer, NIAID  
National Institutes of Health  
9000 Rockville Pike  
Building 31, Room 7A33  
Bethesda, Maryland 20892

The names of nominees may be phoned in to Dr. John Gallin on (301) 496-3006. U.S. citizenship required.

*An Equal Opportunity Employer*

## PROGRAM LEADER ATMOSPHERIC DYNAMICS AND METEOROLOGY

Ames Research Center (35 miles south of San Francisco) is seeking a senior investigator to lead its dynamics and meteorology program. The purpose of the program is to advance understanding of those dynamic processes that affect the atmosphere's chemical composition and climate. Of particular interest are processes on spatial scales amenable to aircraft studies.

Primary responsibilities are: 1) Directing airborne experiments using meteorological forecasts developed by the incumbent or by others under his/her direction; 2) Providing meteorological analyses after airborne missions, and leading the effort to integrate diverse aircraft measurements (state variables, trace constituents, radiation) with meteorological analyses so as to form a coherent scientific whole; 3) Maximizing the productivity of data analysis and modeling activities by publishing his/her own results and by working with experimenters and theoreticians to develop joint publications; and 4) Designing, advocating, and obtaining funding for new experiments and projects that focus available platform aircraft, experimental, and theoretical skills on problems of current concern. Ph.D. or equivalent experience in meteorology or an atmospheric science required. Salary Range: \$45,763-\$69,976 commensurate with experience/education

For further information write to the address below. Technical inquiries should be directed to Dr. Philip B. Russell, Chief, Atmospheric Experiments Branch, Mail Stop 245-5, NASA-Ames Research Center, Moffett Field, CA 94035, (415) 694-5404. Application for Federal Employment (SF-171), and OPM 1280 and 1203C (A-1 and B forms) should be filed by April 30, 1987. The necessary forms are available at the address below and at all Federal Job Information Centers. An Equal Opportunity Employer.

**NASA-Ames Research Center**  
Personnel Management Branch, MS 241-32  
ATTN: DH-3  
Moffett Field, CA 94035

## HOFFMANN-LA ROCHE

### Director Cardiovascular Research

Hoffmann-LaRoche, a research-intensive pharmaceutical company, headquartered in a suburban setting in New Jersey, 12 miles outside of New York City, is in search of a Department Director for Cardiovascular Research.

This individual will direct a preclinical department whose primary mission is exploratory research and discovery of drugs to treat ischemic heart disease.

The successful candidate will have a Ph.D. or M.D. and significant experience in mechanisms underlying cardiovascular diseases. A proven record of scientific accomplishments is required.

Prior management and drug development experience preferred.

Roche offers a professional environment and an attractive compensation package. Please send resume, present salary and publication list to: Position AS, c/o Mrs. Eleanor M. Malone, Professional Employment & Staffing Specialist.



**HOFFMANN-  
LA ROCHE INC.**

Nutley, NJ 07110

*Products that matter  
from people who care*

An equal opportunity employer



## POSITIONS OPEN

### POSTDOCTORAL NEUROBIOLOGIST

Opening to study chemosensory transduction mechanisms in vertebrate taste cells. Must be familiar with microelectrode recording techniques. Salary commensurate with experience and comparable to NIH levels. Will participate in new program in Neurosciences at Colorado State University. Send curriculum vitae, letter, and names of references to: **Dr. Stephen Roper, Professor and Chairman, Department of Anatomy, Colorado State University, Fort Collins, CO 80523. Equal Opportunity/Affirmative Action Employer.**

### POSTDOCTORAL POSITION

Available August 1987 for immunologist to study T cell migration and function in the intestine. Experience with cell migration techniques and tissue enzyme-labeling procedures is preferred. Please send résumé with names of three referees to:

**Dr. R. G. Bell**  
James A. Baker Institute for Animal Health  
New York State College of Veterinary Medicine  
Cornell University  
Ithaca, NY 14853

**POSTDOCTORAL POSITIONS (three)** available immediately to engage in projects on G-protein-mediated transmembrane signaling (**Dr. Ifeanyi J. Arinze**), roles or glycoconjugates in hormone-receptor and cell-substratum interactions (**Dr. Diane A. Blake**), and application of fluorescence spectroscopy and/or high pressure biochemistry to receptor-mediated signal transduction (**Dr. Parkson Chong**). Salary up to \$18,000. Our laboratories are contiguous and successful applicants will be expected to interact in related projects from these laboratories. Applicants should send curriculum vitae, statement of research experience, and names of three persons who may be contacted for reference to: **Dr. Ifeanyi J. Arinze, Chairman, Department of Biochemistry, Meharry Medical College, Nashville, TN 37208.**

**POSTDOCTORAL POSITION** available 1 July 1987 or sooner to study the regulation of polyamine synthesis in plant cell cultures. Qualifications: Doctorate in biology, botany or biochemistry. Experience in plant cell cultures, enzymology and/or recombinant DNA technology desirable. Appointment in annual increments for up to 3 years. Salary range is \$17,010 to \$19,040 depending on experience plus full benefits. Send curriculum vitae and three letters of reference (noncitizens must include current visa status) before 15 April 1987 to:

**Professor Subhash C. Minocha**  
Department of Botany and Plant Pathology  
University of New Hampshire (UNH)  
Durham, New Hampshire 03824

*UNH is an Affirmative Action/Equal Opportunity Employer*

### POSTDOCTORAL POSITIONS AVAILABLE

Postdoctoral positions are available immediately to study cardiac membrane physiology and pharmacology. Applicants can choose among related projects led by six faculty. Up to 3 years of support will be provided by NIH Training Grant. Must be a U.S. citizen or permanent resident. To apply please send curriculum vitae and names of three references to:

**Dr. Arnold M. Katz**  
Department of Medicine  
University of Connecticut Health Center  
Farmington, CT 06032

*An Affirmative Action/Equal Opportunity Employer M/W/H.*

**RESEARCH ADMINISTRATOR.** The Children's Memorial Hospital seeks a qualified individual to assist in the development of policies and procedures for its newly formed research organization. This position will be instrumental in formulating an effective program of grant fund research projects by coordinating pre- and post-award phases of grants administration. Also, it will serve as a resource to research staff in regard to administrative and personnel policies. The position will report to the institution's Chief of Staff and its President. A bachelor's degree is required plus 3 to 5 years of progressively more responsible experience in research administration or a closely related field. Salary commensurate with experience. Send résumé in confidence to: **The Children's Memorial Hospital, 2300 Children's Plaza, Chicago, IL 60614. Attention: Director of Personnel.**

## POSITIONS OPEN

**POSTDOCTORAL OR RESEARCH ASSOCIATE** position available immediately for 2 to 3 years to participate in studies involving molecular cloning and expression of falciparum malaria genes. Should have some experience with biochemical techniques. Salary negotiable, depending on experience. Send curriculum vitae and three letters of reference to: **Dr. A. C. Vezza, Department of Microbiology, University of Alabama at Birmingham, Birmingham, AL 35294. An Affirmative Action/Equal Opportunity Employer.**

**POSTDOCTORAL OR RESEARCH ASSOCIATE POSITION** open September 1987 to study neuroanatomical plasticity in the developing and aging mammalian CNS (primarily the hippocampal formation). Emphasis is on problem-oriented research so that anyone with a Ph.D. in a field related to neuroscience and evidence of enthusiasm for research is encouraged to apply. Send curriculum vitae with a letter outlining research goals and have three letters of reference sent to: **Keith Crutcher, Anatomy Department, University of Utah, Salt Lake City, UT 84132. The University of Utah is an Affirmative Action/Equal Opportunity Employer.**

**POSTDOCTORAL RESEARCH POSITIONS** available now for biophysical studies of molecular mechanisms of cell surface receptor function. Experience in single-channel recording or electrophysiology is desirable for studies of conductance fluctuations and switching dynamics of reconstituted, genetically modified and synthesized transmembrane channels. Studies of the dynamics of receptor function, receptor cytoskeleton interactions and transmembrane signals using electro-optical fluorescence image acquisition and digital image analysis to measure receptor motion and map membrane potentials, intracellular calcium and pH in individual cells have generated needs in our biophysics laboratory for expertise in biochemistry and cell biology as well as in quantitative microscopy. Applicants please send curriculum vitae, publication list and references to: **Professor Watt W. Webb, Cornell University, Applied Physics, Clark Hall, Ithaca, NY 14853-2501. Cornell University is an Affirmative Action/Equal Opportunity Employer.**

## POSITIONS OPEN

**POSTDOCTORAL RESEARCH ASSOCIATE POSITION** available immediately to study macrophage-tumor cell interactions at the level of receptor regulation. Experience in molecular biology and membrane biochemistry highly desirable. Submit curriculum vitae and two letters of recommendation to: **Dr. Marvin Fishman, Department of Immunology, St. Jude Children's Research Hospital, P.O. Box 318, Memphis, TN 38101. Equal Opportunity Employer.**

**POSTDOCTORAL/RESEARCH FELLOW—HUMAN MOLECULAR GENETICS**—Available immediately in NIH-supported study of gene isolation and X chromosome linkage in adrenoleukodystrophy. The work requires high motivation and familiarity with general recombinant DNA techniques. Candidates should send curriculum vitae, summary of research interests and three letters of recommendation to: **Dr. George Sack, The Johns Hopkins University, School of Medicine, The J.F.K. Institute, Room 418, 707 North Broadway, Baltimore, MD 21205.**

**RESEARCH ASSOCIATE** for university located in northeastern Ohio to conduct research aimed at understanding how, on the molecular level, the variations in the branch type and branch content of linear low density polyethylene affect the properties of the bulk polymer; involves theoretical modeling, computations and analysis of conformational properties of branched macromolecules such as copolymers of ethylene and 1-alkene, computer simulation of bulk semicrystalline polymers, relating morphology with bulk properties on molecular level. Requires Ph.D. in polymer science with one course each in nature and properties of materials, polymer science and engineering, advanced polymer physics, and physical chemistry of high polymers; and 1 year of research experience (gained either from academic courses or professional work) in structure-property relationships of semicrystalline polymers. Forty hours per week; \$17,130 per year. Qualified applicants reply immediately with résumé to: **R. Lechler, JO# 1024148, Ohio Bureau of Employment Services, P.O. Box 1618, Columbus, OH 43216.**

# ANTICANCER DRUG DEVELOPMENT

Warner-Lambert/Parke-Davis has an immediate entry level opening for a scientist in its Cancer Research group.

The duties of this position will be to evaluate radiosensitizing activity of agents against tissue culture cell lines, conduct biochemical/cell biology studies to determine their mechanism of action in a number of in vitro systems including multicellular spheroids, develop new models to predict radiosensitizing activity against human tumors, develop methods for assessment of normal tissue toxicity, collaborate with in vivo radiosensitizer efforts.

The successful candidate will have a Ph.D. or equivalent in radiation biology, pharmacology, or related discipline, 1-5 years postdoctoral training in radiobiology or cancer chemotherapy. Strong background in biochemistry and cell biology is desirable.

Our research facilities, adjacent to The University of Michigan campus in Ann Arbor, Michigan, are among the finest and best equipped in the world and are devoted exclusively to the discovery and development of new drugs. We offer excellent compensation, benefits and working environment. Interested candidates should forward resume together with salary requirements to: **Ms. R. Chapman, Human Resources, WARNER-LAMBERT/PARKE-DAVIS, PHARMACEUTICAL RESEARCH DIVISION, 2800 Plymouth Rd., Ann Arbor, Michigan 48105.**

# WARNER LAMBERT

"EQUAL OPPORTUNITY IN ACTION"

## **CELL BIOLOGY**

**Research  
and Development  
Opportunities**

As the acknowledged leader in supplying high quality cell culture media to the research/industrial communities for three decades, GIBCO Laboratories is now expanding its Cell Biology Research & Development Department to maintain its technical leadership.

There are immediate positions available at the B.S., M.S. and Ph.D levels investigating nutritional factors associated with the regulation of cellular proliferation and biological production.

Our multi-disciplinary team assumes project management responsibility, with ample opportunity for diversified experience and career advancement. This includes a blend of bench level research, technical supervision, interaction with other GIBCO departments and active collaboration with investigators in academia and the private sector.

Training and laboratory competence in the following areas is highly desirable:

- Development of defined or serum-free cell culture systems
- Development of immuno-diagnostic assays
- Isolation and characterization of functionally active factors from biological fluids
- Analytical separation by HPLC or ion chromatography

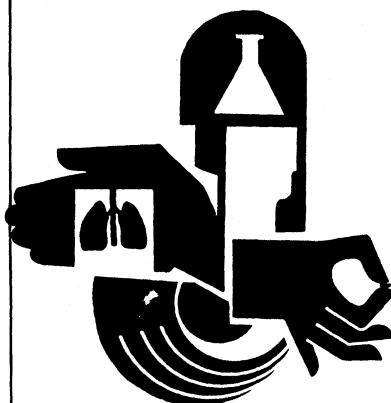
GIBCO offers an attractive and competitive benefits and compensation package along with an informal life style that affords candidates the opportunity to enjoy the outdoor and cultural environment of the Great Lakes, Niagara and Ontario-Toronto areas.

For more information please send your resume and curriculum vitae, in confidence, to:

Harry W. Cardin  
*Personnel Manager*  
GIBCO Laboratories  
Life Technologies, Inc.  
3175 Staley Road  
Grand Island, NY 14072  
(Seven miles from Niagara Falls)

**GIBCO**  
**LABORATORIES**  
Life Technologies, Inc.

An equal opportunity employer, M/F/H/V



## **New Product Development**

Cooper Laboratories Inc., a wholly-owned subsidiary of Cooper Development Company, located in Mountain View, California, focuses on advanced biotechnologies applied to therapeutic products for respiratory diseases.

The Company pursues development of innovations such as liposome encapsulation of respiratory therapeutics as well as recombinant DNA sourced proteins for treatment of genetically-deficient emphysema patients.

Our aim is to build a pharmaceutical business with particular focus on pulmonary therapeutics. Consider the following openings in key areas:

### **PURIFICATION BIOCHEMIST**

Responsible for the development of efficient chromatographic separation processes for therapeutic proteins from recombinant sources. Our ideal candidate should have substantial experience in modern separation techniques, including HPLC. The position requires a PhD in Biochemistry or equivalent.

### **LIPID CHEMIST**

Responsible for the purification and synthesis of phospholipids, as well as for the large scale phospholipid separation processes. An MS in Pharmaceutical Chemistry (or related field) with solid industrial experience or a PhD is required.

### **BIOCHEMIST/ LIPOSOMES**

Collaborate with lipid chemists and pharmacologists to investigate the therapeutic efficacy of liposome encapsulated drugs designed to treat diseases of the respiratory tract. Position will report directly to the Director of Pharmacology Research.

Requirements include a Ph.D. in Biochemistry or Physiology with emphasis in lipid metabolism and the delivery of drugs utilizing liposomes and 2 years post-doctoral training.

In addition to a professional and stimulating work environment, we offer excellent salaries and benefits. For immediate consideration, please send resume with salary requirements to Professional Employment Dept. S36, Cooper Laboratories Inc., 3145 Porter Drive, Palo Alto, CA 94304. An equal opportunity employer. Principals only, please.

**Cooper Laboratories Inc.**

## POSITIONS OPEN

**RESEARCH ASSISTANT PROFESSOR.** Ph.D. or M.D.—to study growth factor stimulated mRNA transcription. Candidate must be familiar with methodology for quantifying mRNA sequences and cDNA cloning. Independent funding expected within 1 year. *The University of Pennsylvania is an Equal Opportunity/Affirmative Action Employer.* Send curriculum vitae to: **Charles D. Scher, M.D., Division of Oncology, Children's Hospital of Philadelphia, 34th and Civic Center Boulevard, Philadelphia, PA 19104.**

### RESEARCH ASSOCIATE ELECTRON MICROSCOPY

Position available immediately to use transmission and scanning electron microscopy in conjunction with fluorescent microscopy to study the morphology of acid secreting cells of mammalian and amphibian intestine. Experience in thin sectioning and high resolution electron and photomicrography required. Send curriculum vitae and names of three references to: **Dr. John F. White, Department of Physiology, Emory University, Atlanta, GA 30322.** *An Equal Opportunity Employer.*

**RESEARCH ASSOCIATE WANTED** to conduct psychophysical studies of reading and image recognition in people with low vision. Applicants must have a Ph.D. and a strong background in visual science. Experience in physiological optics or clinical psychophysics is desirable. Candidates should submit a curriculum vitae, three letters of reference, reprints, and a statement of long-term research interests to: **Gordon E. Legge, Department of Psychology, University of Minnesota, 75 East River Road, Minneapolis, MN 55455.** Application deadline: 1 April 1987.

*The University of Minnesota is an Equal Opportunity Employer and specifically invites applications from women and minorities.*

**RESEARCH ASSOCIATE** who will design and conduct experiments of basic research aimed at the identification of the effects of biological therapy in patients with cancer or acquired immunodeficiency syndrome (AIDS). Study the capacity of cell from the same type of patients to produce relevant immunological mediators and its modification under a variety of biological treatments. Duties also include cell cultures of malignant and normal human cells, bioassays and immunoassays of cytokines (colony-stimulating factors, interleukins, interferons, and so forth) identification and characterization of possible interactions among them, design of optimal combinations, and doses and schedules in vitro that could help for the optimization of treatments in patients. Development of monoclonal and polyclonal antibodies and its coupling to biologicals. Supervision of laboratory personnel. Analysis, presentation and publication of experimental data obtained. Ph.D. degree or equivalent in immunology with 2 years of postdoctoral training and 1 year of biomedical research experience; \$30,000 annual salary; 40 hours per week. Contact: **Texas Employment Commission, Houston, TX,** or send résumé to: **Texas Employment Commission, Placement Unit, Austin, TX 78778, J.O. #4513196.** *Ad paid for by an Equal Employment Opportunity Employer.*

### RESEARCH SCIENTIST

**The Johnson & Johnson Biotechnology Center** has an opening for a human retrovirologist. The position requires interaction with a multidisciplinary group studying the development of therapeutics, diagnostics, and vaccines. Within this team the candidate will have training that will complement the expertise in molecular biology and immunology already available to the research group. Qualified individuals will have a Ph.D. or M.D. degree with at least 2 years of postdoctoral experience studying human retroviruses and a documented record of exceptional research achievement. The Johnson & Johnson Biotechnology Center is a division of Johnson & Johnson, a leading health care company. We are located in the San Diego area and offer a challenging scientific environment as well as competitive salaries and an excellent benefits package. Qualified candidates should send their curriculum vitae along with the names of three professional references to:

**Ms. Patricia Fagan, Personnel Administrator  
Johnson & Johnson Biotechnology Center  
P.O. Box 8289  
La Jolla, CA 92038**

*An Affirmative Action/Equal Opportunity Employer.*

## POSITIONS OPEN

### POSITION AVAILABLE

**RESEARCH INVESTIGATOR.** Perform research on the molecular mechanisms involved in the expression of enzymes that modulate steroid metabolism. Must hold Ph.D. or equivalent degree. Salary is commensurate with qualifications and experience. Please send curriculum vitae and the names and addresses of three persons who can be contacted for reference purposes. Direct inquiries to: **Dr. Carl Monder, The Population Council, 1230 York Avenue, New York, NY 10021.**

### U.S. DEPARTMENT OF AGRICULTURE (USDA) AGRICULTURAL RESEARCH SERVICE (ARS)

**RESEARCH ASSOCIATE POSITION** is available in the Soil-Microbial Systems Lab., Beltsville Agricultural Research Center, USDA-ARS. Candidate will join group using immunological techniques to study plant-microbe interactions. Research objective is to identify plant growth regulating substances of rhizosphere *Pseudomonas* using monoclonal antibody techniques. Knowledge or experience in rhizosphere microbiology and *Pseudomonas* identification and physiology required. Immunochimistry experience desirable. For position information, contact: **Dr. L. J. Sikora, 301-344-3384.** Salary is \$27,172. U.S. citizenship required. Address for applications is: **USDA, Agriculture Research Service, Personnel Operations Branch, Beltsville Area, Beltsville, MD 20705.** Applications must be marked 7EO14. *An Equal Opportunity Employer.*

**RESEARCH SCIENTIST POSITION** at Memorial Sloan-Kettering Cancer Center. Applications are invited for a nontenure-track, career scientist position in a laboratory exploring functions of growth factors and their receptors in normal and malignant cells, using biochemical, immunological and molecular genetic approaches. There is full support for salary and research costs. Rank and salary commensurate with experience. Send curriculum vitae with a list of publications, a summary of research interests and the names and addresses of three references before 1 April 1987 to: **John Mendelsohn, M.D., Head, Laboratory of Receptor Biology, Memorial Sloan-Kettering Cancer Center, 1275 York Avenue, Box 156, New York, NY 10021.** *An Equal Opportunity Employer M/F/H/V.*

**The California Department of Food and Agriculture** has a **STAFF TOXICOLOGIST** position in Sacramento. Ph.D. in toxicology or related science followed by 3 years of recent, related experience is required. Duties consist of review of animal toxicology studies conducted to support pesticide-registration applications. Salary: \$3846 to \$4652 per month. Submit résumé to: **Department of Food and Agriculture, 1220 N Street, Room 154, Sacramento, CA 95814,** by: 30 April 1987. *California is an Affirmative Action/Equal Opportunity Employer.*

### BIOLOGY DEPARTMENT

**Indiana University of Pennsylvania (IUP)** invites applicants in our Biology Department for a **TENURE-TRACK POSITION** in invertebrate zoology (preference given to applicants with a background in aquatic systems) for September 1987 at the assistant professor level.

A Ph.D. and teaching experience is preferred. Commitment to quality teaching and research is essential. Duties will primarily include undergraduate teaching in the animal biology course for majors and the general biology course for nonmajors. The successful candidate will be expected to direct graduate students and pursue research in his/her area of expertise. The potential exists for the development of upper level undergraduate or graduate courses. Minority candidates are encouraged to apply.

Send letter of application, curriculum vitae, transcripts, statement of research and teaching interests, and three letters of recommendation to: **Dr. C. J. Zenisek, Zoology Search Committee, Biology Department, Indiana University of Pennsylvania, Indiana, PA 15705.** Telephone: 412-357-2519 or 357-2354. Deadline for receipt of application is 10 April 1987.

*IUP is an Affirmative Action/Equal Opportunity Employer.*

## POSITIONS OPEN

### RESEARCH SCIENTIST POSITION IN CELL BIOLOGY

A position is available for a nontenure-track research cell biologist in the rank of professor to work on a project involving the structure and function of the nuclear envelope and its interactions with chromatin, nuclear matrix components and cytoplasmic intermediate filaments. A Ph.D. in molecular biology is required, together with at least 4 years of experience in this field of research. We will accept applicants whose functional title may have been senior research associate or research assistant. Applicants must have conducted research in nuclear lamina, nuclear matrix, and chromatin structure involving use of radioisotopic immunological, biochemical, and molecular cross-linking techniques, as demonstrated through publications in professional journals and presentations at international conferences. Minimum starting salary will be \$28,000 per year. Please send applications and have three letters of reference sent to: **Dr. Robert D. Goldman, Department of Cell Biology and Anatomy, Northwestern University Medical School, 303 East Chicago Avenue, Chicago, IL 60611.** *Northwestern University is an Equal Opportunity Affirmative Action Employer and invites applications from all qualified individuals.*

### UNIVERSITY OF COLORADO DEPARTMENT OF ENVIRONMENTAL, POPULATION, ORGANISMIC BIOLOGY

**TENURE-TRACK POSITION, RANK OPEN,** Department of Environmental, Population, Organismic (EPO) Biology/Fellow Cooperative Institute for Research in Environmental Sciences (CIRES) beginning in September 1987 to pursue research within the Center for the Study of Earth from Space (CES) in the area of Ecosystems Ecology or Forest Ecology incorporating remote sensing data.

Research background in ecology and plant science, interest in global questions, strong publication record, and ability to attract research funding.

Candidate will participate in establishing an interdisciplinary curriculum in remote sensing and will teach two courses per academic year in EPO Biology.

Please submit a letter of application, statement of research teaching interests and three letters of recommendation by 31 March 1987 to: **Chair, Search Committee, EPO Biology, Campus Box 334, University of Colorado, Boulder, CO 80309-0334.**

*The University of Colorado at Boulder has a strong institutional commitment to the principle of diversity in all areas. In that spirit, we are particularly interested in receiving applications from a broad spectrum of people, including women, members of ethnic minorities and disabled individuals.*

### THE UNIVERSITY OF MICHIGAN

Invites applicants for a **tenured associate or full professor position** in any discipline to serve as Director of the Comprehensive Studies Program (CSP) and to undertake a part-time joint appointment in an academic department relevant to his or her discipline. The CSP, which is part of the University of Michigan's College of Literature, Science, and the Arts, offers educationally disadvantaged students a unique educational opportunity: to be part of a community of scholars who plan, study, learn, share experiences, and work together toward academic excellence. *Racial/ethnic minority and women faculty are especially encouraged to apply.* Applicants should send curriculum vitae, letter describing teaching/research interests and administrative experience, samples of major research publications, and arrange for three letters of recommendation to be sent to: **Professor Lewis J. Kleinsmith, Chairman CSP Search Committee, 2056 Krause Natural Science Building, The University of Michigan, Ann Arbor, MI 48109.** The closing date for applications is 1 April 1987.

### TOXICOLOGIST

**The Bay Area Air Quality Management District (BAAQMD)** in San Francisco, CA, is seeking a full-time toxicologist with experience in risk assessment of environmental toxics, evaluation of environmental data and preparation of reports on toxic air emission health impacts. Ph.D. and 3 years experience desired; \$3663 per month to start. Send résumé to: **BAAQMD, 939 Ellis Street, San Francisco, CA 94109.** *Equal Opportunity/Affirmative Action Employer.*

## Ph.D. Microbiologists/ Biochemists

Ongoing research and new product development has been a driving force behind Abbott Laboratories' premier position as a \$3.8 billion world leader in the health care products industry. Our fastest growing Division — Diagnostics — has a history of successes, with major breakthroughs in the detection of Hepatitis B and German Measles, and most recently, in AIDS testing. Currently, we seek Ph.D. Microbiologists or Biochemists to help support the continuing efforts of this division.

The successful candidates will have at least 2-3 years post-doctoral research experience in Immunochemistry, Molecular Biology or Biochemistry, with relation to parasitic and/or bacterial infectious organisms.

Rated one of the nation's five best managed companies for 1986 by Dun's Magazine, Abbott remains committed to excellence in all areas. We provide an outstanding scientific environment along with excellent salaries and benefits, including profit sharing and stock retirement plan. We're headquartered in an attractive suburban setting, just 30 miles north of Chicago. **For confidential consideration, please send your resume with salary history to: Stephanie Mondello/Corporate Placement, Dept. S3-6.** Abbott is an Affirmative Action Employer.

**ABBOTT**  
ABBOTT PARK IL 60064

"HEALTH CARE WORLDWIDE"

## THE SCIENCE RECRUITMENT

### "FOUR DAY CLOSE"

#### NOW YOU CAN SEE YOUR AD IN SCIENCE FOUR DAYS AFTER SUBMISSION

Scientific Recruiters can now advertise positions almost as soon as the need arises. Instead of reserving space a month or more in advance, you can now place your ad four days before the magazine mailing date. SCIENCE is mailed on the cover date.

Film (right-reading, emulsion face down) or full camera ready art and insertion order must reach: SCIENCE, Short Close Desk, 1515 Broadway, New York, NY 10036 by NOON Mondays (except for legal holidays when material must reach New York by Noon Fridays). Because space is limited, the four-day close page will be reserved on a first-come, first-served basis, at a 15% premium. ¼ and ½ page ads only.

Now you don't have to wait to find the researchers you need immediately, nor must you advertise in a Sunday paper that pans a lot of sand, but not much gold. Scientific employers know that SCIENCE ads fill the job better. Now they fill it faster too.

You can call it "INSTANT RECRUITMENT."

For further information, telephone Ed. Keller, Recruitment Advertising Manager, or Donna Rivera, Production Manager at SCIENCE: 212-730-1050, or write to: SCIENCE, 1515 Broadway, NY, NY 10036.

**CURRENT DISTRIBUTION 160,000**

## FACULTY AND STAFF POSITIONS BIOLOGY DEPARTMENT TEXAS A&M UNIVERSITY

**Faculty Position.** A tenure track position is available at any level in the area of **Molecular Genetics of Microorganisms**. The successful candidate must have demonstrated significant potential to develop a vigorous, extramurally funded research program. Researchers in yeast molecular biology are especially encouraged to apply. Contact: Microbiology Search Committee, Dr. Susan S. Golden.

**Senior Scientist** is sought to supervise a state of the art DNA sequencing and Synthesis Laboratory. Applicants must be experienced with both Maxam and Gilbert and Dideoxy sequencing procedures, and with automated oligonucleotide synthesis. Opportunity for pursuit of individual research interests and providing sequencing service and instruction for others. Ph.D. required, or at least three years of direct participation in sequencing projects. Approximate salary \$30,000, but commensurate with experience. Contact: Dr. Timothy C. Hall.

**Electronics Repair and Maintenance Support Engineer.** Applicants must have field experience in repair and maintenance of biological and biochemical laboratory equipment. Ability to design and construct required modifications to such equipment and conduct training sessions is essential. Contact: Dr. Timothy C. Hall.

**Additional Positions.** Postdoctoral and Graduate Research Positions are available within the department. Contact: Dr. Timothy C. Hall.

Applications, including a C.V., a description of goals and interests, and names of three references with addresses and phone numbers, should be mailed directly to the contact person for each position at the following address.

**BIOLOGY DEPARTMENT, TEXAS A&M UNIVERSITY  
COLLEGE STATION, TX. 77843-3258**

Texas A&M University is an equal opportunity employer.

## POSTDOCTORAL POSITIONS

**Senior Postdoctoral Research Associate (Molecular Virology).** A skilled molecular biologist is required to work in the area of Brome Mosaic Virus replication. This system is one of very few for which a cell-free replicase system exists. Duties involve site-directed mutagenesis of specific regions of the BMV genome and analysis of these mutants *in vitro* and *in vivo*. Considerable experience (over two years post-Ph.D.) in cloning and synthesis of *in vitro* transcripts is necessary; familiarity with viral systems is preferred. The stipend, approximately \$30,000, will be commensurate with experience and performance. Contact: Dr. Timothy C. Hall.

**Postdoctoral Research Associate (Plant Molecular Biology).** Projects include analysis of *cis* and *trans* acting factors involved in the ontogenic control of plant gene expression and molecular analysis of early events of plant embryogenesis. Experience in recombinant DNA techniques and DNA sequencing are required; additional experience in plant gene transfer methods, *in situ* hybridization or analysis of DNA-protein interactions is preferred. Base stipend is \$22,000, but commensurate with performance and experience. Contact: Dr. Terry L. Thomas.

**Postdoctoral Research Associate (Molecular Biology of Photosynthesis).** Research projects include studies of expression and regulation of photosynthetic genes of cyanobacteria, site-directed mutagenesis of specific genes and analysis of altered membrane proteins. Candidates should have experience in one or more of the following areas: molecular biology, microbial genetics or plant physiology. Salaries are competitive. Contact: Dr. Susan S. Golden.

**Postdoctoral Research Associate (Molecular Parasitology).** Project involves cloning and analysis of gene products from *Schistosoma mansoni*, but prior experience in parasitology is not required. Applicants should be knowledgeable in the preparation and characterization of both cDNA and genomic DNA libraries and DNA sequencing technology. Salaries are competitive. Contact: Dr. Michael Kemp.

Applications, including a C.V. and the names of three references with addresses and phone numbers, should be mailed directly to the contact person for each position. Texas A&M University is an equal opportunity employer.

**BIOLOGY DEPARTMENT, TEXAS A&M UNIVERSITY  
COLLEGE STATION, TX. 77843-3258**

## POSITIONS OPEN

### DEPARTMENT OF CHEMISTRY

Applications are invited for **TWO TENURE-TRACK FACULTY POSITIONS** to begin 1 June 1987 or soon thereafter:

- 1) **Organic Chemistry**
- 2) **Biochemistry or related field**

In their respective fields, the candidates will conduct research projects and will participate in teaching at undergraduate and graduate levels. Lectures are to be given in French. The requirements for position 1 are as follows: Ph.D. in chemistry with research experience in chemistry. The requirements for position 2 are as follows: Ph.D. in biochemistry or chemistry with research experience related to biochemistry.

*In accordance with Canadian immigration requirements, priority will be granted to Canadian citizens and permanent residents of Canada.*

Candidates are invited to send a detailed curriculum vitae and an outline of a proposed research project as well as the names and addresses of three references, before 30 April 1987, to: **Mr. André Hade, Chairman, Chemistry Department, University of Québec in Montréal, P.O. Box 8888, Branch A, Montréal (Québec), H3C 3P8, Canada.**

## COURSES

### NATO ADVANCED STUDY INSTITUTE TERRESTRIAL SPACE RADIATION AND ITS BIOLOGICAL EFFECTS 11 TO 25 OCTOBER 1987

A comprehensive series of lectures presenting an integrated intensive course on the near space radiation environment and its effects on man in space. Topics include: radiobiology, dosimetry and magnetospheric physics. Limited number of contributed papers will be considered for presentation. Partial support for travel and living expenses will be available.

Further information contact:

**Dr. P. McCormack, M.D., Ph.D.**  
Division of Life Sciences (CODE EB)  
NASA, Headquarters  
Washington, DC 20546  
Telephone: 202-453-1543  
Deadline 15 April 1987

## GRADUATE STUDIES

**GRADUATE STUDIES:** University of Nevada Graduate Training Program in Pharmacology (1987 to 1988 academic year) is accepting applications for predoctoral study and research in areas of neuropharmacology, autonomic and cardiovascular pharmacology (with emphasis on regulation of vascular and airway smooth muscle and cardiac muscle) and neuromuscular toxicology. This is a Ph.D. program open to highly qualified individuals with a bachelors degree in the sciences. For more information contact: **Dr. George Bierkamper, Director, Graduate Program, Department of Pharmacology, University of Nevada School of Medicine, Reno, NV 89557-0046. Affirmative Action/Equal Opportunity Employer.**

## RESEARCH PROPOSALS

### CALL FOR RESEARCH PROPOSALS

The Center for Alternatives to Animal Testing of the Johns Hopkins School of Public Health is soliciting **PROPOSALS**. These research proposals should provide the fundamental knowledge base to develop alternative methods to whole animals for the safety evaluation of commercial products.

The Center encourages the development of methods using human cells/cell lines in addition to other in vitro approaches to toxicity evaluation. Funds are available for studies of skin and eye irritation, inflammation, acute toxicity and other organ-specific toxicity. At present, funds are unavailable for mutagenicity and carcinogenicity.

Guidelines for preparation of proposals can be obtained from: **Mrs. Joan Poling, The Johns Hopkins Center for Alternatives to Animal Testing, 615 North Wolfe Street, Baltimore, MD 21205; telephone: 301-955-3343.**

Deadline for submission of research proposals—29 May 1987.

## SUMMER INSTITUTE

The National Institute on Aging announces a **SUMMER INSTITUTE IN RESEARCH ON AGING, 12 TO 22 JULY 1987**, in Baltimore, Maryland. The Summer Institute sponsored by several organizations and foundations is directed at new researchers and provides an opportunity for intensive exposure to issues and challenges of research on aging. The deadline for submitting applications is 15 April 1987. For further information write to: **Summer Institute, National Institute on Aging, Building 31, Room 2C05, National Institutes of Health, Bethesda, MD 20892.**

## CALL FOR POSTERS

### CALL FOR POSTERS

The Center for Alternatives to Animal Testing (CAAT) at the Johns Hopkins School of Public Health is sponsoring its 5th annual international symposium:

### PROGRESS IN IN VITRO TOXICOLOGY

This symposium will be held in Baltimore on 4 to 5 November 1987. We encourage the submission of abstracts for poster presentations. Posters of academic endeavors and organizations offering products of importance to in vitro studies are encouraged.

If you wish to receive instructions for poster presentations or would like to be placed on the CAAT mailing list, please contact: **Mrs. Sheila Kuhn, The Johns Hopkins Center for Alternatives to Animal Testing, 615 North Wolfe Street, Baltimore, MD 21205; telephone: 301-955-3343.**

Deadline for submission of poster abstracts—1 October 1987.

## TRAINING GRANT

### NEUROBIOLOGY UNIVERSITY OF COLORADO SCHOOL OF MEDICINE

Postdoctoral position on NIH Training Grant available 1 July 1987 or later. Successful candidate may work with any of the training faculty: **W. J. Betz:** Synapse formation at the neuromuscular junction. **J. H. Caldwell:** Control of ion channel expression and localization in membranes. **T. E. Finger:** Innervation of, and neurotransmitters in the gustatory system. **P. A. Fuchs:** Electrical properties and development of cochlear hair cells. **S. R. Levinson:** Molecular biology of the sodium channel. **A. R. Martin:** Properties of postsynaptic inhibitory channels. **W. O. Wickelgren:** Modulation of ion channels by neurotransmitters. Candidates, who must be permanent residents of the United States should send curriculum vitae, letter stating area of research interest, and three letters of reference to: **Dr. A. R. Martin, Department of Physiology, C240, University of Colorado School of Medicine, 4200 East Ninth Avenue, Denver, CO 80262. An Affirmative Action/Equal Opportunity Employer.**

## TRAINING PROGRAM

### POSTDOCTORAL TRAINING PROGRAM IN THE CELLULAR/MOLECULAR BIOLOGY OF AGING

Positions are available for postdoctoral trainees (Ph.D. and/or M.D.) to obtain 2 years of specialized training in the methods and models of research on aging. This program is directed by a consortium which includes the University of Pennsylvania/Wistar Institute (Drs. V. Cristofalo, D. Kritchevsky, E. Levine), Temple University (Drs. R. Baserga, N. Duker, A. Schwartz), the Medical College of Pennsylvania (Dr. J. Roberts) and Merck Sharp and Dohme Research Laboratories (Drs. M. Bradley and W. Nichols). Research emphases include: cell cycle kinetics/dynamics; growth factor regulatory mechanisms; growth regulatory genes; cellular transformation and immortalization; regulation of gene expression; DNA repair; cytogenetics; nutrition; vascular cell physiology; cardiovascular physiology/pharmacology; and DHEA action in aging and cancer. Applicants must meet NRSA U.S. citizenship or residency requirements. Address applications (curriculum vitae, three letters of reference, and graduate school transcript) to: **Vincent J. Cristofalo, Ph.D., Director, University of Pennsylvania, Center for the Study of Aging, 3906 Spruce Street, Philadelphia, PA 19104.**

## PROGRAM

### CAREER CHANGE OPPORTUNITY

This unique program offers the candidate with a doctorate-level degree in science the opportunity to earn the doctor of optometry (O.D.) degree in two calendar years. Employment opportunities exist in private practice, industry, education, and research. Contact: **Dr. D. M. Chauncey, Ph.D.-O.D. Program Director, The New England College of Optometry, 424 Beacon Street, Boston, MA 02115; telephone: 617-266-2030, extension 147.**

## FELLOWSHIPS

### HARVARD SCHOOL OF PUBLIC HEALTH POSTDOCTORAL FELLOWSHIPS



Interdisciplinary Programs in Health (IPH) invites applications from promising graduates of advanced degree programs in the natural or social sciences interested in turning to research in environmental health and public policy. The program focuses on the scientific and analytical foundations for environmental decisions. In addition to individual research, recent group projects include monographs on the molecular and cellular basis of toxicity, and the susceptible individual and environmental regulation. Further studies will be adapted to interests of Fellows. Studies on the assessment of integrated exposure and dose, and on uncertainty in environmental decision making are under consideration.

Fellows will be appointed for a term of 1 year starting September 1987. Award may be renewed. Application deadline: 13 April 1987. Decisions announced in May.

For information, write to:

**Professor Donald F. Hornig**  
Director, IPH  
Harvard School of Public Health  
665 Huntington Avenue  
Boston, MA 02115

**RESEARCH FELLOWSHIP ON GROWTH FACTORS.** A 2- or 3-year postdoctoral fellowship for a Ph.D. or M.D. with previous laboratory training, who wishes to explore the function of growth factor receptors in normal and malignant cells, using biochemical, immunological, and molecular genetic approaches. Send curriculum vitae and references to: **John Mendelsohn, M.D., Head, Laboratory of Receptor Biology, Memorial Sloan-Kettering Cancer Center, 1275 York Avenue, Box 156, New York, NY 10021. An Equal Opportunity Employer M/F/H/V.**

**SHORT-TERM GENETIC SEQUENCE COMPUTER ANALYSIS TRAINING FELLOWSHIPS**—Available at the Dana-Farber Cancer Institute and Harvard School of Public Health. Housing and domestic travel support provided for 1 to 3 weeks. Positions open to graduate students, postdoctoral fellows, and senior researchers in molecular biology. Positions provide available software introductory training and/or collaborative research genetic sequence problem support. For further information contact: **Susan Tolman, J816, Molecular Biology Computer Research Resource, Dana-Farber Cancer Institute, 44 Binney Street, Boston, MA 02115. An Affirmative Action/Equal Opportunity Employer.**

## MARKETPLACE

### SPECTROPHOTOMETER CELLS



FUSED, FROSTED,  
THICK WALL CONSTRUCTION  
CALL OR WRITE FOR FREE CATALOG  
**QUARACELL PRODUCTS, INC.**  
P.O. Box 147, Baldwin, NY 11510  
Tel. 516/681-5032

Circle No. 36 on Reader Service Card



# Performance Extremes

## Extend your time and your budget

Your applications are on the cutting edge, pushing the frontiers of your field—and of today's scientific computer systems. But your job isn't computer system design. You want to save your time for your project's *real* work. And your budget has very real limits.

Minimum time demands and maximum system performance within your budget are critical.

## The highest performance data acquisition family

MASSCOMP offers you much more than 32-bit MC68020 computing power. It's the *only* complete family specifically designed to maximize high-speed data acquisition and processing performance. From the CPU out, MASSCOMP systems are built for real time.

One of MASSCOMP's five system groups is sure to meet your requirements for up to 1 MHz sampling, transparent multiprocessing, high-resolution color graphics, ANSI-validated FORTRAN, a real-time enhanced UNIX<sup>®</sup> operating system, and specialized data acquisition interfaces and software programs.

Your programs will run faster, powered by multiple CPUs, floating point and fully integrated multiple array processors. And the combination of UNIX and 32-bit virtual addressing simplifies scientific program development.

With MASSCOMP you get more flexibility *and* faster results. Because data acquisition is our core business, not just an option.

MASSCOMP is a registered trademark of Massachusetts Computer Corporation.  
UNIX is a registered trademark of AT&T Bell Laboratories.



## **MASSCOMP** The Micro Supercomputer Company

One Technology Park  
Westford, MA 01886  
(617) 692-6200

### MAXIMUM CPU PERFORMANCE

10 MIPS  
12,000 K Whetstones/second  
Over 14 Mflops/CPU  
4 CPUs

### SUPERIOR DATA ACQUISITION CAPABILITIES

One million samples per second  
Very high-speed disk throughput  
Multiple fast busses  
High data throughput  
Real-time UNIX<sup>®</sup> operating system

### OUTSTANDING SYSTEM FEATURES

Transparent multiprocessing  
MC68020 performance  
Industry standards  
Networked configurations  
Graphics family  
High reliability  
Low cost: \$15,000–\$250,000

## Imaging, simulation, measurement and control, C<sup>3</sup>I, life sciences, geophysics...

You get cost-effective computer systems tailored to your specific application and supported by scientists and engineers *from your field*. MASSCOMP is staffed with experts from each of the above disciplines. They know your procedures and instruments. They're on call before and after you receive your system, for technical help and overall project consultation.

They'll have you up and running fast, avoiding frustrating and expensive start-up delays.

## Unmatched price/performance

Spec for spec, feature for feature, no competitor comes close to the cost-effectiveness of MASSCOMP's real-time computers. Applications formerly requiring mainframe computing can now be economically handled in your department or at your remote location. No more waiting for time-critical data. No more loss of control.

## Save 30% on MC5400 systems\*

For a limited time you can save an additional 30% on pre-configured MC5400 systems with extended warranties. These are complete data acquisition systems, fully configured with A/D, D/A, digital I/O and full color graphics. They represent the single best value in the industry today.

**Call The MASSCOMP  
Scientific Products Group  
1-800-451-1824**

Find out how MASSCOMP performance extremes are within your means.

\*United States Only Circle No. 55 on Readers' Service Card

# Within Your Means.



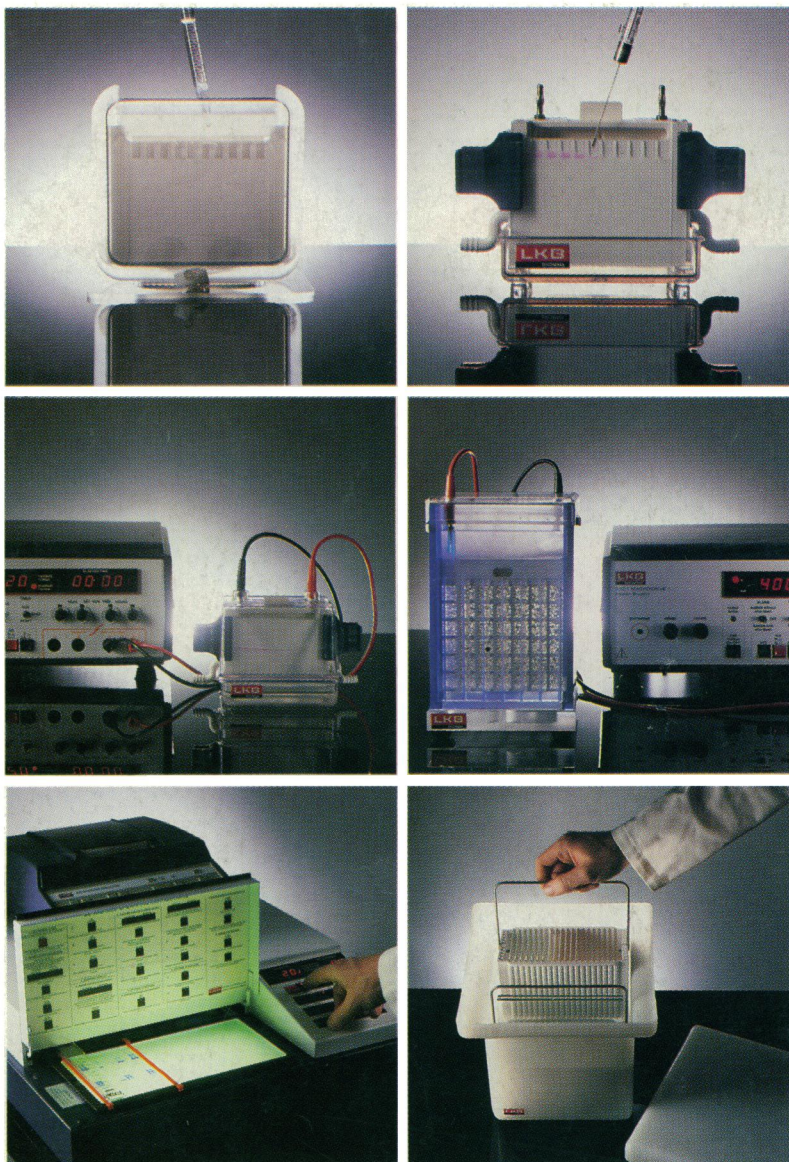
# Gel size is only a small part of a complete Midget System

Many laboratories have discovered that small gels offer big advantages over conventional electrophoretic gels. With smaller gels, you can simplify routines and improve the economy of electrophoretic runs.

Many researchers believe, however, that small gels compromise their demands for quality and performance. Not so. The LKB Midget Electrophoresis System offers the advantages inherent in smaller gels—reduced buffer and reagent consumption, increased resolution, and shorter run times—as well as the kind of results you would expect from larger gels. With Midget, you can streamline your needs to match your budget. A complete Midget system includes everything for casting, running, transfer and scanning—all reasonably priced.

A complete Midget System lets you precast batches of up to 14 reproducible gels in the compact format of 8×10 cm. You can run zone, discontinuous, gradient, SDS and even 2-D tube gel electrophoresis—simply and efficiently. A complete Midget System lets you rapidly and economically transfer proteins onto a blotting membrane. And with a complete Midget System you can obtain the impartial evaluation capabilities of laser scanning. The system even includes a plate cleaning and storage unit.

So why compromise when the advantages of a Midget System are so sizeable?



380



Electrophoresis Division

LKB-Produkter AB, Box 305, S-16126 Bromma, Sweden, Tel. 08-799 80 00, telex 10492

Antwerp (03)218 93 35 • Athens-Middle East +30 (1)894 73 96 • Beijing 89 06 21 • Copenhagen (01)29 50 44 • HongKong (852)5-814 84 21  
 London (01)657 88 22 • Lucerne (041)57 44 57 • Madras (044)45 28 74 • Moscow (095)255-6984 • Munich (089)85 830 • Paris (01)64 46 36 36  
 Rome (06)39 90 33 • Sao Paulo (011)578 41 38 • Stockholm (08)764 75 50 • Tokyo (03)293-5141 • Turku (021)678 111 • Vienna +43 (222)92 16 07  
 Washington (301)963 3200 • Zoetermeer (079)3192 01 Over 60 qualified representatives throughout the world.

Circle No. 62 on Readers' Service Card