

the evidence for warm gas from radio, optical, and infrared observations. I found the papers on optical emission lines particularly interesting inasmuch as they show that conditions at the center of the cooling flow are much more complex than a naive interpretation of the x-ray data would indicate. In short, attempts to keep the core region hot by plausible processes, such as radiation from regions of star formation, shock heating, and conduction of heat from the outer regions, appear to be inconsistent with the observations or are more likely to produce thermal instabilities (adjacent regions of intense cooling and rapid heating) than a smooth, stable core. A large amount of gas has to be cooling, although its ultimate fate is unknown.

One final uncertainty is the persistence of the cooling flows. Although the cooling times in the core region are shorter than the age of the universe, they are not particularly short by anyone's standard. Estimates of the total mass accreted from these cooling flows necessarily invoke an age for the flow which can only be considered approximate. A few papers attempt to estimate the time variability of specific flows using model-dependent arguments. No consensus has emerged on whether the flows are increasing or decreasing in intensity, but it does appear that no allowable variation could alter the conclusion that a substantial amount of mass is dropping out of the flow at small radii.

On the whole, I would recommend this book to anyone with a serious interest in the origin and evolution of galaxies. The observational papers included here provide a fairly impressive case for the widespread existence of cooling flows. The theoretical papers are not as conclusive but do strongly suggest that alternative models of the observations are not plausible. It is clear that the addition of matter to galaxies through cooling flows is a widespread phenomenon, which may dominate the evolution of a substantial number of galaxies. It may even be true that the problem of dark matter in galaxy clusters will find its resolution here. This is not necessarily welcome news for cosmologists, who need more exotic forms of dark matter to explain galaxy formation and to close the universe.

This book suffers from a few minor, but irritating, problems. It is a little jarring to find pages transposed at the very beginning of the papers. In addition, it is peculiar that a book intended to interest a larger audience does not open with a general review of the topic.

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## Conduction Electrons

**Magnetoresistance in Metals.** A. B. PIPPARD. Cambridge University Press, New York, 1989. xiv, 253 pp., illus. \$59.50. Cambridge Studies in Low Temperature Physics, vol. 2.

In 1965 A. B. Pippard published a collection of his notes under the title *The Dynamics of Conduction Electrons* and provided one of the first sensible discussions of the intricate behavior of conduction electrons in metals. For a generation of students that monograph served as a starting point for learning how the electronic structure of a metal determines the response of electrons to applied electric and magnetic fields. Now Pippard crisply and clearly summarizes what has happened in this discipline since his classic was written. Although the study of the magnetoresistance in pure metals is not usually considered to be in the forefront of research today, the lessons learned from it have often paved the way for the active research on the magnetoresistance and quantum effects in one- and two-dimensional systems that is now fashionable. This fact makes Pippard's book a valuable effort that should be well received by current researchers.

The study of the electrical conductivity tensor as a function of an applied magnetic field, the magnetoresistance of a metal, forms the unifying theme for the book. The various topics discussed adequately represent the wide variety of physical effects that occur when an electric current passes through a metal cooled to liquid-helium temperatures and subjected to an applied magnetic field. The book gives strong emphasis to the interpretation of the magnetic-field-dependent changes in the conductivity tensor in terms of the underlying electronic structure and scattering mechanisms of electrons in metals. It nicely illustrates the change in emphasis from the early exactly solvable, analytical models of magnetoresistance developed by Wilson and the efforts of later investigators to interpret experimental data based on models for the electronic structure of real metals. The book discusses many of the classic problems in the magnetoresistance of bulk metals and analyzes their current status.

After presenting the obligatory treatment of the basic principles for the study of the electrical conductivity tensor, Pippard devotes an excellent chapter to experimental technique. This chapter is a valuable collection of examples that illustrate how wrong things can go when a measurement of the voltage drop across a metallic sample at low temperatures is attempted. The book gives adequate coverage to magnetoresistance ef-

fects in real metals and provides the required coverage of relevant Fermi surface details. It discusses the quantum theory of magnetoresistance in a coupled orbit network and reviews the status of this challenging problem. The coupled orbit network is a good example of a traditional (and still unresolved) problem in which the quantum state of the electron is delocalized over a periodic, two-dimensional array of orbits that (in the fully coherent limit) are connected by magnetic breakdown effects. Fundamental questions regarding the flux quantization in such a network and the resulting fractal energy band structure are nicely illustrated. Pippard also reviews the interesting case of potassium but makes no serious effort to include recent evidence from outside the realm of magnetoresistance that supports the charge-density wave model for the ground state in this metal. A topic of current interest, the magnetoresistance in small wires and rings, receives only limited attention. No discussion of magnoresistance effects in semiconductors or a two-dimensional electron gas is attempted. The book contains a list of references that will introduce the reader to a few germane articles on any given topic but that is far from complete and emphasizes the work of the Cambridge group.

Pippard succeeds in producing a readable summary of his efforts to understand the behavior of the magnetoresistance in metals. His analysis coupled with his physical insight makes the book enjoyable reading even when one thinks one knows what the outcome of any of its discussions will be. It will no doubt serve as the traditional introduction to the topic until another author with talents comparable to Pippard's devotes attention to this subject.

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## Books Received

**The Community of Science in Europe.** Preconditions for Research Effectiveness in European Community Countries. Mark N. Franklin. Gower, Brookfield, VT, 1988. xii, 359 pp., illus. \$58.95.

**Computer-Aided Analysis and Design of Electromagnetic Devices.** S. Ratnavejan H. Hoole. Elsevier, New York, 1989. xiv, 497 pp. \$39.95.

**Computer-Assisted Modeling of Receptor-Ligand Interactions.** Theoretical Aspects and Applications to Drug Design. Robert Rein and Amram Golombek, Eds. Liss, New York, 1989. xxviii, 512 pp., illus. \$96. Progress in Clinical and Biological Research, vol. 289. From a conference, Eilat, Israel, April 1988.

**Computer Simulation in Brain Science.** Rodney M. J. Cotterill, Ed. Cambridge University Press, New York, 1989. xvi, 566 pp., illus. \$65. From a meeting, Copenhagen, Denmark, April 1986.

**Computers, Brains and Minds.** Essays in Cognitive Science. Peter Sleazak and W. R. Albury, Eds. Kluwer, Norwell, MA, 1988. x, 255 pp., illus. \$67. Australasian

Studies in History and Philosophy of Science, vol. 7. From a symposium, Sydney, Australia, 1985.

**Confirmation Learning Theory.** Raymond E. Hartley and Carl D. Williams. Lang, New York, 1989. x, 409 pp., illus. \$50.50. American University Studies 8, vol. 12.

**Continua with Microstructure.** G. Capriz. Springer-Verlag, New York, 1989. x, 92 pp. \$49. Springer Tracts in Natural Philosophy, vol. 35. From a lecture series, Ravello, Italy, 1986.

**Controlled Release of Drugs.** Polymers and Aggregate Systems. Morton Rosoff. VCH, New York, 1989. xii, 315 pp., illus. \$65.

**The Correspondence of Charles Darwin.** Vol. 4, 1847-1850. Frederick Burkhardt and Sydney Smith, Eds. Cambridge University Press, New York, 1989. \$37.50.

**Critical Factors in Haemostasis.** Evaluation and Development. C. E. Williams *et al.*, Eds. Horwood, Chichester, U.K., and VCH, New York, 1989. xii, 285 pp., illus. \$137. Ellis Horwood Series in Biomedicine.

**Development of the Vertebrate Retina.** Barbara L. Finlay and Dale R. Sengelaub, Eds. Plenum, New York, 1989. xx, 287 pp., illus. \$59.50. Perspectives in Vision Research. From a conference, Ithaca, NY, June 1987.

**A Dictionary of Ethology.** Klaus Immelmann and Colin Beer. Harvard University Press, Cambridge, MA, 1989. xvi, 336 pp., illus. \$35. Translated from the German edition (Berlin, 1982).

**The Ecology of Australia's Wet Tropics.** R. L. Kitching, Ed. Published for the Ecological Society of Australia by Beatty, Chipping Norton, New South Wales, 1988. vi, 326 pp., illus. \$53. Proceedings of the Ecological Society of Australia, vol. 15. From a symposium, Brisbane, Australia, Aug. 1986.

**Health Policies and Black Americans.** David P. Willis, Ed. Transaction, New Brunswick, NJ, 1989. vi, 531 pp. Paper, \$19.95. Reprinted from *The Milbank Quarterly*, vol. 65, supplement 1 (1987).

**High-T<sub>c</sub> Superconductors.** Harald W. Weber, Ed. Plenum, New York, 1988. xii, 363 pp., illus. \$79.50. From a meeting, Salzburg, Austria, Feb. 1988.

**International Handbook of Pollution Control.** Edward J. Kormondy, Ed. Greenwood, Westport, CT, 1989. xviii, 466 pp. \$85.

**Introduction to Crystal Chemistry.** Student Edition. Howard W. Jaffe. Cambridge University Press, New York, 1988. xii, 161 pp., illus. Paper, \$24.95. Reprinted from *Crystal Chemistry and Refractivity*, part I.

**An Introduction to Genetic Analysis.** David T. Suzuki *et al.* 4th ed. Freeman, New York, 1989. xiv, 768 pp., illus. \$39.95.

**Introduction to Plant Nematology.** Victor H. Dropkin. 2nd ed. Wiley-Interscience, New York, 1989. xii, 304 pp., illus. \$44.95.

**Introduction to Power Electronics.** Eiichi Ohno. Clarendon (Oxford University Press), New York, 1988. x, 290 pp., illus. \$95. Monographs in Electrical and Electronic Engineering, vol. 20.

**Introduction to the Optical Transfer Function.** Charles S. Williams and Orville A. Becklund. Wiley-Interscience, New York, 1989. xiv, 412 pp., illus. \$44.95. Wiley Series in Pure and Applied Optics.

**Introduction to the Practice of Statistics.** David S. Moore and George P. McCabe. Freeman, New York, 1989. xx, 790 pp., illus., + appendix. \$38.95.

**Inverse Problems in Quantum Scattering Theory.** K. Chadán and P. C. Sabatier. 2nd ed. Springer-Verlag, New York, 1989. xxxii, 499 pp. \$79. Texts and Monographs in Physics.

**Laser Chemical Processing for Microelectronics.** K. G. Ibbs and R. M. Osgood, Eds. Cambridge University Press, New York, 1989. x, 172 pp., illus. \$49.50. Cambridge Studies in Modern Optics, vol. 7.

**Manipulating Secondary Metabolism in Culture.** Richard J. Robins and Michael J. C. Rhodes, Eds. Cambridge University Press, New York, 1989. xii, 312 pp., illus. \$49.50. From a meeting, Norwich, U.K., Sept. 1987.

**The Materials Revolution.** Superconductors, New Materials, and the Japanese Challenge. Tom Forester, Ed. MIT Press, Cambridge, MA, 1989. xvi, 397 pp., illus. Paper, \$16.95.

**Mathematical Modeling in Ecology.** A Workbook for Students. Clark Jeffries. Birkhäuser Boston, Cambridge, MA, 1989. x, 193 pp., illus. \$49.50. Mathematical Modeling, no. 3.

**The Melancholy Anatomy of Plagiarism.** K. R. St. Onge. University Press of America, Lanham, MD, 1988. xii, 106 pp. \$24.75; paper, \$10.25.

**Model Discrimination for Nonlinear Regression Models.** Dale S. Borowiak. Dekker, New York, 1989. xiv, 177 pp. \$89.75. Statistics, vol. 101.

**The Multiplicity of Dreams.** Memory, Imagination, and Consciousness. Harry T. Hunt. Yale University Press, New Haven, CT, 1989. xii, 271 pp. \$27.50.

**Multivectors and Clifford Algebra in Electrodynamics.** Bernard Jancewicz. World Scientific, Teaneck, NJ, 1989. xiv, 316 pp., illus. \$63.

**Neuropeptides.** A Methodology. G. Fink and A. J. Harmar, Eds. Wiley-Interscience, New York, 1989. xvi, 345 pp., illus. \$99. IBRO Handbook Series, vol. 11.

**Nonlinear Evolution Equations and Painlevé Test.** W.-H. Steeb and N. Euler. World Scientific, Teaneck, NJ, 1988. x, 333 pp. \$54.

**Nuclear Endings.** Stopping War on Time. Stephen J. Cimbala. Praeger, (Greenwood), New York, 1989. xxiv, 295 pp. \$47.95.

**Oceanography.** An Introduction. Dale E. Ingman and William J. Wallace. 4th ed. Wadsworth, Belmont, CA, 1989. xiv, 511 pp., illus. \$39.25.

**Organizational Ecology.** Michael T. Hannan and John Freeman. Harvard University Press, Cambridge, MA, 1989. xvi, 366 pp., illus. \$29.50.

**Owls of the Northern Hemisphere.** Karel H. Voots. MIT Press, Cambridge, MA, 1989. 320 pp., illus. \$55.

**Packet Switched Networks.** Theory and Practice. Richard Barnett and Sally Maynard-Smith. Sigma, Wiltshire, U.K., and Halsted (Wiley), New York, 1989. viii, 274 pp., illus. \$39.95.

**Parallel Models of Associative Memory.** Geoffrey E. Hinton and James A. Anderson, Eds. 2nd ed. Erlbaum, Hillsdale, NJ, 1989. x, 339 pp., illus. \$49.95; paper, \$19.95. The Cognitive Science Series.

**Particle Physics in the Cosmos.** Readings from *Scientific American Magazine*. Richard A. Carrigan, Jr., and W. Peter 9. Trower, Eds. Freeman, New York, 1989. x, 228 pp., illus. Paper, \$9.95.

**Properties of Selected Ferrous Alloying Elements.** Y. S. Touloukian and C. Y. Ho, Eds. McGraw-Hill, New York, 1989. xviii, 268 pp., illus. \$80. CINDAS Data Series on Material Properties, vol. 3-1.

**Radon.** Risk and Remedy. David J. Brenner. Freeman, New York, 1989. xii, 225 pp., illus. \$17.95; paper, \$10.95.

**The Rational Infant.** Learning in Infancy. T. G. R. Bower. Freeman, New York, 1989. xii, 176 pp., illus. \$21.95; paper, \$13.95. A Series of Books in Psychology.

**Reactions and Movement of Organic Chemicals in Soils.** B. L. Sawhney and K. Brown, Eds. Soil Science Society of America and American Society of Agronomy, Madison, WI, 1989. xviii, 474 pp., illus. Paper, \$42. SSSA Special Publication no. 22. From a symposium, Atlanta, GA, Nov.-Dec. 1987.

**Regulatory Peptides.** J. M. Polak, Ed. Birkhäuser Boston, Cambridge, MA, 1989. xii, 406 pp., illus. \$168. *Experientia Supplementum*, vol. 56.

**Research and Development in Expert Systems V.** B. Kelly and A. L. Rector, Eds. Published for the British Computer Society by Cambridge University Press, New York, 1989. vi, 359 pp., illus. \$59.50. The British Computer Society Workshop Series. From a conference, Brighton, U.K., Dec. 1988.

**The Restless Sun.** Donat G. Wentzel. Smithsonian Institution Press, Washington, DC, 1989. xiv, 279 pp., illus. \$27.95. Smithsonian Library of the Solar System.

**Rock Engineering.** John A. Franklin and Maurice B. Dusseault. McGraw-Hill, New York, 1989. x, 600 pp., illus. \$62.50.

**75 Years of Scientific Thought.** Significant Readings from the Journal of the Washington Academy of Sciences. Committee on Scholarly Activities, Compilers. Washington Academy of Sciences, Arlington, VA, 1987. xii, 377 pp., illus. Paper, \$20.

**Sharks in Question.** The Smithsonian Answer Book. Victor G. Springer and Joy P. Gold. Smithsonian Institution Press, Washington, DC, 1989. 187 pp., illus. \$39.95; paper, \$15.95.

**Some Aspects of Poloron Theory.** N. N. Bogolubov and N. N. Bogolubov, Jr. World Scientific, Teaneck, NJ, 1988. viii, 122 pp. \$32; paper, \$18. World Scientific Lecture Notes in Physics, vol. 4.

**STATAL.** Statistical Procedures in Algol 60. R. van der Horst and R. D. Gill, Eds. Centrum voor Wiskunde en Informatica, Amsterdam 1988. 3 vols. Part 1, xviii pp. + pp. 1-200. Paper, Dfl. 33. CWI Syllabus 20. Part 2, iv pp. + pp. 201-398. Paper, Dfl. 30.40. CWI Syllabus 21. Part 3, iv pp. + pp. 399-626. Paper, Dfl. 35.40. CWI Syllabus 22.

**The Structure of Biological Theories.** Paul Thompson. State University of New York Press, Albany, 1989. x, 148 pp., illus. \$39.50; paper, \$12.95. SUNY Series in Philosophy and Biology.

**Urban Surface Water Management.** Stuart G. Welsh. Wiley-Interscience, New York, 1989. xx, 518 pp., illus. \$59.95.

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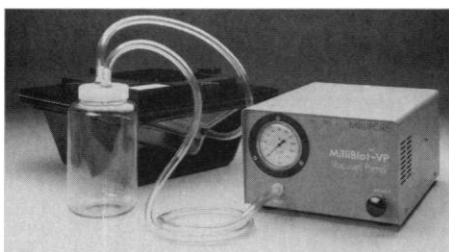
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## **Literature**

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The 1989-90 *Product Catalog* features 100 pages of bulk human proteins and enzymes. The catalog also includes reference tables listing molecular weights and absorbance values. Scripps Laboratories. Circle 433.

A complete line of high-performance detectors for gas chromatography is highlighted in an 8-page full-color brochure. Tracor Instruments. Circle 434.

The 1989 *Scienceware* catalog is a comprehensive sourcebook for every laboratory discipline. Its 140 pages list more than 4000 items, including wash bottles, test-tube racks, plasticware, pipettors, dispensers, and cleaning and safety equipment. Bel-Art Products. Circle 435.

Techne's 156-page catalog lists its line of constant-temperature equipment and other laboratory products. Techne. Circle 436.

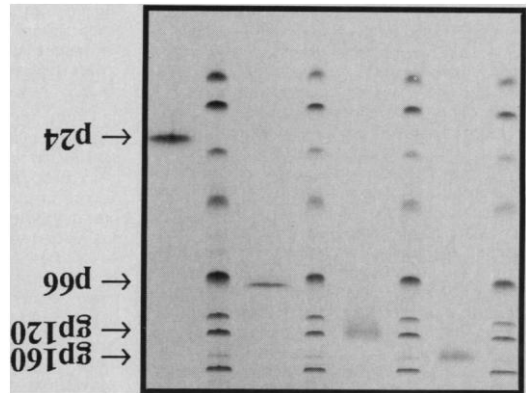
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Edited by Dr. Kenneth Sherman, Director,  
Narragansett Laboratory, National Oceanic and  
Atmospheric Administration, and  
Dr. Lewis M. Alexander, Director, Center for  
Ocean Management Studies, University of  
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Large marine ecosystems (LMEs) are being subjected to increasing stress from industrial and urban wastes, aerosol contaminants, and heavy exploitation of renewable resources. This book is a state-of-the-art review of effective means for measuring changes in populations and productivity, physical-chemical environments, and management options for LMEs. For the first time, this volume treats LMEs holistically as regional management units by bringing together the all too often fragmented efforts to optimize ocean resources. 319 pp., 1986.

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**Biostatistician/Computer Scientist,** clinical trials, medical decision-making, mathematical models, experimental design, grant preparation/administration, 70+ publications. Prefers academic position Texas or Northwest. Box 129, **SCIENCE**.

**Immunologist, Ph.D.** Senior scientist, project leader. Highly skilled in basic allergy research. Broad-based knowledge in all areas of immunology. Extensive experience in protein purification, receptor characterization, lymphocyte separation and characterization, hybridoma technology, immunoassays, rodent animal model. Established, productive researcher, good publication record, creative problem solver. Experience in graduate level teaching. Effective communication. Seeks responsible position in basic and clinical allergy research in upstart or established industrial sectors. Box 136, **SCIENCE**.

**Pharmacologist, Ph.D. (1984),** broad-based research experience in systemic, biochemical, and clinical pharmacology (neuro, cardiovascular and smooth muscle pharmacology, radioimmunoassay development, bioavailability and pharmacokinetics). More than fifty publications. Excellent references. Seeks opportunity in industry. Box 137, **SCIENCE**.

**Regulatory Scientist, Ph.D.** Black male Canadian. Ph.D. 1982 pharmacology, toxicology post-doc. NIEHS, USA. Risk analysis course, Harvard School of Public Health. Experience in evaluating toxicology data and writing criteria documents. Familiarity with concepts for risk assessment of chemical hazards. Strong analytical and report-writing skills. Seeks employment in environmental or occupational health and safety agencies. Box 131, **SCIENCE**.

## POSITIONS OPEN

### EMORY UNIVERSITY ASSISTANT/ASSOCIATE PROFESSORS IN MOLECULAR NEUROSCIENCE

Emory University is pleased to announce three new faculty positions in molecular neuroscience. Successful applicants will be appointed to tenured or tenure-track positions and will form the nucleus of a research group in molecular neuroscience in a new, endowed Center for Neuroscience Research. Each investigator will receive appropriate laboratory start-up funds and laboratory space in an attractive research facility. Emory University has a strong interdepartmental research and training program in neuroscience, with over 50 faculty members. Research interests range from molecular to behavioral neuroscience. Individuals at the mid-assistant to associate professor level who show unusual promise as research scientists are strongly encouraged to apply.

Please submit applications/nominations to: **The Molecular Neuroscience Search Committee, Emory University School of Medicine, Room 302 WHSCAB, 1440 Clifton Road NE, Atlanta, GA 30322.** Applications should include a complete curriculum vitae, a summary statement of research interests, and the names of three references. Applications will be reviewed as received until 30 January 1990, or until all positions are filled.

*An Affirmative Action/Equal Opportunity Employer*

## POSITIONS OPEN

### ACADEMIC POSITION BIOCHEMISTRY

**ASSISTANT PROFESSOR OF CHEMISTRY.** The Department of Chemistry of The University of Texas at Austin solicits applications for a tenure-track assistant professorship beginning September 1990, or possibly sooner. Candidates who have demonstrated exceptional ability in the area of biochemistry-molecular biology and promise in teaching should forward curriculum vitae, short descriptions of research plans, and three letters of reference by 15 October 1989, to: **Professor John C. Gilbert, Chairman, Department of Chemistry, The University of Texas at Austin, Austin, TX 78712.** *Equal Opportunity/Affirmative Action Employer.*

### AQUATIC ECOLOGIST

The Department of Biological Sciences of the University of Notre Dame seeks applicants for a tenure-track assistant professor position in aquatic or wetlands ecology for appointment in the fall of 1990. Research responsibilities include the development of an active and fundable research program in areas of aquatic biology that will complement and enhance those of present faculty. Possible research areas include: (i) physico-chemical limnology, nutrient cycling, planktonic interactions or microbial ecology; (ii) interactions among wetland plants or communities, wetland nutrient cycling or interactions between terrestrial and aquatic communities; and (iii) benthology, including biotic interactions or nutrient cycling among invertebrates, fish, macrophytes or periphyton. Teaching responsibilities include one undergraduate and one graduate course each year, possibly including undergraduate courses in general ecology, biostatistics or participation in the teaching of general biology, and graduate-level courses in population, community, or ecosystem ecology. Special strengths of the Department, in addition to aquatic ecology, are parasitology and insect vector biology. Modern laboratory and exceptional computer facilities, and the 2800-hectare University of Notre Dame Environmental Research Center, a protected study area with over 20 lakes in the Upper Peninsula of Michigan, provide unique opportunities for aquatic research.

Submit curriculum vitae, list of publications, names of three referees, and statement of teaching and research interests to: **Dr. Robert P. McIntosh, Chairman, Search Committee, Department of Biological Sciences, University of Notre Dame, Notre Dame, IN 46556** by 1 October 1989. *Qualified women and minority group candidates are encouraged to apply.*

**ASSISTANT PROFESSOR IN IMMUNOLOGY—** The University of Tennessee College of Medicine offers an exciting opportunity for a board eligible/certified allergist (M.D.) and/or immunologist (Ph.D.) to participate in the Division of Allergy and Immunology. Activities include patient care, teaching of residents, medical/graduate students, clinical/research fellows, as well as clinical or basic research. The research candidate must possess postdoctoral experience in cellular and molecular immunology with some molecular biology experience. Outstanding opportunity for the right individual. *The University of Tennessee is an Equal Employment Opportunity Employer.* All interested candidates may send curriculum vitae and three letters of reference to: **T. J. Yoo, M.D., Ph.D., University of Tennessee, Memphis, Department of Medicine, Division of Allergy and Immunology, 956 Court, Room H-300, Memphis, TN 38163.** Telephone: 901-528-6663.

**ASSISTANT/ASSOCIATE PROFESSOR,** Unit for Laboratory Animal Medicine and the Department of Microbiology and Immunology, University of Michigan, Ann Arbor, jointly seek a scientist for a tenure-track appointment. The successful applicant will establish an independent research program applying molecular/cellular approaches to the pathogenesis of infectious diseases. The position entails active participation in teaching graduate and medical students and veterinary postdoctoral fellows. Salary support, a well-equipped laboratory and start-up funds will be provided. Send curriculum vitae, a brief statement of research interests, and names and addresses of three references by 15 October 1989 to: **Bennett J. Cohen, D.V.M., Ph.D., Chairman ULAM/Microbiology Search Committee, Unit for Laboratory Animal Medicine, University of Michigan, Ann Arbor, MI 48109-0614.** *The University of Michigan is an Equal Opportunity/Affirmative Action Employer.*



## POSITIONS OPEN

### ASSISTANT PROFESSOR AQUACULTURE SPECIALTY

Tenure-leading position will devote 75% time to develop and implement an extension program in aquaculture for extension agents, producers and potential producers, agribusiness personnel, and others interested in aquaculture. The objective of this program is to facilitate the development of an aquaculture industry in Nebraska. Will provide liaison between the University, other relevant state agencies and industry on aquaculture matters, and will serve as the University's contact for the North Central Regional Aquaculture Center. Will spend 25% time to develop a research program that addresses fish production problems relevant in Nebraska and the North Central Region. Expected to obtain external funding to support a portion of the research program. Requires Ph.D. in aquaculture, fisheries, or closely-related area. Candidates with practical experience in culture techniques for cold and/or cool water fishes will be given preference. Demonstrated ability for effective oral and written communication is a requirement. Send letter of application, complete résumé, transcripts, and arrange to have letters sent from three references postmarked by 15 September 1989 to:

**Dr. Gary L. Hergenrader, State Forester and Head  
Department of Forestry, Fisheries and Wildlife  
University of Nebraska-Lincoln  
101 Plant Industry Building  
Lincoln, NE 68583-0814**

*Affirmative Action/Equal Opportunity Employer*

**ASSISTANT (R3) OR ASSOCIATE (R4) ENTOMOLOGIST/PROFESSOR.** 100%, tenurable. Develop and conduct program basic and applied research in genetics to control tephritid fruit flies; teach graduate-level course in area of specialty. Minimum qualifications for R3: Ph.D. in biology, entomology, genetics, or related field; experience in basic and applied insect genetic research; ability to develop a strong research program as indicated by publication record and extramural grant support; experience with classical genetics and biotechnology techniques, and in statistical analyses used in entomological and genetic research. Minimum qualifications for R4: same as R3 plus 4 years of experience at the R3 level or equivalent. Desirable qualifications for both ranks: Postdoctoral/other experience in basic and applied genetics of tephritid fruit flies; university-level teaching experience. Send application letter, statement of career goals, curriculum vitae, academic transcript, reprints of most significant publications (four maximum), and arrange for three letters of recommendation to be sent by 30 September 1989 to: **Dr. M. L. Goff, Entomology Department, University of Hawaii, 3050 Maile Way, Honolulu, HI 96822.** *Equal Opportunity/Affirmative Action Employer.*

**BIOLOGICAL SCIENCE LABORATORY COORDINATOR** position: A multi-year grant from the Howard Hughes Medical Institute for Undergraduate Biological Sciences Education Initiatives will provide funds for appointment of a Lecturer in Biological Sciences. As a part of reorganization in biological sciences at Rice, traditional biology and biochemistry courses will be restructured into a combined curriculum. Current laboratory offerings will be changed to a modular format with laboratory units of different lengths on various topics. The Lecturer will assist in development and coordination of new and existing laboratory exercises, develop new approaches to laboratory education utilizing video and computer teaching techniques, aid in integrating the new curriculum, and with other aspects of the Hughes project. Requirements include a Ph.D. in biological sciences and some educational experience. A background or strong interest in use of computers and video techniques in education is an essential aspect of the post. This position is open to a variety of applicants including recent graduates, faculty members near retirement or desiring extended sabbatical leaves, or mid-career educators. The length of appointment of this non-tenure-track position can be flexible, but only a 2-year initial commitment can be made. Salary will be commensurate with experience. Interested individuals should submit curriculum vitae, summary of teaching experience, and the names of three references to: **Dr. Frederick B. Rudolph, Department of Biochemistry and Cell Biology, Rice University, P.O. Box 1892, Houston, TX 77251.** *Rice University is an Equal Opportunity/Affirmative Action Employer.*

## POSITIONS OPEN

The Department of Microbiology, University of Minnesota, invites applications for a tenure-track position at the **ASSISTANT PROFESSOR** level available 1 April 1990. Candidates are expected to develop independent research programs in the general area of molecular pathogenesis, immunology and virology and to obtain extramural support; to develop and teach graduate/undergraduate courses in relevant areas; to supervise and train Ph.D. students, and to participate in appropriate departmental and collegiate activities. Candidates will have the Ph.D. or M.D. degree and at least 2 years of postdoctoral experience. Closing date for receipt of applications is 31 December 1989, but earlier applications are encouraged and will be considered promptly.

Candidates should submit curriculum vitae, summary of research interests, and the names of three referees to: **Peter Southern, Ph.D., Chairman of the Search Committee, Department of Microbiology, University of Minnesota Medical School, Box 196 UMHC, 420 Delaware, S.E., Minneapolis, MN 55455.**

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

### SPELMAN COLLEGE

Spelman College invites applications for an **ASSISTANT/ASSOCIATE PROFESSOR OF BIOLOGY**. The position is available immediately. Candidates should hold the Ph.D. degree and have a strong background in molecular biology and/or cell biology. The position involves teaching an upper-level course in molecular cell biology and an introductory biology course. Curriculum vitae and three letters of recommendation should be sent to: **Ms. Jacqueline Pollard, Spelman College, 350 Spelman Lane, S.W., Box 1133, Atlanta, GA 30314-4399.**

*Spelman College is an Equal Opportunity Employer.*

**ASSISTANT OR ASSOCIATE PROFESSOR OF MEDICINE** position, in the Cancer Prevention and Hematology/Oncology Section, Arizona Cancer Center. The Cancer Prevention Program, Arizona Cancer Center and the Section Hematology/Oncology, Department of Medicine, University of Arizona College of Medicine, is recruiting a tenure-track faculty member at the Assistant or Associate Professor level. This person must have an M.D. degree, training in hematology or medical oncology and a background in basic molecular virology and/or biology. The new faculty member will participate in the Cancer Prevention and Control Program both clinically and academically and will have a Cancer Prevention Research Laboratory with 500 square feet, equipment and facilities compatible with a molecular virology and/or biology program. A laboratory research assistant and supply support will be provided by the Arizona Cancer Center for up to 2 years. Salaries will be commensurate with the level of experience and academic record. Applications will be accepted until 30 December 1989.

*The University of Arizona College of Medicine and the Arizona Cancer Center are Equal Opportunity Employers. Minority applicants are especially encouraged to apply. Interested physicians should write to:*

**David S. Alberts, M.D.  
Arizona Cancer Center  
1515 North Campbell Avenue  
Tucson, AZ 85724**

Please enclose curriculum vitae and three letters of recommendation for **Dr. Alberts'** review.

### BIOMEDICAL/BIOLOGICAL SCIENTIST

Lockheed Engineering and Sciences Company is seeking a Biomedical/Biological Scientist to perform high-level technical/scientific analysis of Life Sciences programs and projects related to the Space Program. Graduate-level scientific degree desirable in the biomedical/biological research field with a minimum of 9 years of experience in a life sciences-related environment. Industrial experience required. Project Management experience desirable. Send your résumé to:

**Lockheed Engineering and Sciences Company  
7500 Greenway Center Drive  
Suite 900  
Greenbelt, MD 20770  
Attention: S. Seiss, telephone: 301-982-5500**

*Equal Opportunity Employer/Affirmative Action Employer  
M/F/V/H.*

## POSITIONS OPEN

**ASSISTANT PROFESSOR—NEUROPHARMACOLOGY/NEUROTOXICOLOGY.** The Department of Pharmacology, Toxicology, and Therapeutics at the University of Kansas Medical Center invites applications for a tenure-track position for a neuropharmacologist or neurotoxicologist. The applicant must have an appropriate Ph.D. or an M.D., with 2 years or more of relevant postdoctoral experience. The successful candidate will be expected to establish an independent research program and to contribute to the teaching of graduate and medical students. Primary appointment will be in this department, but additional affiliation with the Center for Environmental and Occupational Health and the Mental Retardation Research Center is possible. Applications should be received by 1 November 1989. Applicants should send curriculum vitae, a short summary of research plans, and the names of three references to: **Dr. Gregory A. Reed, Department of Pharmacology, Toxicology and Therapeutics, University of Kansas Medical Center, Kansas City, KS 66103.** *The University of Kansas is an Affirmative Action/Equal Opportunity Employer.*

### ASSISTANT PROFESSOR PHARMACOLOGY TEXAS TECH UNIVERSITY HEALTH SCIENCES CENTER

The Department of Pharmacology of the Texas Tech University Health Sciences Center in Lubbock is seeking candidates for a tenure-track position at the assistant professor rank. The position is available immediately. Qualifications include the Ph.D. degree, preferably in pharmacology or a related biomedical science, with at least 2 years of postdoctoral training. Candidates will be expected to conduct an active, independent, and productive research program and to be persistent in seeking and obtaining research funding. *Applicants must be U.S. citizens or have U.S. permanent residence status.* Applications should include curriculum vitae and three names for reference purposes and should be sent prior to 15 September 1989, to: **Dr. Alexander D. Kenny, Chairman, Department of Pharmacology, Texas Tech University Health Sciences Center, Lubbock, TX 79430.** *An Equal Opportunity/Affirmative Action Employer.*

### GLYCOBIOLOGY UNIT DEPARTMENT OF BIOCHEMISTRY UNIVERSITY OF OXFORD BIO-ORGANIC MASS SPECTROMETRIST BC/304

The Glycobiology Unit is seeking a bio-organic mass spectrometrists with experience in the structural characterization of biomolecules, especially complex carbohydrates, to supervise the mass spectrometry facility within the unit. The successful candidate must have extensive experience with sector instruments, as he/she will be responsible for the selection and purchase of a state-of-the-art, high-mass instrument with array detection, and for the operation and routine maintenance of the instrument when it is installed. Experience in GC-MS analysis of carbohydrates using quadrupole instruments would also be advantageous. Collaboration with other members of the Unit in the structural characterization of complex carbohydrates, and development of new methods for the application of mass spectrometry to the characterization of biomolecules will be expected. At least 2 years of relevant postdoctoral experience is essential, as the appointment will be made at a level at least commensurate with that of a junior lecturer. There will be the option of participating in the teaching programme within the Department of Biochemistry. Salary will be on the scale of £10,458 to £16,665 per annum, depending upon experience. The appointment will be available for 5 years in the first instance with the possibility of renewal. Applications, which should include a full curriculum vitae and the names of two or three references, should be sent to: **The Administrator, Department of Biochemistry, University of Oxford, South Parks Road, Oxford OX1 3QU, England.** *An Equal Opportunity Employer.*

## POSITIONS OPEN

### BLOOD RESEARCH POSITIONS

Federal Service, Letterman Army Institute of Research, San Francisco, California, is seeking: (i) Ph.D.-level **BIOCHEMIST OR PHYSIOLOGIST** to conduct research in the development of oxygen-carrying blood substitutes to include hemoglobin structure, function, modification, physiologic and metabolic properties, (ii) a **BIOMEDICAL ENGINEER** with experience in process design and implementation and laboratory automation to join a research team engaged in the production of hemoglobin-based oxygen-carrying blood substitutes. *Must be a U.S. citizen.* Send curriculum vitae to: **Robert M. Winslow, M.D., Letterman Army Institute of Research, Presidio of San Francisco, CA 94129. An Equal Opportunity Employer.**

### CANCER INFORMATION SCIENTIST

Tired of the pressure to publish or perish? There is a way to avoid it while still keeping abreast of the latest research. A small, rapidly expanding company specializing in information science is seeking an M.D. or Ph.D. to screen and evaluate cancer research publications. Familiarity with cancer immunology advantageous, but not essential. Reply with curriculum vitae to: **Information Ventures, Inc., 1500 Locust Street, Suite 3216, Philadelphia, PA 19102.**

### CELLULAR ENDOCRINOLOGIST UNIVERSITY OF ARIZONA

The Departments of Physiology and Obstetrics and Gynecology (ObGyn) are jointly seeking a tenure-track assistant professor. Preference will be given to applicants with research expertise in reproductive biology, using the techniques of molecular biology, and teaching expertise in systems endocrinology. The tenure-line will be in physiology, although a primary appointment in ObGyn would be considered under exceptional circumstances. Successful candidates should have postdoctoral experience and must document their potential to develop an independent research program in reproductive biology. The development of research interactions with relevant colleagues in ObGyn is essential and university-wide interactions are encouraged. Teaching responsibilities will include formal lectures on cellular and systems endocrinology to first-year medical students, tutorials with ObGyn residents, and participation in a university-wide Ph.D. program in the physiological sciences. Submit curriculum vitae and have three supporting letters sent to: **Dr. Stephen Wright, Cellular Endocrinologist Search Committee, Department of Physiology, College of Medicine, University of Arizona, Tucson, AZ 85724.** To ensure consideration, applications should be submitted by 31 October 1989; however, applications will be accepted until the position is filled. *The University of Arizona is an Equal Opportunity/Affirmative Action Employer and applications from females and minority group members are strongly encouraged.*

### CHAIRPERSON DEPARTMENT OF METEOROLOGY UNIVERSITY OF MARYLAND, COLLEGE PARK

Nominations and applications are invited for the position of Chairperson of the Department of Meteorology at the University of Maryland at College Park. Since the previous search, the state has mandated the enhancement of the College Park campus to make it into the flagship campus of the University System. The chairperson will be expected to contribute to this enhancement by attracting high-quality faculty for additional tenure-track and tenure positions, by providing imaginative leadership, and by promoting the department in the emerging national and international atmospheric and oceanographic science programs. The candidate should possess a doctoral degree and a record of excellence in scholarly achievements.

Applications should be accompanied by curriculum vitae and the names of four references. Send to: **Dr. Donat G. Wentzel, Meteorology Chair Search Committee, Astronomy Program, University of Maryland, College Park, MD 20742.** To be assured of full consideration, applications should be received by 15 October 1989. *Equal Opportunity Employer/Affirmative Action Employer. Women and minority candidates are encouraged to apply.*

## POSITIONS OPEN

### CELLULAR PHYSIOLOGIST/ PHARMACOLOGIST UNIVERSITY OF ARIZONA

The Departments of Physiology and Pharmacology are jointly seeking a tenure-track assistant professor. Preference will be given to applicants with teaching expertise in gastrointestinal (GI) physiology and research expertise in gastrointestinal biology, using quantitative microscopy and imaging techniques or other equivalent state-of-the-art techniques. The tenure-line will be in physiology, although a primary appointment in pharmacology will be considered. Successful candidates should have postdoctoral experience and must document their potential to develop an independent research program and to interface effectively between physiology and pharmacology. University-wide collaborations and interactions are also encouraged. The primary teaching responsibility will be teaching and coordinating the GI section of the first-year medical student course in human physiology. Additional graduate-level teaching is expected through participation in the Physiological Sciences and Pharmacology-Toxicology graduate training programs. Submit curriculum vitae and have three supporting letters sent to: **Dr. Janis M. Burt, Cellular Physiologist/Pharmacologist Search Committee, Department of Physiology, College of Medicine, University of Arizona, Tucson, AZ 85724.** To ensure consideration, applications should be submitted by 31 October 1989; however, applications will be accepted until the position is filled. *The University of Arizona is an Equal Opportunity/Affirmative Action Employer and applications from females and minority group members are strongly encouraged.*

### CHEMICAL OCEANOGRAPHER

The Atlantic Oceanographic and Meteorological Laboratory (AOML) of the National Oceanic and Atmospheric Administration (NOAA), Department of Commerce is seeking applicants for a position as a chemical oceanographer with a working knowledge of the biogeochemistry of carbon cycling in the ocean as it relates to atmosphere/ocean exchange of carbon dioxide. The incumbent will be based at AOML in Miami, Florida and conduct research within that laboratory as well as in various field programs, including cruises to remote ocean areas. The position is a career appointment, initially at the GS-12 level with a starting salary of \$34,580 per annum.

The incumbent will be responsible for developing a research component at AOML on the oceanic aspects of atmospheric/ocean carbon dioxide exchange. This research will be cooperative with other NOAA research units, as well as academic scientists, within NOAA's Climate and Global Change research effort. Qualifications include, but are not limited to, a strong chemical background with broad expertise in oceanography. Of particular importance is a demonstrated expertise in the biogeochemistry of carbon cycling in the ocean and the carbon dioxide/bicarbonate/carbonate system, especially as it relates to exchange of carbon between the atmosphere and the surface ocean and between the surface and deep ocean. The incumbent will be expected to publish research findings in the refereed literature. A graduate degree at the doctoral level, or equivalent experience in ocean science is desired.

For information as to how to apply, contact: **Andrew Hicks, Central Administrative Support Center, Personnel Division, Federal Building, Room 1747, 601 East 12th Street, Kansas City, MO 64106, telephone: 816-374-7468.** Reference vacancy CASC/ERL 89-208. For information about the research situation, contact: **Dr. Donald K. Atwood, NOAA/AOML, 4301 Rickenbacker Causeway, Miami, FL 33149. Telephone: 305-361-4374.**

**CLINICAL RESEARCH FELLOWSHIP IN SUBSTANCE ABUSE.** The Department of Psychiatry, Yale University School of Medicine, offers a 2-year, NIDA-funded postdoctoral program to train M.D.'s and Ph.D.'s for academic/research careers in substance abuse. Program combines supervised clinical experience with course work in research methodologies, mentoring by a faculty preceptor, participation in on-going research, and development of an independent research project. Available 1 September 1989. Send curriculum vitae and a brief description of research interests and relevant clinical activities to: **Thomas R. Kosten, M.D., Department of Psychiatry, Yale School of Medicine, 27 Sylvan Avenue, New Haven, CT 06519. Telephone: 203-785-0705.**

National Institutes of Health  
Public Health Service  
Department of Health and  
Human Services

### Associate Director, Epidemiology, Demography, and Biometry Program (EDBP)

The National Institute on Aging (NIA) invites nominations and applications for the position of **Associate Director, Epidemiology, Demography, and Biometry Program (EDBP).** This is a Civil Service position in the Senior Executive Service with a salary range of \$68,700 to \$76,400 per annum. The person selected may be eligible for Physician's Comparability pay up to \$20,000 per year. A one-year probationary period must be served by the individual selected if not currently in the Senior Executive Service.

The Associate Director, EDBP, provides technical and administrative direction and leadership to the Institute's research program in epidemiology, demography, and biometry; and serves as the focal point within the Federal sector, the scientific community, and the public for these activities.

Candidates must meet the minimum educational requirements for Medical Officer, GS-602, Epidemiologist, GS-601, or Statistician, GS-1530 (or equivalent combination of experience and training), as defined by the U.S. Office of Personnel Management Handbook X-118, Qualification Standards for Positions under the General Schedule, which is available in Federal Personnel Offices and Federal Job Information Centers. Further information about the position and qualifications requirements may be obtained by contacting Mr. Michael P. Lockard at 301-496-5347. An Application for Federal Employment (SF-171), accompanied by a current curriculum vitae and bibliography, should be submitted to:

**NIA Personnel  
Building 31, Room 2C11  
National Institutes of Health  
9000 Rockville Pike  
Bethesda, Maryland 20892**



**APPLICATION MUST  
BE POSTMARKED  
NO LATER THAN  
OCTOBER 2, 1989.**

SELECTION FOR THIS POSITION WILL BE BASED SOLELY ON MERIT, WITH NO DISCRIMINATION FOR NON-MERIT REASON SUCH AS RACE, COLOR, RELIGION, SEX, NATIONAL ORIGIN, POLITICS, MARITAL STATUS, PHYSICAL HANDICAP, AGE, OR MEMBERSHIP OR NON-MEMBERSHIP IN AN EMPLOYEE ORGANIZATION.

**NIH IS AN EQUAL OPPORTUNITY EMPLOYER**

IMMUNEX RESEARCH AND DEVELOPMENT CORPORATION, a Seattle-based biopharmaceutical company committed to research and development for treating diseases related to malfunctions in the immune system, has openings as a result of an expansion in our research activities. We are recruiting:

## Staff Scientists & Postdoctoral Fellows

with experience in the following areas:

### Process Development/ Biochemical Engineering

Successful candidates will work on purification, scale-up, and refolding of recombinant proteins expressed in microbial and mammalian cell hosts. Additional positions are available for work on protein characterization and formulation. A background in biochemical engineering, biochemistry or protein chemistry is preferred.

### Mammalian Cell Gene Transfer and Expression

Scientists are sought with experience in the use of mammalian cells to produce recombinant proteins and in the development of novel gene transfer and expression vectors for mammalian cells. A background in virology, somatic cell genetics or molecular biology is preferred. Experience with different gene transfer/expression strategies or in maximizing gene expression through selection or amplification is desirable.

### Molecular Biology of Cytokines and Cytokine Receptors

Researchers are needed with an interest in the molecular biology of cytokines and their receptors. The positions provide the opportunity to develop novel cloning strategies for these immunoregulatory molecules. Experience in a broad variety of molecular biology techniques, particularly cDNA cloning, is essential.

### Bacterial Recombinant Protein Expression Systems

A molecular biologist is required with interest in the design and optimization of microbial expression systems for the synthesis of recombinant proteins. A strong background in molecular biology is essential. Experience in vector design and genetic manipulation of bacterial host strains is highly desired. Knowledge of bacterial physiology, fermentation processes, and downstream processing would be advantageous.

### Recombinant Protein Microbial Fermentation

A microbiologist or chemical engineer is required for the optimization and development of fermentation processes conducive to the expression of recombinant proteins in yeast and bacteria. Successful candidates should have a working knowledge of microbial fermentation systems, experience in the area of media optimization, and a knowledge of microbial physiology.

Immunex Research and Development Corporation offers excellent opportunities for career development as well as competitive salaries and an excellent benefits package. For consideration, please submit CV., names of three references, and list of publications to: **Immunex Research and Development Corporation, Human Resources Director, 51 University Street, Seattle, WA 98101. EOE.**

**IMMUNEX**

## HYDROGEOLOGIST

The Environmental Restoration Program Technical Support Office (ER TSO) at Los Alamos National Laboratory is seeking a hydrogeologist to provide leadership and professional direction in hydrology and geology as part of a multidisciplinary team. ER TSO is responsible for implementation and/or oversight of environmental restoration activities at eight DOE Albuquerque operations office installations. You will direct, coordinate and oversee field investigations at old, potentially contaminated (radioactive and/or hazardous chemical) waste sites. Duties will also include technical review of geophysical, hydrological and geological information as it pertains to site characterization and/or remediation under state/federal regulations. You will perform assessments of current subsurface structures and contaminant plumes in both saturated and unsaturated systems, as well as provide peer review of ER Program reports, prepare written input to such reports and publish data as appropriate.

Candidates must have demonstrated experience and competency in dealing with state/federal environmental regulatory agencies within RCRA/CERCLA/SARA arena. Extensive experience in characterization, evaluation and/or correction of environmental problems emphasizing an integrated approach to evaluating, interpreting and managing hazardous waste sites is also required. You must also have demonstrated experience in technical review of geophysical, hydrological and geological information as it pertains to waste site characterization and/or remediation and in the area of contaminant migration in saturated and unsaturated zones. You must be familiar with and be able to use personal computers, have excellent oral/written communication skills and have knowledge of DOE weapons complex. A Master's degree or the equivalent combination of relevant education and experience in hydrology or the geophysical sciences is required. You must also have a strong educational background or demonstrated experience in hydrological assessment and migration prediction analysis.

To formally apply, submit detailed resume to Portia Blackman (MS P280), Personnel Services Division 90603-DP, Los Alamos National Laboratory, Los Alamos, NM 87545.

Affirmative Action/Equal Opportunity Employer. Must be able to obtain a Department of Energy Security Clearance.

University of California

**Los Alamos**



## POSITIONS OPEN

### CHIEF OF ANATOMIC PATHOLOGY

The Harbor-UCLA Medical Center, one of the major affiliate teaching hospitals of UCLA School of Medicine, is seeking an academically oriented individual as Chief of Anatomic Pathology and Head of the Surgical Pathology Section in the Department of Pathology. Responsibilities include overseeing the general anatomical pathology division, supervising the surgical pathology section, and housestaff and medical student teaching. The position carries an academic appointment with the UCLA School of Medicine. Candidates must be Board-certified in anatomic pathology, have wide experience in surgical pathology, and be academically qualified for appointment as associate professor or professor. For consideration, send curriculum vitae to: **Hideo Itabashi, M.D., Chair, Search Committee, Department of Pathology, Harbor-UCLA Medical Center, 1000 West Carson Street, Torrance, CA 90509. An Equal Opportunity Employer.**

**CLINICAL/MOLECULAR MICROBIOLOGIST POSITION.** Mayo Clinic in the Bacteriology Laboratory, Department of Laboratory Medicine and Pathology. Incumbent will direct a special tests area in the clinical laboratory and be expected to develop applications of molecular biology to clinical diagnostic testing. Applicants must have a doctorate (M.D. or Ph.D.), appropriate postgraduate experience, and interact well with clinicians. Please send curriculum vitae and names of three references to: **George G. Klec, M.D., Ph.D., Chairman, Clinical Microbiology Search Committee, Division of Laboratory Medicine, Mayo Clinic, Rochester, MN 55905. An Equal Opportunity/Affirmative Action Employer.**

**ENVIRONMENTAL PATHOLOGY/NEUROTOXICOLOGY.** Postdoctoral positions available. Application of cellular and subcellular morphometric and neurochemical methods for assessing neurotoxic lesions in mammals, using a model of molecular injury by mercury or pesticides. Inquiries: **N. Karle Mottet, M.D., Program Director, Department of Pathology, SM-30, University of Washington, Seattle, WA 98195. U.S. citizen or permanent resident. Affirmative Action/Equal Opportunity Employer.**

**FACULTY POSITION: NUTRITION. RANK OPEN.** Tenure-track position, starting August 1990. Required: Ph.D. in nutrition, strong science background, interest and experience in human nutrition. Desirable research areas: vitamins or nutrition and physical fitness. Instruct undergraduates/graduates in nutritional science, secure research funding, and conduct research. Send application letter, transcripts, résumé, and addresses of three references by 6 November 1989 to: **Dr. Eleanor Williams, Department of Human Nutrition and Food Systems, University of Maryland, College Park, MD 20742. An Affirmative Action/Equal Opportunity Employer.**

### FACULTY POSITIONS WASHINGTON UNIVERSITY SCHOOL OF MEDICINE MOLECULAR BIOLOGY AND MOLECULAR IMMUNOLOGY

Full-time tenure-track appointments at the rank of assistant professor are available at the Washington University School of Medicine. Faculty with experience in molecular biology and molecular immunology are sought. Applicants should have a Ph.D. and/or M.D./Ph.D. with a minimum of 2 years of postdoctoral experience. Molecular biology candidates should have a research interest in either cell adhesion, cell migration, matrix formation, growth factors, or visual transduction. Molecular immunology candidates should have an interest in either cytokines/regulatory molecules, cell traffic, antigen presentation, microbes, tumors or autoimmunity. Applications should include the following: (i) curriculum vitae, (ii) bibliography and selected reprints or manuscripts, (iii) statement of research objectives and approaches proposed, and (iv) names and addresses of at least three people who can provide recommendations. Submit all materials to: **Dr. H. J. Kaplan, Chairman, Department of Ophthalmology and Visual Sciences, Washington University School of Medicine, 660 South Euclid Avenue-Box 8096, St. Louis, MO 63110. The Washington University School of Medicine is an Equal Opportunity/Affirmative Action Employer.**

## POSITIONS OPEN

The University of Pennsylvania, Mahoney Institute of Neurological Sciences: **FACULTY POSITION.** The Mahoney Institute of Neurological Sciences at the University of Pennsylvania invites applications and nominations for a tenure-track faculty position (assistant or associate professor level) in the general area of Computational Neuroscience. Candidates should be able to demonstrate excellence, originality and independence in research, as well as to have some experience in teaching.

The Mahoney Institute of Neurological Sciences is a University-wide interdepartmental unit that includes more than 90 faculty members and operates a Ph.D. program in neuroscience. The new faculty member will hold a joint appointment in the Institute and in one or more standing University departments.

Candidates should (by 1 December 1989) send curriculum vitae, a statement of current research interests, copies of recent relevant publications, and the names of three or more individuals willing to provide letters of reference to: **Professor George L. Gerstein, Computational Neuroscience Search, Department of Physiology, University of Pennsylvania, Philadelphia, PA 19104-6085. Equal Opportunity/Affirmative Action Employer.**

### FACULTY POSITION ALBERT EINSTEIN COLLEGE OF MEDICINE NUCLEIC ACID ENZYMOLOGY

The Department of Biochemistry at the Albert Einstein College of Medicine is seeking a tenure-track assistant professor interested in the enzymology of nucleic acid metabolism. Structure or mechanism of enzymes of nucleic acid replication, transcription, degradation, covalent modification or processing are of interest. Related areas are also of interest. Applicants should send a current curriculum vitae, the names of at least three references, a summary of ongoing research interests and a brief proposal of future research plans. Submit applications to: **Dr. Julius Marmur, Department of Biochemistry, Albert Einstein College of Medicine, 1300 Morris Park Avenue, Bronx, NY 10461. Applications will be reviewed beginning 1 November 1989. The Albert Einstein College of Medicine of Yeshiva University is an Equal Opportunity/Affirmative Action Employer.**

### FACULTY POSITIONS IN MOLECULAR PHARMACOLOGY

The Department of Pharmacology, University of Missouri-Columbia (UMC), invites applications for tenure-track positions at the assistant, associate, or full professor levels focusing on the application of molecular biology to analysis of significant problems in pharmacology. Research areas of interest include but are not limited to: structure, function and regulation of receptors, membrane transport proteins, and ion channels; molecular mechanisms of transmembrane signalling; and, actions of drugs, neurotransmitters and growth factors. Emphasis for one of the positions will be in the areas of neuropharmacology/CNS pharmacology. Successful candidates are expected not only to have a strong record of research accomplishments but also to participate in the teaching of medical and graduate students. Please send curriculum vitae, a brief description of research plans, and the names of three references to: **Dr. Hyun Dju Kim, Professor and Chairman, Department of Pharmacology, University of Missouri-Columbia, School of Medicine, M517B Medical Sciences Building, Columbia, MO 65212. An Equal Opportunity/Affirmative Action Employer.**

### IMMUNOLOGIST

The Division of Immunology of the Beckman Research Institute at the City of Hope is seeking an individual for either an **ASSISTANT OR ASSOCIATE SCIENTIST** position. The applicant should have a background in basic problems of immunology in human or murine systems, with an interest in a combined cellular and molecular approach to this research. Generous start-up support is provided, including competitive salary, laboratory space, and access to the instrumentation in the protein chemistry section of the Division. Interested applicants should forward their curriculum vitae, a statement of research interests and the names of three references to: **Dr. John Shively, Chairman, Division of Immunology, Beckman Research Institute of the City of Hope, 1450 East Duarte Road, Duarte, CA 91010.**

## POSITIONS OPEN

### FORENSIC SCIENTIST/DNA TRAINEE

The Genetics and IVF Institute, an internationally known genetics and reproductive medicine center located near Washington, D.C., is searching for an experienced forensic scientist to be trained in our molecular genetics unit for a supervisory position performing DNA-based identity testing. Master's level or advanced experience is required, but no DNA experience is necessary. Send résumé to: **Genetics and IVF Institute, Molecular Genetics Laboratory, 3020 Javier Road, Fairfax, VA 22031.**

### FULL PROFESSOR— ENVIRONMENTAL ANALYSIS AND DESIGN

The Program in Social Ecology at the University of California, Irvine, is recruiting a senior professor in the area of Environmental Analysis and Design. Candidates must have achieved international recognition for outstanding scholarship in one or more of the following fields: urban and regional planning, facility planning and environmental design research. Salary and benefits competitive with the best research universities.

The Program in Social Ecology grants B.A., M.A., and Ph.D. degrees. The 35 full-time faculty have multidisciplinary interests and include urban planners, architects, environmental health specialists, psychologists, sociologists, demographers, criminologists, and lawyers. The Program offers a Ph.D. concentration in Environmental Analysis and Design and M.A. concentrations in Urban and Regional Planning and Facility Planning and Management. The selected candidate will be expected to provide leadership in the development of these areas of the Program. The Social Ecology Building houses a full-scale environmental simulation laboratory, as well as environmental health and group dynamics laboratories.

Submit letter of application, curriculum vitae, and names of three references to:

**Dr. Daniel Stokols, Director  
Program in Social Ecology  
University of California, Irvine, CA 92717**

Closing date for applications is 15 December 1989. The University of California is an Equal Opportunity/Affirmative Action Employer.

**GRADUATE POSITIONS:** In aquatic and avian medicine, available immediately to study infectious diseases emphasizing any of the areas of bacteriology, virology, parasitology, immunology, or molecular biology. Graduate students earn an M.S. or Ph.D. in veterinary medical sciences. Generous stipends are available to qualified applicants. Applicants holding either a B.S., M.S., or D.V.M. degree are urged to apply. Interested individuals should request information and an application packet from: **Dr. A. Jerald Ainsworth, Coordinator-VMS Graduate Program, College of Veterinary Medicine, Drawer V, Mississippi State, MS 39762.**

### SEARCH REOPENED HEAD

### DEPARTMENT OF BIOLOGY COLLEGE OF ARTS AND SCIENCES VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Virginia Polytechnic Institute and State University invites applications for the position of Department Head in Biology, to begin 1 July 1990. The candidate must have a record of research achievement in any area of biology, be committed to the support of quality teaching at all levels, and have appropriate administrative experience. The Head will provide administrative leadership to build on established strengths in research and teaching in the land grant tradition. This diverse department has 43 faculty, 850 undergraduate majors, and 80 graduate students. It offers the B.S. in biology and the M.S. and Ph.D. in cellular and molecular biology, ecology, genetics, microbiology and immunology, physiology, and systematics and evolution. Submit application, curriculum vitae, and the names, addresses, and telephone numbers of four references by 15 October 1989 to: **Professor Duncan M. Porter, Biology Department, Virginia Polytechnic Institute and State University, Blacksburg, VA 24061-0406.**

We are an Equal Opportunity/Affirmative Action Employer.

## POSITIONS OPEN

### HISTOLOGY

Immediate opening for a **HISTOLOGY TECHNICIAN** with skills in electron microscopy in a neuroendocrinology laboratory. Position responsibilities include assisting with stereotaxic surgery, perfusing specimens, and running immunocytochemistry for localization of hypothalamic peptides. Experience in transmission electron microscopy with expertise in thin sectioning is required; no experience in immunocytochemistry is necessary. Please contact: **Ilene Granstein, Human Resources, Tufts University, 200 Harrison Avenue, Boston, MA 02111. Affirmative Action/Equal Opportunity Employer.**

### INSECT NEUROBIOLOGY FACULTY POSITIONS

The Arizona Research Laboratories Division of Neurobiology (ARLDN), a research unit devoted to cellular, developmental, and molecular neurobiology and neuroethology focusing on insects as experimental models, invites applications for two state-funded, tenure-track faculty positions. These appointments will involve research, teaching, and supervision of pre- and postdoctoral research students within the highly interdisciplinary and interactive environment of the ARLDN.

Disciplines and research areas to receive special attention in this search are:

1) **MOLECULAR NEUROBIOLOGY OR NEUROCHEMISTRY**—emphasizing molecular analysis of neural function or development in an insect system (e.g., *Drosophila* or *Manduca*) with the methods of molecular biology, gene cloning, biochemistry, etc.

2) **CELLULAR NEUROBIOLOGY**—emphasizing biophysical, pharmacological, or physiological studies of neuronal and synaptic development, function, or plasticity in an insect model.

Candidates should have a Ph.D. or equivalent degree, at least 3 years of postdoctoral research experience, and a demonstrated dedication to multidisciplinary, collaborative and independent research on the nervous system. *Women and members of minority groups are especially urged to apply.*

Qualified candidates at all faculty levels are encouraged to apply for these positions. Appointments will be effective in August 1990 or as soon thereafter as permitted by the availability of the successful candidates.

Applications should include a complete curriculum vitae, at least three letters of recommendation, and a brief description of previous research accomplishments and future research and academic aspirations. Applications received by 1 October 1989 will be reviewed first by the search committee. If a successful candidate is not found, applications received after that date will be considered. Please send all materials to: **Dr. John G. Hildebrand, Director, ARL Division of Neurobiology, 611 Gould-Simpson Building, University of Arizona, Tucson, AZ 85721. Equal Employment Opportunity/Affirmative Action Employer.**

**MEDICAL WRITER/EDITOR.** Strong biomedical background; flair for writing; ability to read scientific literature and learn new subjects quickly. For young medical projects company which works with physician consultants to write articles, lecture slides, videos, and other educational/promotional materials for pharmaceutical clients. Send résumé to: **Dr. S. Phillips, Project House, 432 Maitland Avenue, Teaneck, NJ 07666.**

### MEMBRANE PROTEIN BIOCHEMISTRY

A **POSTDOCTORAL POSITION** is available immediately for an individual interested in pursuing studies on the structure and mechanism of a membrane transport protein. The ATPase in the plasma membrane of *Neurospora* is an electrogenic proton pump that operates via a phosphoryl-enzyme intermediate identical to those of the animal cell transport ATPases. Large quantities of pure enzyme are available, and we are currently investigating the physical properties, topography, protein chemistry, catalytic mechanism, and molecular biology of this interesting membrane molecule. Projects in any of these areas may be pursued for an excellent learning experience in the field of membrane protein biochemistry. Send curriculum vitae to: **Dr. Gene A. Scarborough, Department of Pharmacology, School of Medicine, University of North Carolina at Chapel Hill, Chapel Hill, NC 27599-7365. Equal Opportunity Employer.**

## POSITIONS OPEN

### ISOLATION CHEMIST

An exciting, start-up, venture-backed company focusing on pharmaceuticals from natural products is seeking senior scientists with experience in isolation/structural elucidation of compounds from natural products, particularly plants. Candidate must hold Ph.D., have expertise in HPLC, NMR, and MS and demonstrated past experience. Candidate must also have motivation and creativity suitable for innovative and dynamic start-up environment. Company located in Northern California and built around the research of world-class scientists. Compensation includes competitive salary and attractive stock option program. Please send curriculum vitae and three references to:

**Shaman Pharmaceuticals, Inc.  
P.O. Box 1618  
Millbrae, CA 94030-5618**

**MOLECULAR BIOLOGIST** (\$30,975 to \$50,251) The Illinois State Police is seeking a qualified Ph.D. molecular biologist to join a team which will initiate forensic DNA analysis in its labs. Extensive experience in DNA analysis (RFLP) is required. Send résumé by 15 October 1989 to: **JoEllyn Reeder, Chief of Staff, Illinois State Police, Bureau of Forensic Sciences, 511 West Capitol Avenue, Suite 301, Springfield, IL 62704-1929.**

**MOLECULAR BIOLOGIST**—Department of Biochemistry and Molecular Biology, The University of South Dakota School of Medicine is expanding its expertise in the molecular biology of eukaryotes over the next 3 years. This first 12-month, tenure-track position will be at the assistant professor level. Areas of special interest include, but are not limited to: gene regulation, DNA-protein interactions, DNA and RNA metabolism, gene transfer and receptor-mediated signal transduction. Successful candidate must be capable of developing a competitive independent research program and participate in the teaching of medical, graduate, and undergraduate students. Competitive state-supported salary and start-up funds. Ph.D. and/or M.D. and postdoctoral experience are required. Send curriculum vitae, statement of research plans, and names of three references to: **Dr. Ronald Lindahl, Chair, Department of Biochemistry and Molecular Biology, University of South Dakota School of Medicine, Vermillion, SD 57069.** Applications will be accepted up to 15 October 1989, or until a suitable candidate is identified. *The University of South Dakota is an Affirmative Action/Equal Opportunity Employer.*

**MOLECULAR BIOLOGIST.** Department of Dermatology, Wayne State University. Recent Ph.D. in molecular biology to work in genetic disorders of connective tissue and keratinization, particularly isolation and cloning of abnormal genes. This is a research-track faculty position, rank commensurate with experience and qualifications. *Affirmative Action/Equal Opportunity Employer.* Please direct inquiries with curriculum vitae and three references to: **Ken Hashimoto, M.D., Department of Dermatology, Wayne State University, 4201 St. Antoine, Detroit, MI 48201.**

### MOLECULAR GENETICS

The Yale University School of Medicine is seeking applicants at the level of **ASSISTANT, ASSOCIATE AND FULL PROFESSOR** for the Molecular Genetics Program of the newly-created Yale Center for Molecular Medicine. Research in the program will focus on the molecular biology of the nucleus and gene expression, with potential application to human disease. Areas such as transcription, nuclear import and export, chromatin/chromosome structure and assembly, disease gene mapping, and cell cycle control of mitotic events will potentially be included. M.D. or Ph.D. appointees will hold regular faculty positions in one of the existing departments of the School of Medicine.

Salary and partial research support will be provided. Curriculum vitae should be submitted by 1 November 1989 to:

**Joan A. Steitz, Chair  
Molecular Genetics Search Committee for the  
Yale Center for Molecular Medicine  
Yale University School of Medicine  
Box 3333  
New Haven, CT 06510  
Yale University is an Equal Opportunity/  
Affirmative Action Employer.**

## PUBLIC HEALTH SERVICE NATIONAL INSTITUTES OF HEALTH NATIONAL INSTITUTE OF ENVIRONMENTAL HEALTH SCIENCES

### STAFF FELLOW

(Salary Range \$24,000 - \$40,234)  
Less than 3 years postdoctoral  
research experience

### SENIOR STAFF FELLOW

(Salary Range \$28,000 - \$45,234)  
3-7 Years Postdoctoral  
Research Experience

A postdoctoral position is available in the Yeast Genetics/Molecular Biology Group of the Cellular and Genetic Toxicology Branch, Division of Toxicology Research and Testing, NIEHS, located in Research Triangle Park, North Carolina. The activities of the Group are directed towards understanding mechanisms of repair, recombination mutagenesis, chromosome distribution and consequences of external perturbations. Approaches include a combination of genetic/molecular/enzymological methods and isolation of relevant genes. Selectee will participate in ongoing programs directed at studying various aspects of chromosomal metabolism in mitotic and meiotic cells, primarily yeast, and will also develop an independent research program.

The initial appointment is for two years, with extensions possible up to 7 years for talented researcher. Applicants should possess a record of demonstrated research productivity, the ability to carry out both independent and collaborative research and a Ph.D. or equivalent degree and postdoctoral experience in Genetics, molecular Biology, Biochemistry or closely related field. Should be U.S. citizen.

For additional information contact Johnny McLean or Lisa Fletcher at 919-541-7811. To apply, send curriculum vitae and the names of three references by September 29, 1989 to:

**Johnny L. McLean (HNV7)  
NIEHS Personnel Office  
PO Box 12233  
Research Triangle Park, NC  
27709**



"AN EQUAL OPPORTUNITY EMPLOYER"

## POSITIONS OPEN

### MOLECULAR GENETICIST

The Department of Biological Sciences of the University of Notre Dame invites applications for a tenure-track **FACULTY POSITION IN MOLECULAR GENETICS**. The appointment will be made at the assistant or associate professor level, to start fall semester, 1990. Applicants with research interests in the areas of gene regulation or developmental genetics are particularly encouraged to apply. The successful candidate will be expected to maintain a vigorous, externally funded research program, direct graduate students, and teach formal courses at both the undergraduate and graduate level.

We offer a competitive salary, seed money, modern research space, outstanding animal care facilities, and ready access to major equipment such as TEM, SEM, and a staffed Biocore facility housing macromolecular synthesizers, sequencers and FACS. Submit curriculum vitae, names of three references, and a statement of research interests by 15 October 1989 to: **Dr. Morton S. Fuchs, Department of Biological Sciences, University of Notre Dame, Notre Dame, IN 46556**. *Notre Dame is an Affirmative Action/Equal Opportunity Employer.*

**MOLECULAR PHARMACOLOGY.** Mayo Medical School invites applications for a tenure-track **FACULTY POSITION** in the Department of Pharmacology, available 1 January 1990. Candidate should have primary interests in pharmacology and be pursuing these interests with the methods of molecular biology. Mayo will provide generous space and start-up funds in addition to an attractive package of salary and benefits. Academic rank will be determined by qualifications; established investigators are also encouraged to apply. Submit curriculum vitae with names and addresses of three or more referees to: **Stephen Brimijoin, Ph.D., Department of Pharmacology, Mayo Medical School, Rochester, MN 55905**. *An Equal Opportunity/Affirmative Action Employer.*

### NEUROPATHOLOGIST

The Department of Pathology of the University of California School of Medicine, San Francisco, is seeking a full-time academic neuropathologist as an assistant or associate professor in residence. A primary effort and commitment of time to an independent neuroscience research program, and the development of related extramural funding are expected in one of the following disciplines: immunology, cell biology, molecular biology, or human genetics. In addition, the incumbent will participate with two senior academic neuropathologists in clinical neuropathology services, in departmental teaching activities for medical students and house staff, and in interdepartmental conferences. A California license or eligibility and board certification or eligibility in anatomic pathology and neuropathology is required. Send curriculum vitae to: **Neuropathology Search Committee, Department of Pathology, University of California, San Francisco, CA 94143-0506**. Inquiries: **Richard L. Davis, M.D., 415-476-5236**. *UCSF is an Equal Opportunity/Affirmative Action Employer. Women and minorities encouraged to apply.*

**OCEAN/CIVIL/COASTAL ENGINEER.** Chevron Oil Field Research Co. has a position in oceanographic/meteorological (O/M) research related to worldwide offshore activities. Responsibilities: Extract technical data from various sources to provide O/M design and operational data for offshore facilities; conduct research to improve databases and methodology for predicting the probability of occurrence of extreme events and provide technical liaison on joint industry projects for improving technology in these areas; evaluate sensitivities of offshore platform loads and responses to uncertainties in O/M parameters; plan and provide liaison on contractor-operated field measurements and analyses.

Requirements: M.S. or equivalent in ocean or civil engineering with coastal or ocean emphasis. Course work and/or applications in: wind-wave generation, wave shoaling and refraction, storm surges and currents, and wave kinematics and forces; statistics and probability theory.

Submit résumés, transcripts, and names and addresses of three references to: **Chevron Oil Field Research Co., Attention: Human Resources, P.O. Box 446, La Habra, CA 90633**. *An Equal Opportunity Employer.*

## POSITIONS OPEN

**PALEOETHNOBOTANIST** specializing in Eastern North America; assistant professor tenure-track position beginning fall 1990. Ph.D. in hand, strong research focus, good teaching record. Salary competitive. Send curriculum vitae with the names of three to five referees to:

**Archaeology Search  
Department of Anthropology  
Washington University, Box 1114  
One Brookings Drive  
St. Louis, MO 63130-4899**

Deadline: 1 December 1989. *Affirmative Action/Equal Opportunity Employer. Employment eligibility verification required upon hire.*

### PARASITOLOGISTS

Applicants are sought for two tenure-track faculty positions in experimental parasitology for appointment fall semester 1990. Research areas of interest include the biochemistry, cell biology, genetics, and/or molecular biology of helminths or protozoan parasites. Rank is negotiable.

We seek outstanding individuals who will initiate and maintain vigorous research programs. Responsibilities include the direction of graduate students and formal teaching at both the graduate and undergraduate levels in appropriate areas of parasitology.

We offer seed money, modern research space, a competitive salary, outstanding animal care facilities, ready access to major equipment such as TEM, SEM and a staffed Biocore facility housing macromolecular synthesizers, sequencers and FACS as well as the opportunity to join a faculty NIH Parasitology-Vector Biology Training Grant Program.

Submit curriculum vitae, no more than three representative publications or submitted manuscripts, names of three references, and a statement of teaching and research interests by 1 October 1989 to: **Dr. Howard J. Saz, Department of Biological Sciences, University of Notre Dame, Notre Dame, IN 46556**. *Notre Dame is an Affirmative Action/Equal Opportunity Employer.*

### DUKE UNIVERSITY SEEKS TWO PLANT SCIENTISTS

Tenure-track assistant professorships are open for an **EXPERIMENTAL PLANT SYSTEMATIST** (Professor William Louis Culbertson, Chair for the Search) and a **PLANT MOLECULAR BIOLOGIST** (Professor James N. Siedow, Chair for the Search). Candidates must have the Ph.D. and preferably postdoctoral research experience. The development of strong research programs on flowering plants and participation in undergraduate/graduate teaching are expected. Send research plans, curriculum vitae, and names of three references by 15 November 1989 to the appropriate **Chair for the Search, Department of Botany, Duke University, Durham, NC 27706**. *An Equal Opportunity/Affirmative Action Employer.*

### POSTDOCTORAL ECOSYSTEMS RESEARCHER

The Ecosystems Center is searching for a postdoctoral researcher to participate in an ongoing project on "The Responses of Terrestrial Ecosystems to Global Change." We are developing a general model linking production and decomposition that will be used to contrast responses of various terrestrial ecosystems to climate change. We seek a candidate with good managerial skills and a strong background in calculus, modelling, and ecosystems ecology. The appointment will be for 1 year with a possible renewal. Submit résumé and names of three references to: **Search Committee, The Ecosystems Center, Marine Biological Laboratory, Woods Hole, MA 02543**. Applications will be accepted until a suitable candidate is found. *Affirmative Action/Equal Opportunity Employer.*

**POSTDOCTORAL FELLOW** position available immediately to study the molecular biology of protein degradation in *Escherichia coli* bacteria, to analyze phage T4 genes which function to block protein degradation in *E. coli* and to isolate bacterial enzymes involved in protein degradation. Knowledge of molecular genetics required. Salary approximately \$20,000, commensurate with background. Send curriculum vitae and three letters of recommendation to: **Dr. Lee Simon, Waksman Institute, Rutgers University, P.O. Box 759, Piscataway, NJ 08855-0759**. *An Equal Opportunity/Affirmative Action Employer.*

## POSITIONS OPEN

**Ph.D. IN BIOPHYSICS/BIOCHEMISTRY** wanted to develop contrast agents for magnetic resonance imaging of hepatosplenic metastases and bone marrow. Candidate must have extensive theoretical knowledge of and practical experience in MR Imaging and NMR spectroscopy together with familiarity with GE, Toshiba, Bruker and Cisco devices. Candidate must also possess diverse skills in a number of areas including extensive experience in the preparation of liposomes and unilamellar vesicles, with particular reference to the development of liposomal contrast agents, synthesis of paramagnetic and superparamagnetic contrast materials, drug pharmacokinetics, bio-distribution and toxicity testing as well as the development and maintenance of animal tumor models. *The University of Arizona is an Equal Opportunity/Affirmative Action Employer. Women and minorities are urged to apply.* Send curriculum vitae and three letters of recommendation to: **Evan C. Unger, M.D., Director of MRI and CT, University of Arizona Health Sciences Center, Tucson, AZ 85724**. Telephone: 602-694-7368. Closing date: 30 August 1989 or until filled.

### U.S. DEPARTMENT OF AGRICULTURE AGRICULTURAL RESEARCH SERVICE

**PLANT MOLECULAR BIOLOGIST.** Career position available immediately in the Climate Stress Lab to identify and characterize genes involved in plant tolerance to drought, high temperature, and UV-B radiation. Knowledge of biochemistry is required. Strong background in molecular biology, e.g., antibody purification and preparation, gene cloning, modification, and transfer is desirable. Must be U.S. citizen. Starting salary commensurate with experience (\$34,580 or \$41,121 per annum). Send application (SF 171) and transcript to: **Rose Cunningham, ARS Personnel, Building 003, Room 415, BARC-W, Beltsville, MD 20705** or telephone: 301-344-3950 for copy of announcement. Applications in response to this ad should be marked 9E013. *An Equal Employment Opportunity Employer.*

Temple University School of Medicine, Department of Microbiology and Immunology and Fels Institute for Cancer Research and Molecular Biology—seeks **POSTDOCTORAL FELLOW**. Exciting opportunity for Ph.D. with background in molecular biology or virology for work on research project investigating the biochemical and molecular biological characteristics of a promising new class of anti-retroviral compounds. This area of investigation will focus on important practical questions using creative methodologies. Temple University School of Medicine provides a stimulating scientific environment with interactions with the Fels Institute for Cancer research and Molecular Biology. In addition, the Philadelphia metropolitan area offers many cultural and recreational opportunities. Send inquiries and curriculum vitae to: **Dr. Earl Henderson, Department of Microbiology and Immunology, Temple University School of Medicine, 3400 North Broad Street, Philadelphia, PA 19140**. *Temple University is an Equal Opportunity/Affirmative Action Employer.*

**POSTDOCTORAL FELLOW OR RESEARCH ASSOCIATE:** The Research Laboratory of St. Francis Hospital and Medical Center, University of Connecticut affiliated, in Hartford, is seeking a scientist to work on the role of growth factors in the regulation of bone growth. Research involves studies on the synthesis of growth factors derived from bone and their binding proteins. Experience in protein biochemistry or molecular biology is necessary. Forward résumé to: **Dr. Ernesto Canalis, 114 Woodland Street, Hartford, CT 06105**.

### POSTDOCTORAL FELLOWS/ RESEARCH TECHNICIANS

Peanut biotechnology. Multidisciplinary team conducting research on peanuts is looking for four postdoctoral fellows and two research technicians (B.S. with experience or M.S.) to work on regeneration, gene transfer, RFLPs, and white mold pathology. Degree required in botany, agronomy, genetics, horticulture, or closely related area. Competitive salaries with funding available up to 3 years. Submit curriculum vitae with names and addresses of at least three references to: **Dr. Gary Kochert, Department of Botany: 404-542-1871, or Dr. Wayne Parrott: 404-542-0928, Department of Agronomy, University of Georgia, Athens, GA 30602**. *An Equal Employment Opportunity/Affirmative Action Institution.*

The Swiss Federal Institute for Technology in Zurich invites applications for the new faculty position in

## EXPERIMENTAL ECOLOGY

The elected candidate will be working with students specializing in environmental sciences and environmental engineering or in related fields. The teaching duties include introductory courses in ecology as well as advanced courses in quantitative ecology and modeling of ecosystems.

Preference will be given to individuals engaging in experimental investigations and modeling of terrestrial ecosystems, taking into account applied ecology.

Candidates are expected to have a Ph.D. degree and a record of significant scientific contributions to the field which document their ability to collaborate with an interdisciplinary team. Willingness to teach at all university levels is essential.

Applications with curriculum vitae and a list of publications should be submitted no later than October 15, 1989, to the President of the ETH Zurich, Prof. Dr. Hans Bühlmann, ETH-Zentrum, CH-8092 Zürich.

## DIRECTOR

### Science and Policy Programs

American Association for the  
Advancement of Science (AAAS)

Nation's leading general science and engineering association, based in Washington, D.C., seeks Director for its new Directorate of Science and Policy Programs. Directorate encompasses programs on national science policy issues, including internationally recognized analysis of research and development spending; science, engineering and human rights; interaction between law and science (in cooperation with the American Bar Association); professional ethics; and other areas at the interface of science, technology and society. Directorate's budget currently on order of a million dollars per year.

Candidates should have a doctorate in an appropriate field of science or engineering, extensive experience in areas relating science and technology to policy, proven leadership and administrative qualities, and experience in working with foundations, government agencies and other grant-making organizations. Salary and benefits competitive for such a high-level position. Please send letter expressing interest together with current resume to . . .

Debra Wright  
AAAS  
1333 H Street, N.W.  
Office of Human Resources  
Suite 854  
Washington, DC 20005

*AAAS is an Equal Opportunity Employer*

The closing date for receipt of application is 8 September 1989

## Research Scientists

Athena Neurosciences, located in the San Francisco Bay Area, is a biotechnology-based company committed to the discovery and development of innovative new products to treat diseases of the nervous system. Our research focuses on Alzheimer's disease and delivery of drugs to the brain. Expansion has created the following opportunities to join our company.

**Cellular Immunologist** – One individual is sought with a Ph.D. in cellular immunology or biochemistry to work on problems in neuroimmunology. Familiarity with production and characterization of antibodies against membrane receptors is desirable. (Ad #39J)

**Cell Biologist** – One position is open for an individual with a Ph.D. in biochemistry, structural biology or cell biology to work in our newly-formed Cellular Biochemistry department. The optimal candidate should have experience in structural protein isolation and characterization as well as a special interest in regulation of cytosolic protein interactions. (Ad #54A)

**Receptor Biochemist** – We are seeking a Ph.D.-level individual with proven expertise in the biochemistry of receptor-ligand interactions and preferably with direct experience in neurobiology. The candidate must be expert in the analysis of receptor binding data from a variety of experimental systems including both cell culture and membrane preparations. (Ad #56A)

**Scientist—Transgenic Animals** – One position is available for a highly independent and motivated individual at the Ph.D. level with proven experience in creating and analyzing transgenic mice. Responsibilities include the development of animal models for Alzheimer's disease and other CNS-related disorders. (Ad #26J)

**Anatomist** – One individual is sought with a Ph.D. in anatomy and a working knowledge of the structure of the CNS. Extensive experience in immunocytochemistry is required and experience in electron microscopy is an added advantage. (Ad #23M)

Athena Neurosciences is committed to scientific excellence and backed by the most prominent and successful venture capitalists in the biotechnology industry. We offer an exciting professional environment in addition to competitive salaries, benefits and equity participation. Please send curriculum vitae to: Athena Neurosciences, Inc., 800-F Gateway Boulevard, South San Francisco, CA 94080. Please refer to appropriate ad number in correspondence. An equal opportunity employer.

## athena neurosciences

## POSITIONS OPEN

**POSTDOCTORAL FELLOWSHIP:** Position available immediately for a candidate with experience in cell biology/biochemistry/molecular biology to participate in studies of human tumor lymphocyte growth control and growth inhibition. Send letter of application, curriculum vitae and references to: **Carl E. Freter, M.D., Ph.D., Georgetown University Medical Center, Lombardi Cancer Research Center, 3800 Reservoir Road, N.W., Washington, DC 20007.**

**POSTDOCTORAL FELLOWSHIP:** NIH/NRSA position available for recent Ph.D. with training in organic synthesis or medicinal chemistry. Research will encompass the syntheses of structurally diverse pharmaceuticals and receptor ligands suitable for positron emission tomography (PET) imaging studies; the development of new chemical methodology for incorporation of halogens onto organic substrates. Candidates with expertise in natural product or pharmaceutical syntheses and analytical instrumentation are encouraged to apply. *U.S. citizenship or permanent resident status required.* Send résumé and the names of three references to: **Dr. J. M. Gerdes, Research Medicine/Radiation Biophysics Division, Lawrence Berkeley Laboratory, 1 Cyclotron Road, M.S. 55-121, Berkeley, CA 94720.** An Affirmative Action/Equal Opportunity Employer M/F/H.

### SYNTEX CORPORATION

**POSTDOCTORAL POSITION** available immediately for a pharmacologist interested in receptor identification, characterization, and classification in the 5-HT and adrenergic fields. A quantitative experimental approach will be taken, utilizing isolated tissue preparations and ligand-binding studies. Send your curriculum vitae and the names and addresses of three reference sources to: **Syntex, Professional Staffing, Department KH/P, 3401 Hillview Avenue, Palo Alto, CA 94304.** Equal Opportunity Employer.

**POSTDOCTORAL POSITION** in neuropharmacology available immediately to study the biochemical and molecular mechanism involved in the CNS effects of ethanol and adenosine. Experience with *in vivo*, *in vitro*, HPLC, receptor assay, stereotaxic and microinjection techniques is desirable. Federal law requires proper documentation of identity and employability at the time of employment. It is requested that this documentation be included with your application. Applicants with Ph.D. in pharmacology or related area should send curriculum vitae and three letters of recommendation to: **Dr. M. Saeed Dar, Associate Professor, Department of Pharmacology, East Carolina University School of Medicine, Greenville, NC 27858.** An Affirmative Action/Equal Employment Employer.

**POSTDOCTORAL POSITION:** Available 1 August 1989 or thereafter, to study molecular evolution of antibodies and T cell receptors. The research will include the use of recombinant DNA technology, protein chemistry and immunochemistry to characterize homologs of antibodies and T cell receptors. Candidates should have background in biochemistry/molecular biology or immunochemistry. Send curriculum vitae and the names of three references to: **Dr. John J. Marchalonis, Professor, University Department of Microbiology and Immunology, University of Arizona, College of Medicine, Tucson, AZ 85724.**

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

### POSTDOCTORAL POSITION

A postdoctoral position is immediately available to study the molecular biology of Chlamydia trachomatis. Relevant experience in recombinant DNA, immunology, and pathology is desirable. Send curriculum vitae and names and addresses of three references to: **Luis M. de la Maza, M.D., Ph.D., Professor, Department of Pathology, Medical Sciences I, University of California Irvine, Irvine, CA 92717.** Equal Opportunity Employer.

**POSTDOCTORAL POSITION.** Molecular biological research on baculoviruses to explore mechanisms of the infection process with a view to improving the efficacy and safety of these biological pesticides and their utility as gene expression vectors. Send curriculum vitae and names of three references to: **Dr. Lois K. Miller, Department of Genetics, University of Georgia, Athens, GA 30602.** Equal Opportunity/Affirmative Action Employer.

## POSITIONS OPEN

**POSTDOCTORAL POSITION** available to study receptor regulation of phosphoinositide metabolism and protein kinase C activation in vascular smooth muscle primary cultures. A strong background in biochemistry, cell biology, or pharmacology is preferred. Salary negotiable, benefits provided. Applicants should send curriculum vitae plus three letters of reference by 22 September to: **Dr. R. Dale Brown, Department of Pharmacology, University of Illinois at Chicago, 835 South Wolcott Avenue, Chicago, IL 60612.** Equal Opportunity/Affirmative Action Employer.

**POSTDOCTORAL POSITION** available to study proteins phosphorylated on tyrosine in cells transformed by SRC or activated with EGF (JCB 108, 2401). The laboratory is part of the newly established Markey Cancer Center at the University of Kentucky. Application should include curriculum vitae, names and addresses of three references, and a brief description of research interests. Submit to: **John Glenney, Markey Cancer Center, 800 Rose Street, Lexington, KY 40536-0093.**

**POSTDOCTORAL POSITION** to investigate genetic regulation and structural heterogeneity of renal cell transport proteins. Applicants should have a recent Ph.D. in molecular biology, biochemistry, cell biology, transport physiology, or related field. Salary is negotiable, and includes health benefits plan. Send curriculum vitae and names of three references to: **Dr. Jesse Bowen, University of Missouri-Columbia, Department of Pharmacology, Columbia, MO 65212.** The University of Missouri-Columbia is an Equal Opportunity and Affirmative Action Institution.

### POSTDOCTORAL POSITION

A postdoctoral position is available immediately to participate in a project utilizing mutational methods to study the mechanism of protein folding [see *Nature* 338, 127-132 (1989)]. An individual with a background in chemical or physical aspects of biochemistry would be particularly suited for this position. Applicants should send curriculum vitae and the names and addresses of three references to: **Dr. D. P. Goldenberg, Department of Biology, University of Utah, Salt Lake City, UT 84112.**

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

### U.S. DEPARTMENT OF AGRICULTURE AGRICULTURAL RESEARCH SERVICE

**TWO-YEAR POSTDOCTORAL POSITION** available immediately to investigate physiological and biochemical mechanisms of adaptation to increased UV-B radiation and CO<sub>2</sub> levels under field and controlled-environment conditions. Knowledge of plant physiology and biochemistry is required. Skill in photobiology, radioisotope, HPLC, GC, enzymology, photosynthesis, water relations, and hormonal analyses is desirable. *Must be U.S. citizen.* Minimum starting salary: \$28,852. Send résumé, transcript, and three letters of reference to: **Dr. Donald T. Krizek, Climate Stress Laboratory, Room 206, Building, 001, BARC-W, Beltsville, MD 20705.** Telephone: 301-344-3143. An Equal Employment Opportunity Employer. Applications in response to this ad should be marked 9E014.

### POSTDOCTORAL POSITION— CELL REGULATION

Position available in the Intracellular Regulation Workgroup of the Laboratory of Cellular and Molecular Pharmacology. The focus of the group is on the roles played by internalized polypeptide hormones and growth factors in metabolic control [see *Science* 240, 506 (1988)]. Applicants must possess: Ph.D. or equivalent degree in cell biology, biochemistry, physiology, or closely related field, a record of research achievement and the ability to carry out independent and collaborative research. For additional information, contact: **Dr. David Miller at 919-541-3235.** To apply, send curriculum vitae and the names of three references by 15 September 1989, to: **Dara Trupe (HNV8), Public Health Service, National Institutes of Health, National Institute of Environmental Health Sciences, P.O. Box 12233, Research Triangle Park, NC 27709.** Telephone: 919-541-3032.

*NIH is an Equal Opportunity Employer.*

## POSITIONS OPEN

**POSTDOCTORAL POSITION IN CANCER RESEARCH:** To investigate bio-molecular mechanism and consequences of changes in oncogene and growth factor expression during carcinogenesis. A primary interest in elucidation of carcinogenesis processes and background in use of methods to study changes in and regulation of gene expression is desired. Send curriculum vitae to: **David P. Ringer, Ph.D., Head, Biochemical Pharmacology Section, Biomedical Division, The Samuel Roberts Noble Foundation, Inc., P.O. Box 2180, Ardmore, OK 73402.**

**POSTDOCTORAL POSITION—MOLECULAR BIOLOGY.** Available immediately to study gene regulation of mercury resistance operons in bacteria [recent ref. Nucifora *et al.*, *J. Bacteriol.* (August 1989)]. Knowledge in molecular biology required. Send curriculum vitae and three letters of reference to: **Dr. T. K. Misra, Department of Microbiology and Immunology (M/C 790), University of Illinois, 835 South Wolcott Avenue, Chicago, IL 60612.**

### POSTDOCTORAL POSITIONS DEPARTMENT OF MOLECULAR GENETICS ROCHE RESEARCH CENTER, HOFFMANN-LA ROCHE, INC.

Postdoctoral positions are available immediately for 1 to 3 years, for research in the areas of: (i) the effects of oncogenes and growth factors on neuronal and epithelial cells, and (ii) hematopoietic growth factors and stromal cells. Qualifications include a Ph.D. in microbiology or biochemistry with a molecular biology background. Candidates with experience in cell biology and transfection techniques are preferred. We offer a very competitive salary, and an additional subsidy for housing. Please send curriculum vitae and names of three references to: **Dr. R. Narayanan, Department of Molecular Genetics, Hoffmann-La Roche Inc., 340 Kingsland Street, Nutley, NJ 07110.** Telephone: 201-235-4695. Fax: 201-235-7617. Hoffmann-La Roche is an Equal Opportunity Employer.

**TWO POSTDOCTORAL POSITIONS** are available for molecular geneticists and/or biochemists to study RNA/protein interactions in yeast mitochondria. Become a part of the budding yeast group headed by four faculty. Positions will remain open until filled. Send curriculum vitae, and addresses of three references to: **Carol Dieckmann, Department of Biochemistry, BSW 345, University of Arizona, Tucson, AZ 85721.** The University of Arizona is an Equal Opportunity/Affirmative Action Employer. Women and minorities are urged to apply.

**POSTDOCTORAL POSITIONS** available immediately to study the structural and functional properties of an extracellular matrix protein which promotes oncogenic transformation. Background in biochemistry, cell biology, molecular biology, or immunology desirable. Please send curriculum vitae and three letters of recommendation to: **Dr. Susan P. Hawkes, Department of Pharmacy, S-926, University of California, San Francisco, CA 94143-0446.** UCSF is an Equal Opportunity/Affirmative Action Employer.

**POSTDOCTORAL/RESEARCH ASSOCIATE—** Position available to study gene expression of metalloproteinases in connective tissue diseases. Research focuses on transcriptional regulation, DNA responsive elements and DNA/protein interactions. Molecular biology experience is desirable. Send curriculum vitae and statement of research interests to: **Dr. Constance Brinckerhoff, Department of Biochemistry, Dartmouth Medical School, Hanover, NH 03756.**

**POSTDOCTORAL RESEARCH ASSOCIATE** position available immediately in Vegetable Laboratory, USDA, Agricultural Research Center, Beltsville, Maryland, for research on Colorado potato beetle plant interactions with goal of developing synthetic diet for beetle and techniques to evaluate role of plant allelochemicals in affecting beetle behavior. Salary is \$28,852 or \$34,280 per year. Appointment for 1 to 2 years. Applicant should be recent Ph.D. with training in insect nutrition and/or behavior. Submit application (Form SF-171) and curriculum vitae to: **W. Cantelo, Vegetable Laboratory, USDA, ARS, B-470, BARC-East, Beltsville, MD 20705.** Telephone: 301-344-2269. ARS is an Equal Opportunity Employer.



# Toxicologist

## Pharmaceutical Research

The Parke-Davis Pharmaceutical Research Division of Warner-Lambert, a world leader in pharmaceutical development, has an immediate opening in the Pathology and Experimental Toxicology Department for a Toxicologist.

This position requires an outstanding individual with industrial or academic background and training in experimental toxicology. This individual will participate in designing, conducting and reporting various pre-clinical toxicology studies with new drug candidates. The successful candidate must be able to work independently and as a member of a highly specialized team. This position requires a Ph.D. degree or equivalent in a biological science and 1-3 years' experience in toxicology.

Join the exciting research and development team at Warner-Lambert and enjoy outstanding compensation and environment. Interested, qualified applicants should send their resume, list of references, and salary requirements in confidence to: **Ms. S. Hultquist, Human Resources Representative, Parke-Davis, 2800 Plymouth Road, Ann Arbor, Michigan 48105.**



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## DIRECTOR

### International Programs

#### American Association for the Advancement of Science (AAAS)

Nation's leading general science and engineering association, based in Washington, D.C., seeks Director for its new Directorate of International Programs. Directorate encompasses programs on global environmental change; coordination of international activities of U.S. scientific and engineering societies; strengthening science and engineering in developing countries; science, arms control and national security; interaction between science, engineering and foreign policy; and a variety of international professional activities involving scientific and engineering societies in many parts of the world.

The International Science Directorate's budget of several million dollars per year is composed of AAAS and grant funds from private foundations and government and international agencies. An immediate priority is the development of a major program in the global environmental change field, an area in which the new Director should have a distinguished record of accomplishment.

Candidates should have a doctorate in an appropriate field of science or engineering, extensive experience in international affairs and in global environmental issues, proven leadership and administrative qualities, and experience in working with foundations, government agencies and other grant-making organizations. Salary and benefits competitive for such a high-level position. Please send letter expressing interest together with current resume to . . .

**Debra Wright**  
**AAAS**  
**1333 H Street, N.W.**  
**Office of Human Resources**  
**Suite 854**  
**Washington, DC 20005**

*AAAS is an Equal Opportunity Employer*

**The closing date for receipt of application is 8 September 1989**

## CHIEF, GENETICS AND TRANSPLANTATION BRANCH

The Division of Allergy, Immunology and Transplantation (DAIT), of the National Institute of Allergy and Infectious Diseases (NIAID), National Institutes of Health (NIH), is currently recruiting for Chief of the Genetics and Transplantation Branch. The incumbent plans and conducts the NIAID's research and training grants, fellowships and career award programs in this area; coordinates various support programs and develops priorities within this scientific area; reviews and presents to the National Advisory Allergy and Infectious Diseases Council applications in this program area; and develops and maintains liaison with appropriate departments of universities, other institutions, other components of the NIH and DHHS, advisory bodies and other organizations.

Applicants for this position should possess a M.D. or Ph.D. degree as well as research and grant experience and should have a track record demonstrating the ability to obtain research support.

Applicants for the Branch Chief position must qualify for a GS-15 rating with salary range of \$57,158 to \$77,331 or an appointment in the USPHS Commissioned Corps; salary to be consistent with appropriate rank. Physician's Comparability Pay up to \$20,000 may be payable, also.

For further information, please contact:

**Dr. Robert A. Goldstein, Acting Director**  
**Division of Allergy, Immunology**  
**and Transplantation**  
**NIAID/NIH**  
**Building 31, Room 7A52**  
**9000 Rockville Pike**  
**Bethesda, MD 20892**  
**(301) 496-1886**



**U.S. Citizenship required**  
**NIH is an Equal Opportunity Employer**

## UPPER ATMOSPHERIC PHYSICS UNIVERSITY OF COLORADO AT BOULDER

The Cooperative Institute for Research in Environmental Sciences (CIRES) at the University of Colorado at Boulder invites applications from individuals to perform research on problems of the global mechanical, electrical, and chemical response of the upper atmosphere to the energy deposited by precipitating energetic, charged particles and by Joule heating from electrical current flow. The appointment, as a CIRES Research Associate, will be for one year with the possibility of renewal, at a salary commensurate with qualifications and experience.

The work, in collaboration with scientists at the National Oceanic and Atmospheric Administration's Space Environment Laboratory in Boulder, Colorado, involves analysis of charged particle observations made by the TIROS/NOAA satellites since 1978. Of particular interest is the use of these observations to specify the energy and ionization inputs to the upper atmosphere and the response of the ionosphere and upper atmosphere to the perturbations. Work would also be done on the correlation and association between these observations (and derived parameters) and other observations from space and ground. The ultimate objective is to merge these observations with a variety of existing models, in order to create more sophisticated and relevant models of atmospheric behavior with varying geophysical and solar activity.

Applicants should have a Ph.D. or its equivalent in magnetospheric and/or auroral physics, ionospheric physics, or atmospheric physics. A strong background in computer processing and manipulation of large data sets would be useful. Interested parties should submit, by 8 September 1989, a letter describing current research interests, a complete resume and publications list, reprints of two relevant publications, and three letters of recommendation from professional references to:

**Dr. Howard P. Hanson, Associate Director**  
**Cooperative Institute for Research in Environmental Sciences**  
**University of Colorado**  
**Boulder, CO 80309-0216**

Technical information concerning this position may be obtained from Dr. Ron Zwickl at (303) 497-3029.

*The University of Colorado has a strong institutional commitment to the principle of diversity. 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.*

# Drug Delivery

## Senior Investigator Drug Absorption

Smith Kline and French Laboratories, a division of SmithKline Beecham, a leader in pharmaceutical research, is currently building a strong multidisciplinary drug delivery department of approximately 30 scientists. This group, located in suburban Philadelphia, will be investigating membrane and transport processes that can be used for the delivery of conventional and biotech drugs and the design of therapeutic systems to meet the biological needs of specific drugs and diseases.

We are currently seeking an innovative scientist to lead a group developing *in vivo* methodologies for measuring the absorption, metabolism, and disposition of drugs and delivery systems. This group will form part of a team also having expertise in *in vitro* methodologies and will interact closely with Sections investigating Drug Targeting and Drug Carriers. We are seeking a Ph.D. scientist with a background in Physiology, Biochemistry, or Pharmaceutical Sciences and with one or more years of postdoctoral experience. Research experience in animal surgery, bioanalytical methods, or pharmacokinetics is desirable. Candidates with a desire to innovate and develop new methodologies and procedures and to be part of a highly interactive team are encouraged to apply.

Based in a new state-of-the-art research facility near Valley Forge, Smith Kline & French provides a stimulating and challenging environment in which to grow and excel. We offer an attractive compensation/benefits and relocation package. For confidential review forward your C.V. to Terry Gallagher, T111, Smith Kline & French Laboratories, Research and Development, M/C L314, P.O. Box 1539, King of Prussia, PA 19406-0939. We are an Equal Opportunity Employer, M/F/H/V.

**SK&F**

## CHIEF, MOLECULAR MICROBIOLOGY BRANCH

National Institutes of Health

The Division of Microbiology and Infectious Diseases (DMID) of the National Institute of Allergy and Infectious Diseases, NIH, is currently recruiting for Chief of the Molecular Microbiology Branch. The incumbent plans and conducts research training grants, fellowships and career award programs in this area; coordinates various support programs and develops priorities within this scientific area; reviews and presents to the National Advisory Allergy and Infectious Diseases Council applications in this program area; and develops and maintains liaison with appropriate departments of universities, other institutions, other components of the NIH and Department of Health and Human Services, advisory bodies and other organizations.

Applicants for this position should possess the Ph.D. degree as well as research and grant experience and should have a track record demonstrating the ability to obtain research support.

Applicants for the Branch Chief position must qualify for a Health Scientist Administrator/Microbiologist/Biologist GS-14/15 rating with salary commensurate with experience or an appointment in the USPHS Commissioned Corps; salary to be consistent with appropriate rank.

For further information, please write directly to:

**Dr. John R. La Montagne, Director, DMID, NIAID**  
Building 31, Room 7A-52  
National Institutes of Health  
9000 Rockville Pike  
Bethesda, MD 20892



Applications must be received by October 15, 1989.

U.S. CITIZENSHIP IS REQUIRED  
NIH IS AN EQUAL OPPORTUNITY EMPLOYER

## UNIVERSITY OF MELBOURNE DEPARTMENT OF MATHEMATICS RESEARCH FELLOW GRADE 1 (EXTENDIBLE TENURE)

The Interfacial Continuum Mechanics Group in the Department of Mathematics has an opening for a Research Fellow.

The position will be for 3 years subject to the availability of Australian Research Council funds at all times. The position is available immediately.

The Research Fellow is expected to contribute to one or more of the following research areas: Flow and fluid displacement in porous media, mechanical properties of colloidal aggregates, consolidation and filtration in particulate dispersions and surface forces in contrast elasticity and crack formation.

This is a full time research position with no teaching duties. Melbourne is a very cosmopolitan city with a population of around 2 million. The climate is mild all year round. The University is located at the edge of the city centre and offers convenient access to all facilities.

**Salary will be in the range: A\$27,139-A\$30,882 per annum.** A contribution towards the cost of travel to and relocation in Melbourne may be made to an appointee from interstate or overseas.

Please contact **Professor L.R. White (03) 344-5550** for further information about this position or the Department.

Further printed information regarding details of application procedure and conditions of appointment is available from Ms. M. Petras on (03) 344 7546.

**Closing Date: 15 September 1989.**

**Position Number: 618A018.**

Written applications should reach The Director, Personnel Services as stated below.

Applications, in duplicate, including names and addresses of at least three referees should be addressed to **The Acting Director, Personnel Services, The University of Melbourne, Parkville, Victoria, Australia, 3052.**

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# Lilly Research Laboratories

## POSTDOCTORAL SCIENTIST PROGRAM

### Eli Lilly and Company

THE LILLY RESEARCH LABORATORIES, a Division of Eli Lilly and Company, is offering postdoctoral research opportunities in several areas of biology, pharmacology, and chemistry. Postdoctoral scientists will work in close association with Lilly scientists who are involved in the basic research process of drug discovery. Opportunities are available for collaboration with scientists having expertise in a wide variety of scientific disciplines. Publication and presentation of results will be an integral part of the program. This postdoctoral experience is designed to give individuals in-depth research training in a focused area of biology and/or chemistry. The program will also provide an opportunity to become acquainted with the drug development process within the pharmaceutical industry. Postdoctoral scientists will be expected to participate fully in the conceptual and design phases of projects within the following areas:

#### BEHAVIORAL PHARMACOLOGY RESEARCH

**Academic Background:** Experimental/Physiological Psychology or Behavioral/Neuropharmacology.

**Research Involves:** Operant behavior/behavior of rodents to study effects of agonists/antagonists of excitatory amino acid, serotonin, neuropeptide and opioid receptors.

#### EICOSANOID & PROSTANOID RESEARCH

**Academic Background:** Pharmacology, Physiology, or Biochemistry.

**Research Involves:** Mutually acceptable project designed to further our understanding of involvement of arachidonic acid metabolites in pharmacologic, physiologic and pathologic processes.

#### MOLECULAR BIOLOGY RESEARCH

**Academic Background:** Molecular Biology, Virology, or Biochemistry.

**Research Involves:** Regulation of the expression of the HIV-1 genome, with a primary focus on understanding the molecular mechanisms of transactivation and evaluation of inhibitors.

#### MOLECULAR MODELING & MEDICINAL CHEMISTRY RESEARCH

**Academic Background:** Organic Chemistry and Molecular Modeling.

**Research Involves:** Application of advanced computational techniques to design new receptor antagonists and enzyme inhibitors. Projects include supercomputing, advanced visualization techniques, organic synthesis, and SAR studies. Laboratory's goals are to understand molecular recognition phenomena, develop new tools for drug design, and discover novel therapeutic agents.

#### MOLECULAR ONCOLOGY & PHARMACOLOGY RESEARCH

**Academic Background:** Pharmacology, Biochemistry or Molecular Biology.

**Research Involves:** Studies on mechanism of action of novel anticancer drugs using human tumor xenografts. The role of cellular oncogenes in determining drug sensitivity and evaluation of new inhibitors of oncogene function will be a primary focus.

#### ORGANIC CHEMISTRY RESEARCH

**Academic Background:** Synthetic Organic, Bio-Organic, or Medicinal Chemistry.

**Research Involves:** Chemical probes of the multiple phosphodiesterase isozymes or serotonin receptors to be designed, synthesized, then utilized to enhance understanding of these enzyme/receptor systems.

#### SEROTONIN/SMOOTH MUSCLE RESEARCH

**Academic Background:** Pharmacology, Physiology or Biochemistry with an interest in serotonin receptor mediated events and/or smooth muscle contractivity/relaxation.

**Research Involves:** Mutually agreeable project with multidisciplinary approach, possibly using autoradiography, second messenger platelet evaluation, platelet responses to serotonin and/or in vitro smooth muscle contractivity.

#### TUMOR BIOLOGY RESEARCH

**Academic Background:** Tumor Immunology, Tumor Physiology, Biochemistry, and/or Molecular Biology.

**Research Involves:** One or more of these areas—mechanism of cytotoxic action of immunoconjugates; mechanism of in vivo selection of tumor cells resistant to chemotherapeutic agents; isolation and characterization of monoclonal antibodies reactive with novel tumor-associated epitopes.

Postdoctoral appointments are of one year duration and are renewable for a second year with mutual agreement. Candidates with no more than one previous postdoctoral experience are encouraged to apply.

Eli Lilly and Company will provide a comprehensive pay and benefits program including relocation expenses. Qualified applicants should send their curriculum vitae, *including program of interest*, to:



John W. Crooks, Manager  
Ph.D. Recruitment (PSP)  
Eli Lilly and Company  
Lilly Corporate Center  
Indianapolis, Indiana 46285

**Commitment to Excellence**

Eli Lilly and Company is an equal opportunity employer.

## POSITIONS OPEN

**POSTDOCTORAL RESEARCH ASSOCIATE**—to study the interactions of the ligands with regulatory regions of factor D and amyloid serum component P DNA. Require Ph.D. in biochemistry/molecular biology with experience in synthesis and purification of oligonucleotides computerized molecular modeling (macromodel or dock), CD, and analysis of enzymatic-digested products of DNA by HPLC, electrophoretic, and other chromatographic techniques. Must be proficient in the design of experimental protocols and in writing of research reports and papers. Supervision of laboratory technicians and upkeep of laboratory equipment is also required. Full-time 40 hours per week, Monday to Friday (9:00 a.m. to 5:00 p.m.). Salary: \$23,000 per year. Please send résumé to: **Case #9960, Massachusetts Department of Employment and Training, Special Programs Department, 19 Staniford Street, Boston, MA 02114.** *Equal Opportunity Employer.*

**POSTDOCTORAL RESEARCH ASSOCIATE IN MOLECULAR BIOLOGY/PATHOLOGY.** Position open for a postdoctoral candidate experienced in molecular biology to carry out *in situ* hybridizations for mRNA expressions of metastatic and anti-metastatic genes. This is a joint project of the Departments of Biochemistry, Pathology, and Urology of the Loyola University School of Medicine, which seeks to determine *in situ* gene expressions that correlate with the metastatic phenotype. Salary competitive. Send curriculum vitae and names of three references to: **Dr. Chester Herman, Chairman, Department of Pathology, Loyola University Stritch School of Medicine, Maywood, IL 60153.** *Loyola University of Chicago is an Equal Opportunity/Affirmative Action Employer.*

**POSTDOCTORAL RESEARCH ASSOCIATE POSITION** available 1 November 1989 working with carbon dioxide enrichment of tallgrass prairie funded by the Department of Energy. Duties include supervision of data acquisition associated with measurement of photosynthetic rates, growth dynamics analysis, and water relations in ambient and carbon dioxide-enriched environments. Experience in instrumentation and computerized data acquisition preferred. Ph.D. in agronomy, range science, ecology, or related field required. Salary is commensurate with qualifications, and the position is available for up to 2 years. Application deadline is 15 October 1989. Specify position #261 and send letter of application, résumé, transcripts, and arrange for three letters of reference to: **Dr. George Ham, Department of Agronomy, Throckmorton Hall, Kansas State University, Manhattan, KS 66506.** Applicants may call **Clenton Owensby, 913-532-7232.** *Affirmative Action/Equal Opportunity Employer.*

**POSTDOCTORAL RESEARCH ASSOCIATE (1) and B.S./M.S. RESEARCH ASSISTANT (1)** positions available for whole cell molecular biologists/microbiologists. Need hands-on experience and ability to develop nucleic acid strategies for detection of low numbers of bacterial pathogens of potential concern in poultry, products including *Listeria*, *Campylobacter*, *E. coli*, *Salmonella*. We plan to use rDNA, cDNA and PCR approaches to complement work underway with monoclonal antibodies to identify unique cell-surface antigens. Positions to be funded for 2 to 3 years by a USDA Special Grant for Food Safety. Respective salaries up to \$30,250 and \$20,000 per year, depending on qualifications. Send letter of application, curriculum vitae, photocopies of all college transcripts and names of three references with addresses/telephone numbers to be received by 29 September 1989 to: **Dr. Mike G. Johnson, Professor, University of Arkansas, Department of Food Science, 272 Young Avenue, Fayetteville, AR 72703.** *The University of Arkansas is an Equal Opportunity/Affirmative Action Institution.*

**RESEARCH ASSISTANT PROFESSOR** Ph.D. in microbiology to conduct research on external eye disease. The candidate should possess basic knowledge of prokaryotic and eukaryotic physiology, parasitology, mycology, virology, immunology, and pathogenic and diagnostic microbiology. Send letter of interest and curriculum vitae to: **James P. McCulley, M.D., Chairman, Department of Ophthalmology, University of Texas Southwestern Medical Center, 5323 Harry Hines Boulevard, Dallas, TX 75235-9057.** *Equal Opportunity Employer.*

## POSITIONS OPEN

### DEPARTMENT OF MICROBIOLOGY AND IMMUNOLOGY MOREHOUSE SCHOOL OF MEDICINE

The Department is seeking applications for the following positions: **RESEARCH ASSISTANT POSTDOCTORAL FELLOW:** Ph.D. in medical microbiology with training in molecular biology or immunology preferred. **RESEARCH ASSISTANT:** M.S. or Ph.D. in medical microbiology. **RESEARCH INSTRUCTOR:** Ph.D. in medical microbiology with training in infectious diseases and/or immunology preferred.

Salaries for each position will be commensurate with qualifications and experience in the areas mentioned.

Interested candidates should submit their applications, with names of three references and a short one-page description of their research interests to the following individual on or before 15 September 1989: **Dr. R. G. Navalkar, Chairman Department of Microbiology and Immunology, Morehouse School of Medicine 720 Westview Drive, Atlanta, GA 30310.**

**RESEARCH ASSISTANT PROFESSOR, MARINE AND ATMOSPHERIC CHEMISTRY.** Applicants should have a Ph.D. and a minimum of 1 year of postdoctoral research in the study of the microbiological transformations of sulfur and other redox active elements in the oceans. They should have experience in working with marine microorganisms and in making chemical measurements at sea. Candidates are expected to independently develop and support a vigorous research program that emphasizes field investigations. Curriculum vitae, a summary of research experience, a brief statement of future research interests, and the name of three references should be submitted to: **Dr. Joseph Prospero, Chairman, Division of Marine and Atmospheric Chemistry, University of Miami, RSMAS, 4600 Rickenbacker Causeway, Miami, FL 33149-1098.** Deadline for applications is 15 October 1989.

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

**RESEARCH ASSOCIATE.** Position available to investigate the properties of novel DNA structures using biochemical and biophysical techniques. Applicants must have a background in the biochemistry of DNA and chromatin, in the use of lasers for photochemistry, and in linear dichroism techniques. A Ph.D. in chemistry or physical biochemistry and 2 years of postdoctoral experience are required. Position open immediately. \$23,000 per year. Send curriculum vitae and three letters of reference to: **Massachusetts Department of Employment and Training, Special Program Department, 19 Staniford Street, Boston, MA 02114** and refer to case number 91088.

**RESEARCH ASSOCIATE:** Individual to participate in NMR spectroscopy and spectroscopic imaging at 4.7 tesla or higher magnetic fields with applications of such techniques to the investigation of cardiac metabolism and function in *in vivo* studies using canine whole animal models. Must have experience with interfacing NMR spectrometer and NMR data acquisition with hemodynamic and mechanical data gathering on the same animal. Requires documented expertise in gating strategies for NMR spectroscopy; working and research knowledge of basic biochemistry in particular bioenergetics and metabolism. M.D. and 1 year of research experience in coronary vascular physiology required. Salary commensurate with experience. Applications to: **Robert Bache, M.D., Professor of Medicine, Cardiovascular Division, Box 508 UMHC, University of Minnesota, Minneapolis, MN 55455.** *The University of Minnesota is an Equal Opportunity Educator and Employer and specifically invites and encourages applications from women and minorities.* Deadline for receipt of applications: 30 September 1989.

**RESEARCH ASSOCIATE** to study structure/function and regulation of synthesis/degradation of marine exopolysaccharides. Expertise in carbohydrate/protein chemistry desired to complement existing strengths in molecular biology/immunology. Position may become permanent with research institute. For best consideration, apply by 30 September 1989. Send résumé, addresses, and telephone numbers of three references to: **Dr. Ronald Weiner, Microbiology Department, University of Maryland, College Park, MD 20742.** *Equal Opportunity/Affirmative Action Employer.*

## POSITIONS OPEN

**RESEARCH ASSISTANT PROFESSOR, Ph.D.** in biochemistry to conduct research on external eye disease. Applicants should possess a sound knowledge of lipid biochemical techniques including thin-layer, gas-liquid, and high-performance liquid chromatography. Send a letter of interest and curriculum vitae to: **James P. McCulley, M.D., Professor and Chairman, Department of Ophthalmology, University of Texas Southwestern Medical Center, 5323 Harry Hines Boulevard, Dallas, TX 75235-9057.** *Equal Opportunity Employer.*

### RESEARCH ASSOCIATE / POSTDOCTORAL FELLOW IN MOLECULAR NEUROBIOLOGY

Position available to use "reverse genetic" strategies to clone genes involved in neuronal migration and cortical development using a human lissencephaly model system [see *PNAS* 86, 5136 (1989)]. Must have strong research background in molecular biology or neurobiology. Send curriculum vitae and letter of interest to: **David H. Ledbetter, Ph.D. Institute for Molecular Genetics, Baylor College of Medicine, Houston, TX 77030.**

### UNITED STATES DEPARTMENT OF AGRICULTURE AGRICULTURAL RESEARCH SERVICE WESTERN REGIONAL RESEARCH CENTER ALBANY, CALIFORNIA RESEARCH MICROBIOLOGIST/ PHARMACOLOGIST GS-15 (\$57,158 to \$74,303)

Research Leader to lead the WRRC Food Safety Research Unit. The successful candidate will be responsible for leadership of several multi-disciplinary teams of scientists in a broad program with major research thrusts in microbial contamination of the food supply, naturally occurring plant toxins, and environmental contaminants. Broad experience in microbiology, biochemistry, and molecular biology is required. Permanent appointment with excellent benefits. Call: **Dr. Martin Rogoff, 415-559-5600** for more technical information. For application and qualification information contact: **Rita Millard, ARS Personnel Division, Beltsville, MD. Telephone: 301-344-3138.**

*An Equal Opportunity Employer.*

**RESEARCH PHYSIOLOGIST** wanted to study fundamental effects in nonionizing radiobiology at Walter Reed Army Institute of Research, Washington, D.C. A Ph.D. is required. The candidate will design and conduct research identifying and characterizing physiologic effects of radiofrequency radiation on laboratory animals in an ongoing program with an experienced team of engineers and technicians already in place. Opportunities for multi-disciplinary collaborations with other scientists exist. Strength in developing physiological monitoring systems for experimentation, obtaining biochemical profiles, and hematological parameters, and utilizing computer-based data acquisition hardware and software is desired. The research is published in peer-reviewed journals. Collaborations with area universities and the nearby NIH are encouraged. ERC BioServices Corporation operates the laboratory under long-term contract with the Walter Reed Army Institute of Research. For additional information, call or send résumé to: **Dennis Brown, ERC BioServices Corporation, 1055 First Street, Suite 130, Rockville, MD 20850. Telephone: 301-427-5125.**

**RESEARCH SCIENTIST—Ph.D. or equivalent.** Experience with nucleic acid extraction, southern blot technology, PCR technology. Demonstrated expertise in procedures relevant to production of transgenic mice including embryo manipulation, pronuclear injection and oviduct transfer. \$23,000 per year. Send résumé to: **Box 133, SCIENCE.** *Equal Opportunity Employer/Affirmative Action.*

**RESEARCH SCIENTIST—M.D. or Ph.D.** with several years of experience in recombinant DNA technology with an interest in Down syndrome, Alzheimer's disease, and developmental disabilities. Salary negotiable, depending on experience. Attention reference #588. Send résumé to: **Personnel, New York State Institute for Basic Research in Developmental Disabilities, 1050 Forest Hill Road, Staten Island, NY 10314.**

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### Separations Research Engineer

You'll work as a principal investigator/program manager in our Separations Research group on projects to investigate the isolation and purification of biological compounds for use in the pharmaceutical and biotechnology industries. This research will involve the development of new separations technology for these applications including device design and scale up. Membrane, chromatographic, and other separations techniques will be investigated. You'll be responsible for independently planning, organizing, and conducting a research project in this area including the development and implementation of project plans and experiments as well as the analysis and interpretation of experimental data and modeling of the underlying physical phenomena.

To qualify, you'll need an MS or PhD in Chemical Engineering with 3-5 or 1-2 years' experience respectively, and expertise in the downstream processing of biological compounds. In addition, you should be an experimentalist with a good theoretical understanding of separations operations. A familiarity with the physical chemistry of biomolecules is desired.

### Senior Scientist Water Purification

You'll perform research in the area of novel water purification processes with emphasis on electrodeionization. The purpose of this research is to better understand the fundamentals of unit operations and systems used to produce high purity lab water. To better focus our research efforts, you'll also have extensive contact with customers to collect information on their requirements for high purity water for a variety of applications.

To qualify, you'll need an MS or PhD in Chemical Engineering or Chemistry with at least 4 or 10 years' related experience respectively. In addition, knowledge of, and research experience in, membrane, ion exchange, or absorption separation processes is required as is the ability to conduct independent research and interact effectively with customers. Prior experience in electrochemical processes would be highly beneficial.

**Interested candidates should forward a resume, including salary requirements, to: Employment Department, Millipore Corporation, 80 Ashby Road, Bedford, MA 01730. An equal opportunity employer.**

# MILLIPORE

## ENZYMOLOGIST / BIOCHEMIST Ph.D.

Excellent research opportunity is available in our Molecular Biology Department for an Enzymologist/Biochemist to work with a team of molecular biologists, biologists and chemists to develop rational approaches to the discovery of anti-cancer and anti-viral agents. The research areas will be in the rapidly expanding areas of oncogenes, viral enzymology and mechanisms of signal transduction. Publication of results is strongly encouraged.

The successful candidate will have a Ph.D. and at least 2 years of academic or industrial experience. Experience in state-of-the-art techniques for protein isolation, purification and characterization is essential. Experience with proteases will be highly valued.

Merck & Co., Inc. is the world leader in medical research offering excellent salary and benefits programs. This position is available at our West Point, PA laboratories located 25 miles northwest of Philadelphia.

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**Assistant Personnel Manager  
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**Merck Sharp & Dohme  
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West Point, PA 19486

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## POSITIONS OPEN

### RESEARCH SCIENTIST DEPARTMENT OF BRAIN AND COGNITIVE SCIENCES

To take major responsibility for running current project designed to study vision and visuomotor control in primates using neurophysiological and psychological methods.

Requirements: all candidates must possess a Ph.D. in Psychophysics with a very strong mathematical and biological background; minimum of 3 years of postdoctoral research training; experience in conducting psychophysical and neurophysiological experiments in vision, preferably on non-human primates; thorough familiarity with RT11, VMS, UNIX and DOS systems, and C, FORTRAN, and Macro-11 programming languages; knowledge of neural modeling methods. Salary range: \$36,600 to \$39,000. Please send two copies of your résumé and cover letter referencing Job No. R89-150 to: Ms. Ramona Alston, MIT Personnel Office, Building E19-239, 400 Main Street, Cambridge, MA 02139. MIT is an Equal Opportunity/Affirmative Action Employer. MIT is a non-smoking environment.

### RESEARCH TECHNICIANS

PDS Research Laboratories have immediate openings for several full-time technicians. Minimum requirements are a B.S./B.A. with 2 years of relevant experience or a M.S. with 1 year of experience. Individuals are needed in molecular biology (sequencing, expression in *E. coli*, vector construction, cloning), Immunology (IFA, RIPA, EIA, immunoblotting), and virology (growth and titration of human retroviruses and herpesviruses, antiviral drug testing). Successful candidates are expected to perform at a high level with minimal training. Excellent benefits and competitive salaries. Mail your résumé and salary history to: Ms. Joyce Estep, Pan-Data Systems, Inc., 13 Taft Court, Rockville, MD 20850.

### SCIENTIFIC CONDUCT POLICY ANALYSIS

The National Research Council is seeking a **STAFF OFFICER** for its Committee on Science, Engineering, and Public Policy's Study on Scientific Responsibility and the Conduct of Science. The study will examine recent trends that affect the conduct of modern research and factors that influence integrity and ethics in scientific conduct, the need for explicit guidelines for researchers and research institutions to strengthen basic scientific standards, and the appropriate roles for public and private institutions in addressing issues related to scientific conduct. Responsibilities include planning and supporting the work of expert panels, establishing and maintaining contact with external organizations, and preparing reports in connection with one or more panels or other experts. Requires an M.A./M.S./Ph.D. or equivalent and at least 2 years of related experience. Demonstrated familiarity with policy analysis is essential. We offer a starting salary in the mid to high \$30's commensurate with experience and qualifications. Please respond in confidence to: NRC/COSEUP, NAS 182 (RC), 2101 Constitution Avenue, NW, Washington, DC 20418. Equal Opportunity Employer.

### SENIOR CORROSION ENGINEER

Responsible for conducting advanced research on corrosion mechanisms and corrosion inhibition methods for boiler systems. Will use electrochemical and surface analysis techniques including AC impedance and DC polarization. Will develop improved chemical treatment programs for corrosion and scale control in boilers through such research. Will use stress corrosion cracking inhibitors, hydrogen embrittlement, pitting corrosion and corrosion measuring techniques to develop corrosion inhibitors for corrosion control of carbon steel. Requires Ph.D. degree in chemistry or metallurgical engineering with a major field of study in corrosion science. Education to include 2 years of research on corrosion mechanisms and corrosion inhibition methods of stainless or carbon steel in aqueous systems using AC impedance, DC polarization, surface analysis, and advanced electrochemical techniques. Hours: 8:00 a.m. to 4:45 p.m.; 40 hours per week at \$41,000 per year salary. Please send résumé to: Illinois Department of Employment Security, 401 South State Street—3 South, Chicago, IL 60605. Attention: Marie Ninneman, Reference #9482-N. An Employer Paid Ad.

## POSITIONS OPEN

### UNIVERSITY OF PENNSYLVANIA DEPARTMENT OF CHEMISTRY

As a part of a continuing development program, the Department of Chemistry at University of Pennsylvania plans to make a **SENIOR APPOINTMENT** in the area of organic chemistry. While all areas will be considered, candidates in the area of complex molecule synthesis as applied to the biomedical sciences would most complement the current faculty.

In addition, the Department plans to add three faculty members at the **ASSISTANT PROFESSOR** (tenure probationary) level beginning July 1990. The general areas of research are organic, inorganic, and materials chemistry. Although all areas will again be considered, candidates in the areas of complex molecule synthesis, bioorganic, bioinorganic, organometallic, polymer, and organic solid-state chemistry would most complement the current faculty. All applicants should send curriculum vitae, list of publications, and a description of research interests to: Amos B. Smith, III, Chairman, Department of Chemistry, University of Pennsylvania, Philadelphia, PA 19104-6323 by 15 October 1989. In addition, assistant professor candidates should arrange for three letters of recommendation to be forwarded to the above address. The University of Pennsylvania is an Affirmative Action/Equal Opportunity Employer.

**STAFF SCIENTIST III/EXPERIMENTAL NUCLEAR PHYSICS.** Forty hours per week; 9:00 a.m. to 5:00 p.m. \$56,500 to \$60,000 per year. Lead the effort in design, construction, and operation of electromagnetic calorimeter and other detectors for electron, photon, and neutron detection in large acceptance spectrometer (LAS). Develop operation of polarized beams and targets in the LAS detector. Develop proposals for measurements of baryon resonance excitation, and of the nucleon electric formfactors using polarization measurement. Develop methods for simulating operating conditions in LAS detectors for intermediate energy electron scattering experiments. Ph.D. in physics required plus 5 years of research experience in electrodynamics experiments. Experience in design, construction, and operation of highly segmented detectors for measuring electromagnetic showers in LAS. Experience with electron scattering experiments in the nucleon resonance region. Experience with high-energy polarized electrons and/or with polarized solid-state targets. Publications in fields of electroexcitation of baryon resonances, and in electronuclear physics. Applicant should mail or hand-carry résumé with copy of ad attached to: M. J. Hotchkiss, Virginia Employment Commission, 5145 East Virginia Beach Boulevard, Norfolk, VA 23502. J.O. # VA8064126.

The U.S. Department of Agriculture, Agricultural Research Service (ARS), Laramie, Wyoming, is seeking a **VETERINARY MEDICAL OFFICER** (D.V.M., Ph.D., or V.M.D., Ph.D.) to study the pathogenesis, virology and control of and host immune responses to arthropod-borne viruses and their insect vectors; currently the research is directed to bluetongue and epizootic hemorrhagic disease viruses and the biting gnat, *Culicoides variipennis*. Research approaches will be basic and applied studies that will require a knowledge of virology, immunology, serology, and/or pathology. Candidates must have knowledge of the use of modern molecular biologic technology, including ELISA, gene probes, and other immunolabeling or immunodetection techniques. Salary is commensurate with experience (GS-12/1 to GS-14/10, \$34,580 to \$63,172 per annum). For information on the research program, contact: Dr. Thomas E. Walton, FTS: 328-0304 or 307-721-0304. For information on application procedures/forms, contact: Ms. Julia A. Murchison, 301-344-3138. Applications in response to this advertisement should be marked and addressed to: Announcement No. 9W029, USDA, ARS, Arthropod-borne Animal Diseases Research Laboratory, P.O. Box 3965, University Station, Laramie, WY 82071, Attention: Dr. Thomas E. Walton. Applications must be received by 1 October 1989. An Equal Opportunity Employer.

## POSITIONS OPEN

This **SENIOR SCIENTIST** position will require a Ph.D. in chemistry with demonstrated experience with fiber optic and other chemical sensor technology as well as other sampling and analysis technologies for environmental media. In particular, the incumbent will identify and prioritize research requirements for measurement technologies that have a reasonable probability of success when applied to environmental monitoring. He/she will then assist in developing an appropriate technical research plan and will provide technical oversight for implementation of the plan, as well as performing his/her own research on selected technologies. This person will also provide technical support to the monitoring and measurement technologies program of the Superfund Innovative Technology Evaluation (SITE) Program. Duties under this task will include: (i) determine the feasibility of new and innovative monitoring technologies for application to Superfund site characterization, (ii) identify and nominate candidate technologies for either the demonstration or emerging technologies program, and (iii) provide expert review of the technical aspects of plans for the demonstration of technologies. Send résumé, transcripts, and the names of three references by 15 September 1989 to: Dr. D. S. Barth, Director, Environmental Research Center, University of Nevada-Las Vegas, 4505 South Maryland Parkway, Las Vegas, NV 89154.

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

### TENURE-TRACK FACULTY POSITION UCR/UCLA PROGRAM IN BIOMEDICAL SCIENCES Human Gross Anatomy

The UCR/UCLA Program in Biomedical Sciences, which offers an accelerated M.D. curriculum jointly between the University of California, Riverside (UCR) and the University of California, Los Angeles (UCLA) School of Medicine, has a tenure-track faculty position open in the Division of Biomedical Sciences at UCR available 1 February 1990. Primary teaching responsibilities will be in a 10-week lecture and laboratory course in human gross anatomy for 24 first-year medical students. Prior gross anatomy teaching experience is considered essential. The successful candidate is also expected to actively participate in graduate student training.

The committee welcomes applications from those working in any modern area of biological research, but applicants with interests in cell, molecular, or developmental biology or neurosciences are encouraged to apply. The prospective level of appointment for candidates, who must possess the Ph.D. and/or M.D. degree, may be at the assistant, associate, or full professor level. Junior applicants must have postdoctoral research experience and the potential to develop a strong, extramurally funded research program. Senior applicants should have a clearly demonstrable record of research productivity, success in obtaining extramural funding, and demonstrated teaching effectiveness. The University of California is an Affirmative Action/Equal Opportunity Employer. The deadline for application is 31 October 1989. Applicants should send curriculum vitae, representative reprints, a statement of present and future research goals, summary of teaching experience, and arrange to have three letters of recommendation sent to:

Dr. Kenneth Dorshkind  
Anatomy Search Committee  
Division of Biomedical Sciences  
University of California  
Riverside, CA 92521-0121

### TOXICOLOGIST

Rapidly expanding contract laboratory seeks a highly motivated individual with 1 to 3 years of postdoctoral experience in small animal toxicology for the position of assistant director of toxicology. Desirable experience includes familiarity with TSCA, FIFRA, FHSA, USP and/or OECD Guidelines. Applicant should have supervisory experience, strong verbal and written language skills, and a desire to help meet the varied needs of an expanding client base. Interested persons should submit curriculum vitae and the names of three references to: Dr. Herman S. Lilja, Toxikon Corporation, 225 Wildwood Avenue, Woburn, MA 01801. Toxikon is an Equal Opportunity Employer.

## NATIONAL INSTITUTES OF HEALTH ANALYTICAL CHEMIST

The Laboratory of Neurosciences, National Institute on Aging, NIH, invites applicants for an Analytical Chemist position, to supervise the operation of a clinical pharmacokinetics laboratory and to develop analytical techniques in support of clinical and basic pharmacology programs. The Laboratory of Neurosciences conducts multidisciplinary research on brain function in healthy aging and dementia. The Unit on Pharmacology and Pharmacokinetics investigates basic brain functions and evaluates the therapeutic efficacy of drugs in dementias such as Alzheimer's disease, in inpatient and ambulatory settings.

This position is for a Senior Staff Fellow or Visiting Scientist, with a salary commensurate with experience. Applications are invited from qualified individuals having a Ph.D. degree or equivalent. Previous experience in biological analysis is desired. NIH is an equal opportunity employer, and applications from women and minorities are invited. Interested candidates should submit a curriculum vitae and a statement of research interests to:

**Timothy T. Soncrant, M.D.**  
Chief, Unit on Pharmacology and  
Pharmacokinetics  
Laboratory of Neurosciences  
National Institute on Aging/NIH  
Bldg. 10/6C103  
9000 Rockville Pike  
Bethesda, MD 20892

## ASSISTANT OR ASSOCIATE PROFESSOR GENETICS

The Department of Biology of Vassar College invites applications for a tenure-track position at the assistant or associate professor rank to begin fall semester, 1990. We seek a teacher/scholar broadly trained in eukaryotic or prokaryotic genetics. A research program using modern genetic approaches to problems in physiology, metabolism or development would be especially attractive. The successful candidate must have the Ph.D., postdoctoral training and strong teaching credentials, preferably including experience with undergraduates and the capacity to engage them in research. For appointment at the advanced rank, evidence of extramural support of research is expected. The biology department offers modern, well-equipped and ample laboratory facilities, including a vivarium and greenhouse. Applications must include curriculum vitae, a statement addressing interests in both teaching and research, and names and addresses of three references. Send to: Dr. Patricia R. Johnson, Chair, Department of Biology, Vassar College, Poughkeepsie, NY 12601. Closing date for receipt of applications: October 10, 1989. *An AA/EEOC Employer; Women and minorities are encouraged to apply.*



### Epithelial Cell Investigation

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Scientists in the CIBA-GEIGY Pharmaceuticals Division facilities located in Ardsley, NY are conducting studies leading to advanced drug delivery systems. The PhD level scientist we seek will establish buccal epithelial cells in culture, and investigate barrier properties using radio-labelled probes, model drugs, microscopy, electrophysiological techniques and other investigative methods.

Ideal candidate will have experience in maintaining epithelial cell cultures and will also possess excellent laboratory planning and organizing ability as well as good communication skills.

We offer competitive compensation, extensive benefits, as well as excellent career possibilities and location at CIBA-GEIGY Corporate Headquarters in suburban Westchester County. For consideration, please send **two** copies of your curriculum vitae with salary history and requirements to: **Patricia A. Garrett, CIBA-GEIGY Corporation, Dept. 2237, 444 Saw Mill River Road, Ardsley, New York 10502-2699.** We Are An Equal Opportunity Employer M/F/H/V.

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## PhD Research Opportunities

The Biological and Medical Research Division at Argonne National Laboratory has two staff positions available. Applicants should have a PhD degree in Cellular Biology, Molecular Biology, or a related field, combined with at least three years of postdoctoral training and experience in radiation biology or chemical carcinogenesis. Candidates will be expected to establish basic research programs that complement existing research activities. Research will be focused on the mode of action of ionizing radiation or carcinogenic chemicals in mammalian cells. Primary areas of interest are cellular and molecular oncogenesis. (Respond to Box 31663/64)

Postdoctoral positions are also available in these fields of research. Postdoctoral applicants must have received their degree within three years of the appointment. (Respond to Box-POSTDOC)

Salary will be competitive, commensurate with background and experience. Applicants should send curriculum vitae, indicating appropriate Box #, and names of at least three references and a summary of research goals to: Ms. Rosalie L. Bottino, Box D-BIM-\_\_\_\_\_-55, Argonne National Laboratory, 9700 South Cass Avenue, Argonne, IL 60439. Argonne is an equal opportunity/affirmative action employer.



**ARGONNE  
NATIONAL LABORATORY**

University of Chicago/DOE

## POSITIONS OPEN

**TECHNICAL EDITOR/PRINT MEDIA SPECIALIST**—Radiation Effects Research Foundation, Hiroshima, Japan. Requires extensive experience editing technical manuscripts for consistency in English-language usage and general scientific report format. Previous experience in copywriting for, and coordination of the regular production of public relations, print media, such as newsletters and brochures, is essential. Knowledge of word processing is necessary; some experience with database manuscript monitoring and desktop publishing is also recommended. Previous supervisory experience desirable. Visiting professional staff at RERF are employees of the U.S. National Academy of Sciences (NAS) and are paid salaries commensurate with their experience. Compensation provided for overseas employment commensurate with State Department guidelines. Interested persons should direct inquiries or applications, including an updated curriculum vitae, to: **Director, National Academy Press, National Academy of Sciences, 2101 Constitution Avenue, NW, Washington, DC 20418.** RERF/NAS are Equal Opportunity Employers.

### UNIVERSITY VETERINARIAN AND DIRECTOR OFFICE OF ANIMAL CARE MANAGEMENT UNIVERSITY OF VERMONT

Applications are invited for the position of University Veterinarian and Director, Office of Animal Care Management, University of Vermont (UVM). This position, which reports to the Provost's Office, has the responsibility for promulgating and maintaining the highest standard of operating procedures for all campus animal facilities. In addition to serving as a member of the Institutional Animal Care and Use Committee, the University Veterinarian will represent UVM in all matters related to animal care and use, including liaison with state and federal inspectors, media, community groups, and the public at large.

Minimum qualifications include a D.V.M. or equivalent veterinary degree, experience in laboratory animal medicine, and familiarity with all pertinent policies, regulations, and laws pertaining to animal care and use. Desirable qualifications include Board Certification/Eligibility in laboratory animal medicine and a demonstrated awareness of and sensitivity to the public's perception of animal care and use. Administrative experience in a university or other complex organization using animals is also desirable, as is research experience or demonstrated potential for productive scholarly work.

Applications must include a cover letter stating the reasons for interest in the position, an updated curriculum vitae, as well as letters from three references. These materials should be sent before 30 September 1989 to:

**Dr. Catherine W. Donnelly**  
Chair of the Search Committee  
Dean's Office  
College of Agriculture and Life Sciences  
Morrill Hall, University of Vermont  
Burlington, VT 05405

*Women and minority candidates are encouraged to apply. The University of Vermont is an Affirmative Action/Equal Opportunity Employer.*

The Winship Cancer Center of the Emory University School of Medicine and the Yerkes Regional Primate Research Center of Emory University has an opening for a senior **VIROLOGIST/MOLECULAR BIOLOGIST** with experience in retrovirus research. The primary faculty appointment is a tenure-track position at the assistant/associate professor level in the Winship Cancer Center. Candidates should have a Ph.D., M.D., or equivalent and should have had sufficient research experience to demonstrate their ability to establish an independent basic research program with extramural funding in the area of studies related to the mechanisms of pathogenesis of the etiologic agents of human AIDS and experimental animal models of AIDS. Applicants should be able to integrate basic research at a molecular level with ongoing clinical, immunological, and pathological studies of the simian immunodeficiency virus. Salary is negotiable and is commensurate with experience. The position is available immediately. Letters of application including curriculum vitae, bibliography, a brief statement of research interests, and the names of three references should be sent to: **Kenneth W. Sell, M.D., Ph.D., Director, Winship Cancer Center, 1327 Clifton Road, NE, Atlanta, GA 30322.** Emory University is an Equal Opportunity/Affirmative Action Employer.

## POSITIONS OPEN

### JPL/NASA VISITING SENIOR SCIENTIST SPACE PHYSICS DIVISION IONOSPHERIC PHYSICS

The Jet Propulsion Laboratory (JPL) is seeking senior scientists in the area of ionospheric physics to serve as Discipline Scientists at NASA Headquarters in Washington, D.C. The successful applicants will be involved in the formulation of strategies and implementation of plans and programs for the Space Physics Division, which includes the ionospheric physics branch. This branch covers the area of space plasma physics, including activities in the U.S. as well as collaborations with international organizations. Current branch responsibilities include oversight of Research and Analysis Programs as well as programs in planning including the use of the Space Station. A Ph.D. (or equivalent research experience) in space plasma physics or a closely related discipline with 3 years of experience in a NASA-sponsored research program is required. Frequent travel and residence in the Washington, D.C. area will be required. For more information about the scope of the program and position responsibilities, contact: **Dr. Stanley D. Shawhan, 202-453-1544.**

Tenured faculty members are the preferred choice, although qualified individuals from nonprofit research institutions may also be considered. Normal assignment in the Visiting Senior Scientist Program does not exceed 2 years. Appointees must be U.S. citizens or permanent residents and are expected to return to their home institution following the NASA assignment. Please provide curriculum vitae, bibliography, and the names of four references to:

**Dr. Harry Ashkenas 180-900**  
Jet Propulsion Laboratory  
Department T-20  
4800 Oak Grove Drive  
Pasadena, CA 91109  
Telephone: 818-354-8251

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

### JPL/NASA VISITING SENIOR SCIENTIST SPACE PHYSICS DIVISION SOLAR PHYSICS BRANCH

The Jet Propulsion Laboratory (JPL) invites applications to its Visiting Senior Scientist Program in the area of Solar Physics.

The Space Physics Division at NASA Headquarters is seeking an individual with a background in solar physics to aid in the development and coordination of the NASA solar physics research and technology efforts. NASA's solar program addresses all aspects of contemporary solar physics, ranging from the Sun as a representative star to the Sun as the object that generates the Earth's space environment as well as the development of advanced instrumentation for space and balloon-borne solar missions.

As a staff scientist in the Solar Physics Branch at NASA Headquarters, the incumbent will provide lead responsibility for the administration of the Solar Physics Supporting Research and Technology, Data Analysis, and Suborbital Programs. In addition, the incumbents will serve as a recognized expert in solar physics for the structuring of NASA programs, and in relating those programs to not only the overall needs of the U.S. scientific community but to those of collaborating foreign nations as well. Frequent travel and residence in the Washington, D.C. area will be required. For more information about the scope of the program and position responsibilities, contact: **Dr. Stanley D. Shawhan, 202-453-1544.**

Tenured faculty members are the preferred choice although qualified individuals from nonprofit research institutions may also be considered. This position is open for immediate filling. Normal assignment in the Visiting Senior Scientist Program does not exceed 2 years. Appointees must be U.S. citizens or permanent residents and are expected to return to their home institutions following the NASA assignment. Please provide curriculum vitae, bibliography, and the names of four references to:

**Dr. Harry Ashkenas 180-900**  
Jet Propulsion Laboratory  
Department T-22  
4800 Oak Grove Drive  
Pasadena, CA 91109  
Telephone: 818-354-8251

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

## RESEARCH GRANT



**ALZHEIMER'S DISEASE RESEARCH GRANT**  
applications are being accepted by the American Health Assistance Foundation. Grants are for 2 years, \$100,000 maximum per year, renewable. Deadline date: 31 October 1989. Write to:

**American Health Assistance Foundation**  
Alice Massa, Research Grants Coordinator  
15825 Shady Grove Road, Suite 140  
Rockville, MD 20850

## SYMPOSIUM

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## FELLOWSHIPS

### PRE- AND POSTDOCTORAL FELLOWSHIPS IN MICROBIOLOGY/MOLECULAR PATHOGENESIS CANCER BIOLOGY

Pre- and postdoctoral fellowships for students with appropriate degrees in microbiology, cell biology, biochemistry, genetics, or related fields are funded by NIH Training Grant and supplemented to competitive level. Please send curriculum vitae and names of three referees to: **Peter G. Plagemann**, Professor, Department of Microbiology, University of Minnesota Medical School, Box 196 UMHC, Minneapolis, MN 55455. *The University of Minnesota is an Equal Opportunity Educator and Employer. We actively and specifically invite and encourage applications from women and minorities.*

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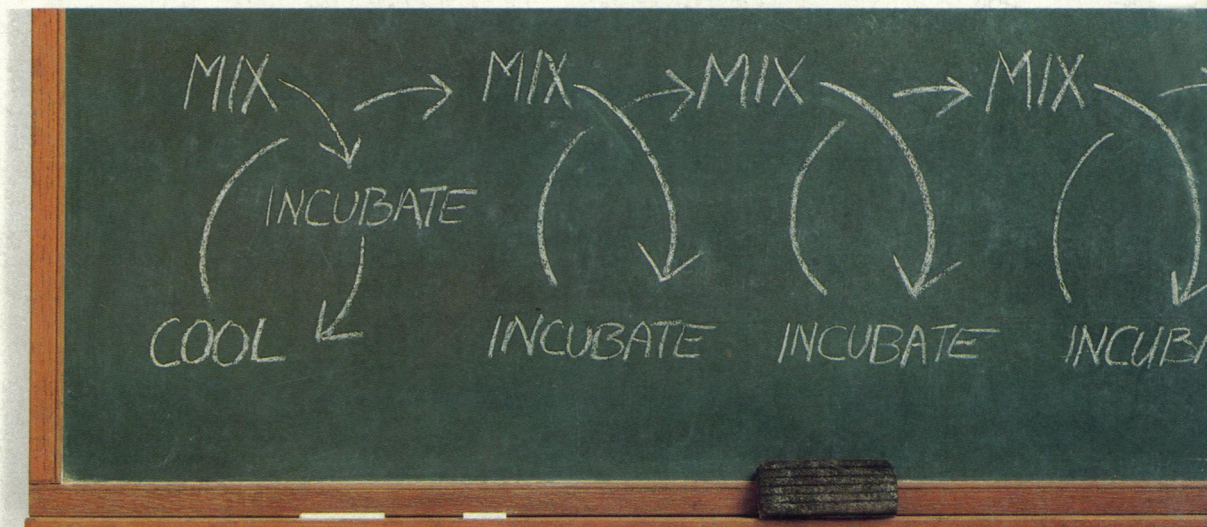
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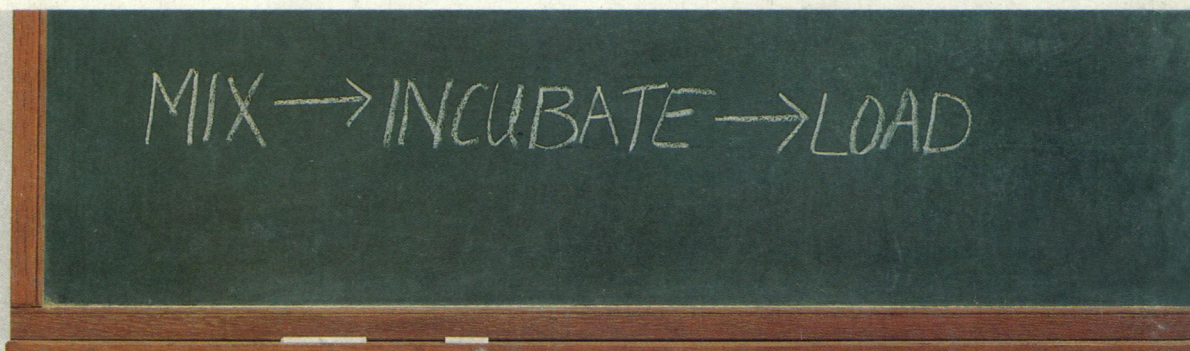


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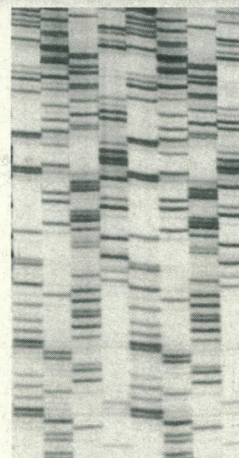
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