

contributors use phylogenetic methods and are willing to explore new ideas without bias. Disagreements abound, but generally the discussion is refreshingly civil. The editors were able to achieve fairly uniform standards, given the diversity of viewpoints of the contributors. A modicum of pompous graffiti did sneak through in one contributor's effort, but then you can't win them all.

The book is outrageously expensive in view of the fact that the editors did most of the work and it was prepared from camera-ready copy, but it is absolutely fascinating.

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## The Study of Polymers

**Polymers.** The Origins and Growth of a Science. HERBERT MORAWETZ. Wiley-Interscience, New York, 1985. xviii, 306 pp. \$47.50.

Despite the enormous technical importance of polymers and their crucial role in living organisms, polymer chemistry makes up a very small part of the formal training of most chemists. Further, although polymers have intrigued (and plagued) chemists since the beginning of their science, the history of polymer science has had little attention.

In tracing its development since the early 19th century (the term "polymeric" was apparently first coined by Berzelius in 1833) to 1960, Herbert Morawetz makes a major contribution to this branch of the history of chemistry, since he not only has read innumerable original papers (from which he quotes copiously) but has consulted company files and interviewed surviving leaders of earlier days. The result, though not always easy reading, gives a revealing picture not only of the growth of polymer science but also of the halting and confused manner in which scientific understanding actually develops.

Indeed, from reading this book one concludes that the development of polymer chemistry was particularly halting and confused. Although polymeric natural products such as rubber and cellulose were available and were studied since the beginning of organic chemistry, the possibility of understanding their structures had to wait for the acceptance of the covalent bond model for small molecules in the later 1800's. (Morawetz gives a good account of this and of the lack of communication between organic and physical chemists of the period, with the former actively using structural concepts in their work while some of the

latter still questioned the existence of molecules.) The embarrassing fact is that it actually took another 50 years and much controversy before simple covalent structures were universally accepted for polymers. E. E. Slosson's *Creative Chemistry* (1920), which introduced me to organic chemistry, still described rubber as an isoprene dimer, and Conant's *Organic Chemistry* (1934), my college textbook, still said cautiously that vinyl polymers were "probably" long linear chains. If there were villains in this controversy, they were the colloid chemists, who grouped an ill-assorted mixture of gold-sols, micelles, and high polymers together as a unique state of matter with its own laws and properties. The primary hero was Hermann Staudinger, who devoted a career to establishing the linear covalent chain structure of most polymers, but a number of others appear as well: W. H. Carothers, P. J. Flory, and H. S. Mark, to whom the book is most appropriately dedicated, to name perhaps the best known.

Not only did it take a long time for the covalent structure of polymers to be established, many other important principles had to be repeatedly restated and rediscovered. The idea that unit cells detected by x-ray scattering could be smaller than the molecules producing them was proposed by Polanyi in 1921 but was still being debated several years later. Again, cryoscopic and osmotic molecular weights of polymers were repeatedly discarded when they failed to agree with preconceived ideas, and I can still remember debates in the 1940's as to whether the solution properties of polymers arose because they were loose coils or extended ellipsoids.

Morawetz terms the period 1914–1942 the classical period of polymer science. True, by 1942 the different strands of knowledge that now make up polymer science had been largely drawn together, but the results were known only to a few (mostly European) chemists. I think the enormous impact of World War II is somewhat understated. The United States had to build a synthetic rubber industry virtually from scratch, and polymers had many other uses in the war effort. Impressive resources and manpower were thrown into polymer science, and to those who were involved the period 1943–1949 was really the golden age of polymer chemistry. Herman Mark had personally brought European polymer chemistry to the United States and through regular Saturday meetings at the Polytechnic Institute of Brooklyn was actively spreading the word and providing a center for the exchange of ideas. The theories and principles that had been advanced were being applied and shown to work, new techniques for deter-

mining polymer structure and molecular weights were being validated. The mysteries of emulsion polymerization were being unraveled, and the study of copolymerization and chain transfer in vinyl polymerization was providing a whole new basis for understanding free-radical chemistry.

Morawetz is a physical chemist, and he emphasizes the development of physical-chemical concepts: rubber elasticity, crystallinity, polymer solution properties. He seems less at home with topics such as polymerization kinetics and many aspects of polymer technology, although these are also treated. Also, in spite of his exhaustive reading of the literature, he occasionally has trouble with questions of who did what in fields where much of the original work was of proprietary nature or (during World War II) classified. To cite two examples from my own experience, he notes (p. 172) that, "ironically," no mention of mercaptans as transfer agents was made in Mayo's classic 1943 paper on the subject and (p. 185) that the fact that different polymerization mechanisms led to different copolymer compositions was first published in 1950. I can report that both phenomena were well understood by the Mayo group and others at the U.S. Rubber Company in 1943, although publication was withheld for several years.

These are minor criticisms. This is an excellent book that should be an important source, both to polymer chemists and to historians of science.

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## Books Received

**The Atmosphere of Venus.** Recent Findings. G. M. Keating, A. J. Kliore, and V. I. Moroz, Eds. Published for the Committee on Space Research by Pergamon, New York, 1985. vi, 199 pp., illus. Paper, \$49.50. *Advances in Space Research*, vol. 5, no. 9. From a symposium, Graz, Austria, June 1984.

**Atoms of Silence.** An Exploration of Cosmic Evolution. Hubert Reeves. MIT Press, Cambridge, MA, 1985. xii, 244 pp., illus. Paper, \$8.95. Translated from the French edition (Paris, 1981) by Ruth A. Lewis and John S. Lewis. Reprint, 1984 edition.

**The BALB/c Mouse.** Genetics and Immunology. M. Potter, Ed. Springer-Verlag, New York, 1985. xvi, 253 pp., illus. \$49. *Current Topics in Microbiology and Immunology* 122. From a meeting, Bethesda, MD, March 1985.

**Blotin.** Krishnamurti Dakshinamurti and Hemmige N. Bhagaven, Eds. New York Academy of Sciences, New York, 1985. x, 441 pp., illus. Paper \$100. *Annals of the New York Academy of Sciences*, vol. 447. From a conference, New York, 1984.

**Bleomycin Chemotherapy.** Branimir Ivan Sikic, Marcel Rozenzweig, and Stephen K. Carter, Eds. Academic Press, Orlando, FL, 1985. xx, 316 pp., illus. \$49.50; paper, \$29.95. From a symposium, San Francisco, Sept. 1984.

**Brave New Workplace.** Robert Howard. Viking, New York, 1985. xii, 224 pp. \$16.95.

## REQUEST FOR PROPOSALS ON SPECIAL RESEARCH AREAS IN SUBSURFACE SOLUTE MIGRATION STUDIES

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**Calmodulin Antagonists and Cellular Physiology.** Hiroyoshi Hidaka and David J. Hartshorne, Eds. Academic Press, Orlando, FL, 1985. xxiv, 543 pp., illus. \$79.

**Cancer.** A Biological and Clinical Introduction. Steven B. Oppenheimer. 2nd ed. Jones and Bartlett, Boston, 1985. x, 262 pp., illus. \$30.

**Cardiac Morphogenesis.** Victor J. Ferrans, Glenn Rosenquist, and Constance Weinstein, Eds. Elsevier, New York, 1985. xiv, 282 pp., illus. \$34. From a meeting, Alexandria, VA, Dec. 1984.

**Cardiovascular Shunts.** Phylogenetic, Ontogenetic and Clinical Aspects. Kjell Johansen and Warren Burggren, Eds. Munksgard, Copenhagen, 1985 (U.S. distributor, Raven, New York). 492 pp., illus. \$59.50. Alfred Benzon Symposium 21. From a symposium, Copenhagen, June 1984.

**The Computer and The Child.** A Montessori Approach. Peter G. Gebhardt-Seale. Computer Science Press, Rockville, MD, 1985. xii, 250 pp., illus. Paper, \$19.95. Computers in Education Series.

**Computer-Assisted Bacterial Systematics.** M. Goodfellow, D. Jones, and F. G. Priest, Eds. Published for the Society for General Microbiology by Academic Press, Orlando, FL, 1985. xii, 443 pp., illus. \$75. From a symposium, Warwick, England, April 1983.

**Contamination of Groundwater and Groundwater Treatment.** R. Urbistondo and L. R. Bays, Eds. Pergamon, New York, 1985. x, 233 pp., illus. Paper, \$66. Water Supply, vol. 3, no. 1. From a conference, Berlin, April 1985.

**Continuing the Nuclear Dialogue.** Selected Essays. Alvin M. Weinberg. American Nuclear Society, La Grange Park, IL, 1985. xii, 206 pp. Paper, \$25.

**Continuity of Neural Functions from Prenatal to Postnatal Life.** Heinz F. R. Precht, Ed. Lippincott, Philadelphia, and Blackwell Scientific, Oxford, England, 1984. viii, 255 pp., illus. \$29.50. Clinics in Developmental Medicine, no. 94.

**Controlling Chemicals.** The Politics of Regulation in Europe and the United States. Ronald Brickman, Sheila Jasanoff, and Thomas Ilgen. Cornell University Press, Ithaca, NY, 1985. 344 pp. \$34.95.

**Cooperative Approaches to Research and Development of Orphan Drugs.** Melvin H. Van Woert and Eunyong Chung, Eds. Liss, New York, 1985. xii, 204 pp. \$36. Progress in Clinical and Biological Research, vol. 197. From a conference, New York, April 1984.

**Diseases of Complex Etiology in Small Populations.** Ethnic Differences and Research Approaches. Ranajit Chakraborty and Emöke J. E. Szathmari, Eds. Liss, New York, 1985. xii, 423 pp. \$49.50. Progress in Clinical and Biological Research, vol. 194. From a symposium, Victoria, B.C., Aug. 1983.

**Diseases of Marine Animals.** Vol. 4, Part 1, Introduction, Pisces. Otto Kinne, Ed. Biologische Anstalt Helgoland, Hamburg, Germany, 1984. xvi, 541 pp., illus. DM 75.

**Dredging Coastal Ports.** An Assessment of the Issues. Marine Board, National Research Council. National Academy Press, Washington, DC, 1985. xii, 212 pp. \$26; paper, \$21.50.

**Drug Discovery.** The Evolution of Modern Medicines. Walter Snedder. Wiley, New York, 1985. x, 435 pp., illus. \$21.95.

**Energy Technologies and Conversion Systems.** Merlin H. Kleinbach and Carlton E. Salvagin. Prentice-Hall, Englewood Cliffs, NJ, 1986. xii, 452 pp., illus. \$39.95. Prentice-Hall Series in Energy.

**Entomology of the California Channel Islands.** Arnold S. Menke and Douglass R. Miller, Eds. Santa Barbara Museum of Natural History, Santa Barbara, CA, 1985. vi, 178 pp., illus., + loose maps. Paper, \$20. From a symposium, San Diego, Dec. 1981.

**An Environmental Agenda for the Future.** John H. Adams et al., Island Press, Washington, DC, 1985. viii, 155 pp. \$5.95.

**Evolution of Matter and Energy.** On a Cosmic and Planetary Scale. M. Taube. Springer-Verlag, New York, 1985. xiv, 289 pp., illus. Paper, \$24.

**Evolving Hierarchical Systems.** Their Structure Representation. Stanley N. Salthe. Columbia University Press, New York, 1985. xii, 343 pp., illus. \$30.

**Excavations at the Lake George Site.** Yazoo County, Mississippi 1958-1960. Stephen Williams and Jeffrey P. Brain. Peabody Museum of Archaeology and Ethnology, Harvard University, Cambridge, MA, 1985 (distributor, Harvard University Press, Cambridge, MA). xxvi, 483 pp., illus. Paper, \$45. Papers of the Peabody Museum of Archaeology and Ethnology, vol. 74, 1983.

**Fracture and Fracture Mechanics.** Case Studies. R. B. Tait and G. G. Garrett, Eds. Pergamon, New

York, 1985. xxii, 343 pp., illus. \$55. International Series on the Strength and Fracture of Materials and Structures. From a conference, Johannesburg, Nov. 1984.

**Frantz Fanon and the Psychology of Oppression.** Hussein Abdilahi Bulhan. Plenum, New York, 1985. xiv, 299 pp., illus. \$37.50. Path in Psychology.

**Frequencies of Hemoglobin Variants.** Thalassemia, the Glucose-6-Phosphate Dehydrogenase Deficiency, G6PD Variants, and Ovalocytosis in Human Populations. Frank B. Livingstone. Oxford University Press, New York, 1985. 526 pp. Spiral bound, \$35.

**From Gene to Animal.** An Introduction to the Molecular Biology of Animal Development. David de Pomerai. Cambridge University Press, New York, 1985. xvi, 293 pp., illus. \$44.50; paper, \$14.95.

**Frontiers in Nuclear Dynamics.** R. A. Broglia and C. H. Dasso, Eds. Plenum, New York, 1985. xii, 402 pp., illus. \$69.50. Ettore Majorana International Science Series. Physical Sciences, vol. 25. From a symposium, Erice, Sicily, July 1984.

**Fundamentals of Insect Physiology.** Murray S. Blum, Ed. Wiley-Interscience, New York, 1985. xvi, 598 pp., illus. \$39.95.

**Fundamentals of Logic Design and Switching Theory.** Arthur D. Friedman. Computer Science Press, Rockville, MD, 1986. x, 262 pp., illus. \$26.95.

**Fundamentals of Neuropsychology.** Robert F. Schmidt, Ed. 3rd ed. Springer-Verlag, New York, 1985. x, 346 pp., illus. Paper, \$19.95. Springer Study Edition. Translated from the German by M. A. Biederman-Thorson.

**Galileo.** Exploration of Jupiter's System. C. M. Yeates et al. NASA Scientific and Technical Information Branch, Washington, DC, 1985. vii, 175 pp., illus. Paper, \$12. NASA SP-479.

**Gathering the Desert.** Gary Paul Nabhan. Illustrations by Paul Mirocha. University of Arizona Press, Tucson, 1985. x, 209 pp., illus. \$19.95.

**Gearing Up for the Fast Lane.** New Tools for Management in a High-Tech World. Deborah S. Bright. Random House, New York, 1985. xxii, 229 pp. \$19.95.

**General Histology of the Mammal.** An Atlas for Students of Medicine and Biology. Radivoj V. Krstić. Springer-Verlag, New York, 1984. xvi, 404 pp., illus. \$35. Translated from the German edition (Berlin, 1984) by S. Forster.

**Home Environments.** Irwin Altman and Carol M. Werner, Eds. Plenum, New York, 1985. xxii, 339 pp. \$39.50. Human Behavior and Environment, vol. 8.

**Homeostatic Function and Aging.** Bernard B. Davis and W. Gibson Wood, Eds. Raven, New York, 1985. xvi, 206 pp., illus. \$35. Aging, vol. 30. From a conference, St. Louis, Sept. 1984.

**The Hospice.** Development and Administration. Glen W. Davidson, Ed. 2nd ed. Hemisphere, Washington, DC, 1985. xvi, 232 pp. \$34.95. Series in Death Education, Aging, and Health Care.

**The Hot Life of Man and Beast.** D. B. Dill. Thomas, Springfield, IL, 1985. xxii, 185 pp., illus. \$19.50. American Lecture Series Publication no. 1065.

**Immunogenetic Approaches to the Control of Endoparasites.** With Particular Reference to Parasites of Sheep. J. K. Dineen and P. M. Outteridge, Eds. CSIRO Division of Animal Health, East Melbourne, Australia, 1984 (U.S. distributor, ISBS, Beaverton, OR). xiv, 169 pp., illus. Paper, \$19.95. From a workshop, Sydney, Oct. 1983.

**Improved Hollow Cathode Lamps for Atomic Spectroscopy.** Sergio Caroli, Ed. Horwood, Chichester, England, and Halsted (Wiley), New York, 1985. 232 pp., illus. \$78.95. Ellis Horwood Series in Analytical Chemistry.

**Infant-Mother Attachment.** The Origins and Developmental Significance of Individual Differences in Strange Situation Behavior. Michael E. Lamb et al., Erlbaum, Hillsdale, NJ, 1985. xiv, 308 pp. \$36.

**Inorganic Carbon Uptake by Aquatic Photosynthetic Organisms.** William J. Lucas and Joseph A. Berry, Eds. American Society of Plant Physiologists, Rockville, MD, 1985. xviii, 494 pp., illus. Paper, \$20. From a workshop, Davis, CA, Aug. 1984.

**Insect Life.** A Field Entomology Manual for the Amateur Naturalist. Ross H. Arnett, Jr., and Richard L. Jacques, Jr. Illustrated by Adelaide Murphy. Prentice-Hall, Englewood Cliffs, NJ, 1985. xii, 354 pp. Paper, \$14.95. A Spectrum Book.

**Monoclonal Antibodies against Bacteria.** Vol. 1. Alberto J. L. Macario and Evelyn Conway de Macario, Eds. Academic Press, Orlando, FL, 1985. xxxviii, 320 pp., illus. \$45.

**Multi-Microprocessor Systems for Real-Time Applications.** Gianni Conte and Dante Del Corso, Eds. Reidel, Boston, 1985 (distributor, Kluwer,

Hingham, MA). xii, 299 pp., illus. \$44. International Series on Microprocessor-Based Systems Engineering.

**Mutagenicity Testing in Environmental Pollution Control.** F. K. Zimmermann and R. E. Taylor-Mayer. Horwood, Chichester, England, and Halsted (Wiley), New York, 1985. 195 pp., illus. \$52.95. Ellis Horwood Series in Analytical Chemistry.

**Neurobiology.** Current Comparative Approaches. R. Gilles and J. Balthazart, Eds. Springer-Verlag, New York, 1985. xvi, 415 pp., illus. \$69.50. Proceedings in Life Sciences. From a congress, Liege, Belgium, Aug. 1984.

**The Neuropsychology of Individual Differences.** A Developmental Perspective. Lawrence C. Hartlage and Cathy F. Telzow, Eds. Plenum, New York, 1985. xvi, 329 pp. \$35. Perspectives on Individual Differences.

**Neurosecretion and the Biology of Neuropeptides.** Hideshi Kobayashi, Howard A. Bern, and Akihisa Urano, Eds. Japan Scientific Societies Press, Tokyo, and Springer-Verlag, New York, 1985. xvi, 544 pp., illus. \$64. From a symposium, Susono-shi, Japan.

**New Aspects of Galaxy Photometry.** J.-L. Nieto, Ed. Springer-Verlag, New York, 1985. xiv, 350 pp., illus. Paper, \$23.70. Lecture Notes in Physics, vol. 232. From a meeting, Toulouse, Sept. 1984.

**New Directions in Two-Year College Mathematics.** Donald J. Albers, Stephen B. Rodi, and Ann E. Watkins, Eds. Springer-Verlag, New York, 1985. xxii, 491 pp., illus. \$24. From a conference, Atherton, CA, July 1984.

**New Industrial Hands.** Compiled by Ukio Maeda. Survey Japan, Tokyo, 1985 (U.S. distributor, ISBS, Beaverton, OR). 185 pp., illus. Paper, \$38.

**New Methodologies in Studies of Protein Configuration.** Tai Te Wu, Ed. Van Nostrand Reinhold, New York, 1985. xiv, 193 pp., illus. \$47.50. Van Nostrand Reinhold Advanced Cell Biology Monographs Series.

**Nickel and Cobalt Extraction Using Organic Compounds.** J. J. Jacobs *et al.*, Pergamon, New York, 1985. xii, 331 pp., illus. \$100. EPO Applied Technology Series, vol. 6.

**Pseudopotential Theory of Atoms and Molecules.** Levente Szasz. Wiley-Interscience, New York, 1985. xiv, 309 pp., illus. \$54.95.

**Psychiatry.** The State of the Art. Vol. 6, Drug Dependence and Alcoholism, Forensic Psychiatry, Military Psychiatry. P. Pichot *et al.*, Eds. Plenum, New York, 1985. xviii, 594 pp. \$65. From a congress, Vienna, July 1983.

**The Psychodynamics of Medical Practice.** Unconscious Factors in Patient Care. Howard F. Stein. University of California Press, Berkeley, 1985. xiv, 190 pp. \$16.95.

**Psycholinguistics.** The Experimental Study of Language. Gary D. Pridaux, Guilford, New York, 1985. viii, 312 pp. \$35; paper, \$15.95.

**Psychologie du Geste.** Pierre Feyerisen and Jacques-Dominique de Lannoy. Mardaga, Brussels, 1985. 364 pp. Paper, BF1250. Psychologie et Sciences Humaines, 141.

**Psychosomatic Medicine and Liaison Psychiatry.** Selected Papers. Z. J. Lipowski. Plenum, New York, 1985. xvi, 453 pp. \$39.50.

**Solvent Extraction and Ion Exchange in the Nuclear Fuel Cycle.** D. H. Logsdail and A. L. Mills, Eds. Published for the Society of Chemical Industry by Horwood, Chichester, England, 1985 (U.S. distributor, Wiley, New York). 223 pp., illus. \$62.95. From a conference.

**Stress and Coping.** Tiffany M. Field, Philip M. McCabe, and Neil Schneiderman, Eds. Erlbaum, Hillsdale, N.J., 1985. xx, 354 pp., illus. \$49.95. From a symposium, Coral Gables, FL.

**Stress and Coping.** An Anthology. Alan Monat and Richard S. Lazarus, Eds. 2nd ed. Columbia University Press, New York, 1985. xviii, 437 pp. \$35; paper, \$15.50.

**The Structure of Artistic Revolutions.** Remi Clignet. University of Pennsylvania Press, Philadelphia, 1985. viii, 312 pp. \$30.

**The Structure of Psychiatry in the Soviet Union.** Edward Babayan in collaboration with Yu. G. Shashina. International Universities Press, New York, 1985. x, 336 pp., illus. \$40. Translated from the Russian by Boris Meerovich.

**The Structure of Volatile Sulphur Compounds.** István Hargittai. Reidel, Boston, 1985 (distributor, Kluwer, Hingham, MA). viii, 316 pp., illus. \$49. Translated from the Hungarian edition (Budapest, 1981).

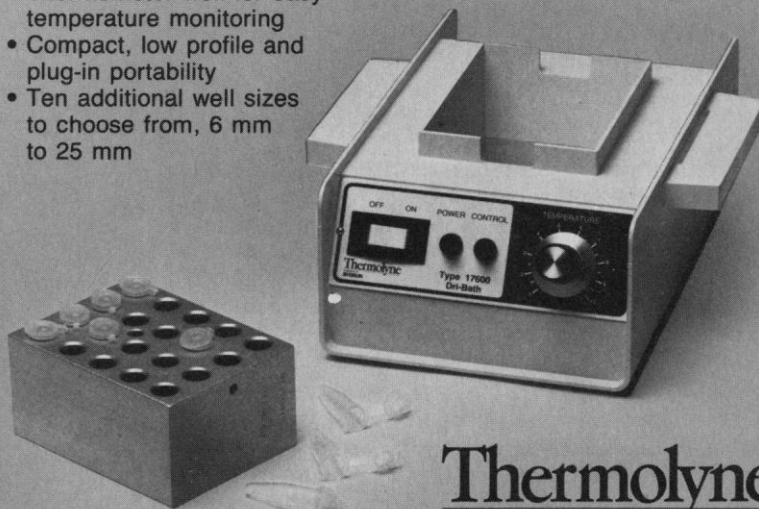
**Subcellular Biochemistry.** Vol. 11. Donald B. Roodyn, Ed. Plenum, New York, 1985. xiv, 294 pp., illus. \$49.50.

**The Travelling Naturalists.** Clare Lloyd. University of Washington Press, Seattle, 1985. 156 pp., illus. \$19.95.

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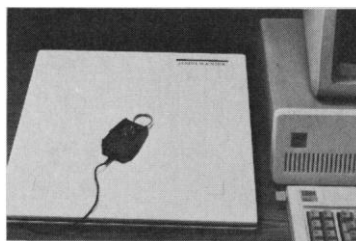


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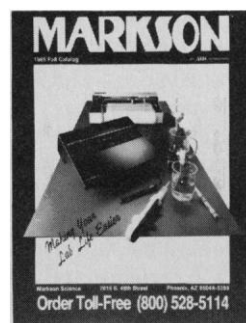
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With TG System 121, the user heats a sample to 1100°C at 100° per minute. The instrument is sensitive to mass changes of 0.2 µg. Applications of this device, controlled by an IBM PC, include research on polymers, catalysts, metals, and ceramics. Operations are menu-driven and the software for data analysis may be modified for individual applications. The low-mass furnace features rapid cooling to maximize the number of analyses that may be performed in a given amount of time. There is also a computer-controlled gas manifold for complex oxidation-reduction experiments. Cahn. Circle 536.

### Chromatography Columns for Peptides

The Vydac 228TP columns are base-stable reversed-phase components for the chromatographic separation of peptides. They feature a C-8 reverse phase bonded to a protected silica substrate. This allows the researcher to use eluants with pH as high as 10. Separation of peptides is made easier by varying the pH of the eluant which changes the elution order of the molecules. Columns are available for analysis or preparative separation. The Separations Group. Circle 538.

### Image Analysis

The IBAS 2000 is an automated image analyzer. It features a two-processor system; standard 2 Mbytes of image memory, expandable up to 16 Mbytes; a high-resolution digitizer tablet for interactive functions; two monitors for separate display of image and data; and a 20Mbyte hard disk in the host computer. The IBAS 2000 accepts images from light microscopes, transmission electron microscopes, video or photometric systems, or from photographs, x-ray prints, or drawings. Special program modules are available to supplement standard measurement software. For example, real color im-

aging software may be used by a pathologist to analyze colored or multispectral images of stained cells or tissue. The chromosome-analysis package enables one to perform fast metaphase searches with subsequent karyotyping. This may be utilized in amniocentesis and in the study of blood samples for genetic defects and for monitoring people exposed to radiation. The module for autoradiography enhances the Sokoloff method that neuroscientists use to study the rate of the use of glucose in the brain. Other applications are available for physiologists too. Carl Zeiss. Circle 544.

### Syringe Tip Filters

CONZ are syringe tip filters with a double Luer configuration for attachment of a syringe and an injection needle to the filter's inlet and outlet, respectively. This creates a manual injection system that filters a sample as it is injected. Sample material cannot bypass the filter. CONZ are suitable for aqueous and inorganic high-pressure liquid chromatography samples because both the filter membrane and the housing are made of hydrophilic Nylon 66. The membrane pore size is 0.45 µm. Xydex. Circle 545.

### Software for Complex Mathematics

An enhanced version of MACSYMA, an expert system for solving complex mathematical problems, is now available. The new release offers capability from trigonometric identities to advanced calculus including integration, differentiation, Taylor series, matrix manipulation, tensor analysis, and many more. Applications, refined and developed by users of MACSYMA, include computer-aided design, control theory, decision analysis, modeling, number theory, and hydrodynamics among others. MACSYMA runs on the Symbolics 3600 family of processing computers and will soon be available on some Unix workstations. Symbolics. Circle 549.

### Measurement of Oxygen Consumption

A Drex is an exerciser for small animals that enables one to simultaneously measure oxygen consumption and carbon dioxide production during forced exercise. The animal is made to run on a motor-driven drum in an airtight cage. The user defines the drum's speed and a small electric shocker stimulates the animal to run. A micropro-

cessor-based controller operates the drum and measures the use of oxygen and release of carbon dioxide while it records all relevant parameters. Up to four units may be linked to one controller and data obtained is transmitted through an RS-232 interface. Columbus Instruments. Circle 542.

### Temperature Monitor

The TempMentor records temperature, digitizes data, and interfaces with data analyzers. The operator chooses from 16 sampling rates from one sampling per second to one sampling per 2 hours. The device is portable and is suitable for laboratory field use including underwater monitoring. TempMentor uses local or remote sensors to record up to 6361 temperatures with resolution of 0.1°C. An RS232C interface transmits the data for storage, monitoring, or manipulation. Ryan Instruments. Circle 543.

### Secondary Ion Mass Spectrometer

SIMSLAB II is based on a high-temperature quadrupole instrument with a choice of three primary ion-beam sources. Features include microfocused liquid metal ion beams for 500-Å imaging; high-intensity, mass-filtered oxygen and cesium ion sources for concentration-depth profiling; fast atom bombardment for surface chemical analysis and insulators; and a fast frame-stop computer system for three-dimensional data storage and image processing. SIMSLAB II is configured to accept a wide variety of accessories including those for techniques such as auger electron spectroscopy and ESCA. VG Instruments. Circle 540.

### Expression of Proteins from Filamentous Fungi

Systems are available for the expression of extracellular proteins from *Aspergillus* species including *A. niger* and *A. nidulans*. The technology is well adapted to concentrating relatively large amounts of heterologous proteins such as enzymes. These systems include promoters associated with genes involved in ethanol utilization in *A. nidulans* and with highly expressed and secreted enzymes in *A. niger*. Biochemical products of these species are expected to find markets as specialty chemicals and as diagnostic reagents and as agriculturally useful materials in addition to spurring additional research. Allelix. Circle 541.

Newly offered instrumentation, apparatus, and laboratory materials of interest to researchers in all disciplines in academic, industrial, and government organizations are featured in this space. Emphasis is given to purpose, chief characteristics, and availability of products and materials. Endorsement by *Science* or AAAS is not implied. Additional information may be obtained from the manufacturers or suppliers named by circling the appropriate number on the Readers' Service Card (on pages 102A and 182A) and placing it in a mailbox. Postage is free.



# Personnel Placement

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

**LINE CLASSIFIED ADVERTISING DEADLINES:**  
31 January issue (mailed 24 January): **10 January**  
7 February issue (mailed 31 January): **17 January**  
14 February issue (mailed 7 February): **24 January**  
21 February issue (mailed 14 February): **31 January**

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

**LINE DISPLAY (POSITIONS OPEN, COURSES, FELLOWSHIPS, MARKETPLACE, and so forth):** \$13.00 per millimeter; \$325 minimum, per week (minimum charge covers 25 millimeters on a single column; 25 millimeters equals 10 lines of 50 spaces per line). No charge for use of box number. No agency commission for ads less than 103 millimeters (4 inches). No cash discount. Prepayment required for all foreign ads. Purchase orders and billing address required for all other advertising.

Send copy for all **Positions Wanted** ads and **Line Display** ads less than 1/6 page in size (125 millimeters) to:

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

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

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

Blind ad replies should be addressed as follows:

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

## POSITIONS WANTED

**Cell/Molecular Biologist.** Ph.D. Four years of postdoctoral research experience includes recombinant DNA work. Highly knowledgeable and motivated with broad interests at basic and applied levels. Seeks challenging nonresearch position in industry. Box 277, SCIENCE. 1/10, 17

**Clinical/Analytical Chemist, Ph.D., AACC.** Director certified. Fourteen years of clinical laboratory experience, academic, commercial, in-hospital (last 8 years). Expertise in all aspects of clinical chemistry, special interest in toxicology/TDM and RIA. Additional experience in industrial R&D. Extensive publications, with patents. Seeks challenging hospital, industrial, government, or academic position. Box 285, SCIENCE. X

**Gross Anatomist, Ph.D.;** 13 years of teaching experience in medical, dental, and paramedical anatomy. Seeks teaching-research position in Department of Anatomy, Surgery, or Orthodontics. Box 283, SCIENCE. X

**Immunologist, Ph.D. (Microbiology, M.A.).** Established and managed monoclonal antibody laboratories; directed enzyme and fluorescence immunoassay development for FDA-approved diagnostic kits; supervised manufacture of indirect fluorescence tests. Seeks managerial/scientist position. Box 267, SCIENCE. 1/10, 17, 24

**Surgical Physiologist, Ph.D.** Extensive research experience on interstitial fluid tissue pressures, compression-induced tissue damage, compartmental syndromes, trauma-induced tissue damage, compartmental syndromes, trauma-induced disseminated intravascular coagulation, gastrointestinal hormones, and peripheral neuroelectrodiagnostics. Available January 1986 for industry/academic/research. Box 280, SCIENCE. X

## POSITIONS WANTED

**Medical Assay Scientist/Manager.** Accomplished in electronic detection of biomolecules, drugs, and viruses. Strong professional standing; leadership, communication skills. Patents; publications. Seeking research directorship or entrepreneurship. Box 282, SCIENCE. 1/10, 17

**Medical Microbiologist/Physician.** M.S., M.D. (University of Michigan). Presently engaged in postdoctoral training at major university in fungal pathogenesis. Extensive knowledge of medical mycology. Seeks academic position. Ample teaching experience. Bilingual. Box 284, SCIENCE. 1/10, 17, 24

**Pathologist/Biostatistician.** Seeking medical research position in industry or academia. Interest is in applying mathematics to medical science, combining theoretical and experimental aspects. Experience in epidemiology, nutrition, computers, and management. Box 281, SCIENCE. 1/10, 17, 24

**Scientist (nonresident)** seeks position to work on novel discovery concerning phospholipid function. Short-term achievements and patents in molecular engineering/therapeutics, especially cancer treatment expected. Box 276, SCIENCE. X

## POSITIONS OPEN

### ACADEMIC POSITION IN MEDICAL PHYSIOLOGY

A position is open in the Department of Medical Physiology in the Faculty of Medicine, The University of Calgary, Calgary, Alberta. The successful applicant will have the major portion of his/her time protected for the establishment of an independent research programme in the area of nervous control of gastrointestinal motility and will be expected to compete for support from the Alberta Heritage Foundation for Medical Research.

Applicants should not only have expertise in the field of gastrointestinal physiology generally, but have proven expertise at research level in the application of neurophysiological techniques to the study of gastrointestinal regulation. In particular, the ability to apply basic intracellular and/or extracellular recording methods to the study of gastrointestinal nerves is essential.

The level of appointment and salary will depend on experience and qualifications. *All qualified individuals are encouraged to apply, but preference will be given to Canadian citizens and permanent residents.*

Deadline for receipt of applications is 15 February 1986. Interested candidates should send curriculum vitae, a brief description of the current research interests, and the names of three referees to:

**Dr. W. L. Veale**  
Professor and Head  
Department of Medical Physiology  
Faculty of Medicine  
The University of Calgary  
3330 Hospital Drive NW  
Calgary, Alberta, Canada T2N 4N1

**ANIMAL SCIENCE:** The Department of Animal Science, University of California, Davis, seeks applications for a tenure-track appointment at the assistant professor level (40 percent teaching, 60 percent research) in the field of equine biology, with preference to applicants in physiology. Applicants must have a Ph.D. in a discipline basic to animal science and knowledge of equine management practices. Training in animal science is highly desirable. The person will be expected to advise undergraduates and teach introductory and advanced courses in horse production. Opportunities exist for teaching at the graduate level. The person will be expected to develop an independent research program, and to participate in collaborative work with Cooperative Extension personnel and members of the livestock industry. Submit résumé, transcripts, statement of teaching and research interests, publication list, and copies of up to five publications, and names and addresses of three persons familiar with qualifications to: **Eric Bradford, Search Committee, Department of Animal Science, University of California, Davis, CA 95616.** The completed application must be postmarked by 15 April 1986. Anticipated starting date is 1 July or 1 September 1986. *The University of California is an Affirmative Action/Equal Opportunity Employer.*

## POSITIONS OPEN

### UNIVERSITY OF CALIFORNIA, IRVINE

**ACADEMIC POSTGRADUATE RESEARCHER** in Departments of Medicine and Biophysics wanted to study chloride/bicarbonate transport in the large intestine. Emphasis is on functional and biochemical characterization of the transport system in membrane vesicles prepared from rat and human colonic mucosa. Background in transport, membrane protein isolation and chemistry, and immunological techniques desirable. Send curriculum vitae, copies of publications, and names of three references to: **Dr. Daniel Hollander, Department of Medicine, or Dr. Janos K. Lanyi, Department of Physiology and Biophysics, California College of Medicine, University of California, Irvine, CA 92717.** *Equal Opportunity/Affirmative Action Employer.*

### AGRONOMIST

Crop Genetics International, a results-oriented, plant biotechnology company, will employ an agronomist to initiate, coordinate, and execute research activities at its Florida farms. Candidates should have a B.S. or M.S. in agronomy plant breeding or a related field and be available on or about 1 February 1986. Experience in field technical support or field research is required. Individuals who enjoy multidisciplinary fieldwork are encouraged to apply. Applicants should submit a letter outlining personal objectives, résumé, and names of three references to:

**Dr. Peter Carlson**  
Crop Genetics International  
7170 Standard Drive  
Hanover, MD 21076

**ANATOMY FACULTY:** Three positions available at assistant, associate, or full professor levels for individuals with ability to maintain an independent and creative research program in a department with strong emphasis on research and scholarly activity. Research interests in cell biology or neuroscience that interface well with current faculty are preferred. Positions require the ability to teach histology or gross anatomy to medical and graduate students. The Chicago Medical School is located 38 miles north of downtown Chicago in new, well-equipped facilities. Submit curriculum vitae, statement of research plans, and three references to: **Dr. Robert G. Kemp, Ph.D., Department of Biological Chemistry and Structure, University of Health Sciences/The Chicago Medical School, 3333 Green Bay Road, North Chicago, IL 60064.**

**ASSISTANT CURATOR OF VERTEBRATE PALEONTOLOGY, Stovall Museum of Science and History, University of Oklahoma.** Applications invited for tenure-track position beginning September 1986. Ph.D. required. Primary responsibilities include research and publication, collections management, and teaching (one course per year); also, assist staff in design of museum interpretative educational displays and programs. Willingness and ability to interact effectively with public important. Collection strengths include dinosaur material and Plio-Pleistocene mammals. Preference given to person with experience in either upper Paleozoic reptiles or Cenozoic mammals. Academic appointment as assistant professor in Department of Zoology. Record of funded research (or high potential for funding) and publication in major journals required. Deadline for completed applications: 24 February 1986. Send summary of experience, statement of goals, and reprints; arrange to have three letters of recommendation forwarded to: **Gary D. Schnell, Search Committee Chair, Sutton Hall 303, Department of Zoology, Norman, Oklahoma 73019.** Telephone: 405-325-4034. *An Equal Opportunity/Affirmative Action Employer.*

**ASSISTANT PROFESSOR.** The Department of Medicine at the Brigham and Women's Hospital and Harvard Medical School is seeking applicants with the M.D. and/or Ph.D. degree for an appointment within the Hematology Division. The position requires an individual with several years of postdoctoral experience studying red cell membrane-cytoskeletal interactions. The individual selected should be able to develop an independent research program and participate in the training of postdoctoral research fellows. Send curriculum vitae and references to: **Robert I. Handin, M.D., Hematology Division, Brigham and Women's Hospital, 75 Francis Street, Boston, MA 02115.** *Women and members of minority groups are encouraged to apply.*

## POSITIONS OPEN

### AQUATIC ECOLOGISTS

Biological Station, University of Oklahoma

Two tenure-track research positions at the assistant professor level are available 1 August 1986 at the University of Oklahoma Biological Station at Lake Texoma for aquatic ecologists with a strong background and experimental research experience in **benthic ecology** and **algal ecology**. The successful applicants must have a Ph.D., postdoctoral experience, and publications at the time of appointment, will be expected to establish a strong program of extramurally funded individual research, and should complement research interests of the resident faculty in the ecology of algae, zooplankton and fish, nutrient cycling, and ecological effects of flow on reservoir and stream organisms. The positions also carry appointment in the Zoology or Botany Department of the University of Oklahoma at Norman.

Applications must include a complete curriculum vitae, reprints of published papers, a full description of research interests, and four letters of recommendation (which include evaluations of the applicant's ability and potential to fill this position, as described above). The most qualified candidates will be invited for a lecture-interview before a final selection is made. All application materials must be submitted before 15 February 1986 to insure consideration.

*Women and minority candidates are encouraged to apply.* Applications or requests for additional information should be sent to: **Dr. Loren G. Hill, Director, Biological Station, University of Oklahoma, Norman, Oklahoma 73019; telephone: 405-325-5391. An Equal Opportunity/Affirmative Action Employer.**

**ASSISTANT PROFESSOR** to teach graduate and undergraduate students specialized courses in economics (disequilibrium macro and experimental), to conduct fundamental research in economics, resulting in publications in recognized professional journals and books, to direct the work of graduate students and develop their potential. Applicant must have Ph.D. in economics, 3 years of experience, substantial background in disequilibrium macro and experimental economics, outstanding references and be rated as superior by the department of employer's institution, based on usual seminar and interview recruitment procedures. Forty-hour work week, 9:00 a.m. to 5:00 p.m., \$30,108 per year. Qualified applicants send résumé or application letter to: **Arizona DES Job Service Attention 732-A Re: 0801878, P.O. Box 6123, Phoenix, AZ 85005** (job location: Tucson. Employee paid advertisement; proof of authorization to work in U.S. required; list in résumé or application letter).

### DEPARTMENT OF BIOCHEMISTRY UNIVERSITY OF UTAH

The Department of Biochemistry is undertaking a major rebuilding effort. Several tenure-track positions are available for autumn 1986, and additional openings will be filled in subsequent years. Preference will be given to applicants at the level of **ASSISTANT PROFESSOR**, but candidates for **ASSOCIATE PROFESSOR** will also be considered. Applicants should hold the Ph.D. and/or M.D. degree(s), have postdoctoral experience, and have demonstrated research ability. Successful candidates will be expected to develop independent research programs. Although areas of research interests are open, they should fall into the broad category of analysis of biological structures and processes at the molecular level. Teaching responsibilities are largely to graduate and medical students. Interested individuals should submit curriculum vitae, a statement of research background and interests, and three letters of recommendation to: **Faculty Search Committee, Department of Biochemistry, University of Utah School of Medicine, Salt Lake City, Utah 84132.** Deadline for applications is 15 March 1986. Late applications may be considered if openings are still available. *Equal Opportunity/Affirmative Action Employer.*

**ASSISTANT PROFESSOR OF ANATOMY**, Academy of Health Sciences, Fort Sam Houston, Texas, is seeking an assistant professor to teach undergraduate and graduate level gross anatomy, neuroanatomy, and microscopic anatomy. Requirements include: Ph.D. in anatomy or M.S. with professional experience in anatomy instruction, at least 1 year of professional experience at the GS-11 level or its equivalent, and qualification for GS-12. For more information, call Jan Coultrap; telephone: 512-221-5452/5878.

## POSITIONS OPEN

**ASSISTANT/ASSOCIATE PROFESSOR**, Department of Landscape Architecture, University of Illinois. Applications are invited for a full-time, permanent tenure-track position commencing fall semester 1986. Teaching responsibilities include courses in the areas of land resource ecology, environmental assessment, natural resource planning, and management. Candidates should have an appropriate Ph.D. or a graduate degree in the natural sciences and/or the M.L.A. Research interests in terrestrial/wetlands ecology related to the department's major commitment to land resource planning and/or interdisciplinary experience which involved the relationship of natural resource planning and landscape architecture are preferred. Salary commensurate with qualifications, experience, and available funding. To receive full consideration, submit curriculum vitae and the names and addresses of three references by 14 February 1986 to: **Chair of Search Committee, Department of Landscape Architecture, University of Illinois, 214 Mumford Hall, 1301 West Gregory Drive, Urbana, Illinois 61801; telephone: 217-333-0176. The University of Illinois is an Affirmative Action/Equal Opportunity Employer.**

### DEPARTMENT OF ANATOMY, UNIVERSITY OF TORONTO ASSISTANT OR ASSOCIATE PROFESSOR OF ANATOMY

The Department of Anatomy invites applications for a tenure-track position in the broad area of developmental biology to commence on or about 1 July 1986. Candidates should have an M.D. and/or Ph.D. degree and must have demonstrated excellence in their area of research. Candidates will be expected to contribute to the department's teaching which includes courses in the various anatomical disciplines, including gross anatomy, at both the undergraduate and graduate levels. The appointment shall be made by an interdisciplinary committee in developmental biology primarily on the basis of research experience and accomplishments. To apply, please send your curriculum vitae and the names of three or more references to: **Dr. M. J. Hollenberg, Chairman, Department of Anatomy, Medical Sciences Building, University of Toronto, Toronto, Ontario, Canada M5S 1A8.**

Closing date for applications is 1 March 1986.

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

### HARVARD UNIVERSITY GRADUATE SCHOOL OF DESIGN

**ASSISTANT PROFESSOR—FRESHWATER ECOLOGY.** A position of half-time teaching and half-time developing materials on ecological issues of critical importance in the Third World is available. Ecological research in land-water interactions of streams or lakes desirable. Experience in hydrology and in the Third World also desirable. Three-year position beginning September 1986.

**RESEARCH ASSOCIATE—LANDSCAPE ECOLOGY.** A position of half-time research and half-time ecological teaching is available. Experience desirable in empirical or mathematical studies relating species and their movements to the spatial patterns of ecosystems in a landscape. One-year position beginning September 1986. Publications relevant to landscape ecology required.

These positions are in the Department of Landscape Architecture, Graduate School of Design, Harvard University. Ph.D. required no later than June 1986. Send curriculum vitae, statement of research interests, most relevant publications, and names of three references by 28 February 1986 to: **Richard T. T. Forman, Search Committee, Harvard University, Graduate School of Design, 48 Quincy Street, Cambridge, MA 02138.**

### ASSOCIATE DIRECTOR OF LABORATORY

Research faculty position available for individual with postdoctoral experience in biochemistry and molecular biology or immunology and ability to conduct independent research in cartilage/bone metabolism related to osteoarthritis/osteoporosis. Please submit curriculum vitae, three letters of reference, and a statement of research interest to: **Dr. Edith Schwartz, Department of Orthopedic Surgery, Tufts Medical School, 136 Harrison Avenue, Boston, MA 02111.**

## BIOCHEMIST

Shiley, Inc. has an excellent career opportunity in its cardiovascular R & D lab for a PhD Biochemist.

You will have project responsibility for a continuing R & D project involving an implanted product. Responsibilities include developing biochemical assays, analyzing test results, coordinating animal testing and recommending final product specifications. A PhD in Biochemistry is required. Knowledge of collagen/protein chemistry, HPLC, computerized data analysis and statistics is preferred.

To apply send resume and salary history to **Rob Suiter, Shiley Inc., Dept. SB-1, 17600 Gillette Avenue, Irvine, CA 92714. EOE/AAP Employer.**



### UNIVERSITY OF MASSACHUSETTS GRADUATE PROGRAM IN MOLECULAR AND CELLULAR BIOLOGY

The University of Massachusetts at Amherst has opened a search for the **DIRECTOR** of the new interdepartmental graduate program in molecular and cellular biology, now in its third year of operation. The membership of the program includes 25 faculty from the Departments of Biochemistry, Botany, Chemistry, Microbiology, and Zoology and the College of Food and Natural Resources, as well as faculty associates from Amherst, Mount Holyoke, and Smith Colleges. Applicants should have a strong commitment to graduate education, a distinguished record of research accomplishment, and a position of leadership in an area of molecular or cellular biology. The successful candidate will be expected to ensure the excellence of the graduate training program, to assist in the planning and development of common research facilities, to participate actively in the recruitment of new faculty members, and to foster collaboration with the emerging, campus-wide biotechnology program. Funding is available for support staff, graduate assistantships, equipment, and other program activities. Adequate space and facilities will also be provided for the candidate's own research group. Appointment will be made at the senior faculty level. The choice of departmental affiliation is open and will be based upon the research field and interests of the successful applicant. The position will be available 1 September 1986. Salary commensurate with qualifications and experience. Applications or nominations including the candidate's curriculum vitae, a current list of publications, and the names of three referees, should be sent to: **MCB Director Search, Molecular and Cellular Biology Program, University of Massachusetts, Amherst, MA 01003; telephone 413-545-0352** and will be accepted until 15 March 1986, or until the position is filled. *An Affirmative Action/Equal Opportunity Employer.*

## POSITIONS OPEN

### ASSISTANT PROFESSOR—ANATOMY

Full-time faculty position to teach embryology, gross anatomy (head and neck), and assist the supervision of department laboratories. Excellent benefits. Forward curriculum vitae to: **Los Angeles College of Chiropractic, Personnel Department, 16200 Amber Valley Drive, Whittier, CA 90604.**

### ASSISTANT PROFESSOR OF BIOLOGY

The Department of Biology at Oberlin College invites applications for a full-time, 1-year position beginning 1 July 1986 in the area of vertebrate physiology/biochemistry.

Teaching responsibilities will include sole or major responsibility for an introductory cell and molecular biology and a vertebrate physiology course. Involvement in a general biochemistry course is possible if desired. Opportunities for research are available. Preference will be given to candidate with teaching experience and a completed Ph.D.

Submit applications by 15 February to: **Dr. David H. Benzing, Chairman, Department of Biology, Oberlin College, Oberlin, Ohio 44074.** Include curriculum vitae, transcripts of both undergraduate and graduate work, plus at least three letters of reference.

*Oberlin College has adopted an Affirmative Action plan and, as an Equal Opportunity Employer, welcomes applications from female and minority candidates.*

### ASSISTANT PROFESSOR—Membrane Physiology/Biochemistry

### ASSISTANT PROFESSOR—Molecular Aspects of Development and

### ASSISTANT TO FULL PROFESSOR—Protein Biochemistry

These are anticipated tenure-track positions carrying teaching loads commensurate with major research efforts. Good start-up funds for equipment are available. Candidates should have at least 2 years of postdoctoral experience. The successful candidates will be encouraged to interact with a newly formed Neuroscience Center on campus, but the candidates need not necessarily have direct interests in neuroscience. A 1 September 1986 starting date is anticipated. Candidates should send curriculum vitae, a brief statement of research plans, and three letters of recommendation to:

**Dr. Harvey H. Feder  
Biology Search Committee  
Department of Zoology and Physiology  
Rutgers University  
Newark, New Jersey 07102**

Application deadline: 15 April 1986. *Rutgers University is an Equal Opportunity/Affirmative Action Employer.*

### BIOCHEMISTRY FACULTY POSITIONS MEHARRY MEDICAL COLLEGE

The Department of Biochemistry will have several positions to fill at the assistant or associate professor level during the 1986 to 1987 academic year. Preference will be given to applicants with expertise in the following areas: (i) molecular biology/molecular genetics of eukaryotic or prokaryotic systems; (ii) membrane biochemistry or molecular biology of transmembrane signaling; (iii) regulatory aspects of cellular and/or metabolic biochemistry; and (iv) physical biochemistry and/or enzymology. Exceptional candidates in other areas of biochemistry will also be considered. Successful applicants will be expected to develop and/or maintain funded research programs of high quality and to participate in the graduate and professional school teaching responsibilities of the Department of Biochemistry. Appointment at the associate professor level will be predicated on (i) demonstration of exceptional research skills and creativity, with continued progressive application of these skills; (ii) strong teaching skills evidenced by appreciable command of the subject, creative presentation skills, and ability to motivate graduate and professional (medical and dental) students; and (iii) demonstrated interest in and involvement with university/public service. Applicants should send curriculum vitae, names of four individuals who may be contacted for reference, and a summary of research interests or ongoing projects to: **Ifeanyi J. Arinze, Ph.D., Chairman, Department of Biochemistry, Meharry Medical College, Nashville, TN 37208.** *Meharry Medical College is an Equal Opportunity/Affirmative Action Employer.*

## POSITIONS OPEN

### ASSISTANT PROFESSOR/MICROBIOLOGY

Tenure-track position available August 1986. Applicants must hold the Ph.D. degree and should have postdoctoral training or equivalent experience. The successful candidate will be expected to establish an active research program in some area of microbiology and participate in the undergraduate and graduate teaching programs of the department. Teaching responsibilities will include an introductory course in microbiology with laboratory. Send curriculum vitae, statement of professional goals, reprints, and names of three references to: **Michael A. Poirier, Chairman, Department of Biological Sciences, University of New Orleans, New Orleans, Louisiana 70148, by 15 March 1986.** *The University of New Orleans is a member of the Louisiana State University System, an Affirmative Action/Equal Opportunity Employer.*

### TRANSPORT PHYSIOLOGIST DEPARTMENT OF PHYSIOLOGY UNIVERSITY OF KANSAS MEDICAL CENTER

A tenured appointment as **ASSOCIATE PROFESSOR OR PROFESSOR OF PHYSIOLOGY** with research interests in **epithelial transport** and ability to teach medical and graduate students in **gastrointestinal physiology** is available 1 July 1986. Preference will be given to candidates who can relate their research interests to aging phenomena. The successful candidate will have a well-established research program and sustained grant support at the national level. The appointee will have an M.D., Ph.D., or equivalent degree. The salary is open, depending on present rank and experience. Curriculum vitae and the names of three references should be sent to: **Dr. Gilbert S. Greenwald, Department of Physiology, University of Kansas Medical Center, 39th and Rainbow Boulevard, Kansas City, MO 66103.**

Evaluation of candidates will begin 1 February 1986. *An Equal Opportunity/Affirmative Action Employer.*

### ASSOCIATE PROFESSOR MOLECULAR-CELL BIOLOGY

Applications are invited for a tenure-track position beginning July 1986. Candidates are expected to conduct independent extramurally funded research in contemporary cell-molecular biology. Experience in TEM, SEM, and immunocytochemistry are highly desirable. Teaching obligations involve primary attention to development and coordination of an interdisciplinary graduate course in molecular-cell biology for students in anatomy and other basic science disciplines. Special attention will be given candidates able to relate molecular concepts and information to the cell and tissue levels of the organism. Applicants should submit curriculum vitae, a statement of research and teaching experience/interests, and independently request three letters of recommendation to be sent directly to: **Chairman, Search Committee, Department of Anatomy, Indiana University School of Medicine, 635 Barnhill Drive, Indianapolis, IN 46223.** Application deadline 1 March 1986. *An Equal Opportunity/Affirmative Action Employer.*

### CELL BIOLOGY/IMMUNOLOGY

Undergraduate college seeking recent Ph.D. to teach upper level courses in cell biology, immunology, and hematology. Tenure-track assistant professor. Send application and letters of recommendation to: **David Moore, Biology Department, Utica College of Syracuse University, Utica, NY 13502.** *Affirmative Action/Equal Opportunity Employer.* Closing date: 10 February 1986.

**CHAIR, MICROBIOLOGY.** Louisiana State University invites applications and nominations for the position of chairman of the Department of Microbiology. Candidates must hold a doctorate in microbiology or a related discipline, have demonstrated a distinguished record of scholarship and professional achievement as evidenced by publications and grant awards, and have leadership and administrative ability consistent with building a nationally recognized department. Salary will be commensurate with qualifications. The appointment is available as of August 1986. Candidates should submit curriculum vitae, names of references, and statement of research interests before 28 March 1986 to: **John M. Larkin, Chairman Search Committee, Department of Microbiology, Louisiana State University, Baton Rouge, LA 70803.** *LSU is an Equal Opportunity/Affirmative Action Employer.*

## POSITIONS OPEN

### ASSOCIATE PROFESSOR DIABETES RESEARCH PROGRAM

Expertise is necessary in the study of chromosome six gene markers and cell culture techniques and techniques for DNA identification of specific genes and gene action. Additionally, the individual to be recruited should have similar techniques to apply to the genetic aspects of cancer. Individuals should hold a Ph.D. or M.D. and have some experience in clinical medicine, but primarily grounded in basic laboratory research. The individual must have adequate background and experience to lead a team of basic science investigators into the genetics of IDDM and the etiology of beta cell destruction, which includes basic knowledge of immunopathology. Reply with curriculum vitae to: **A. Roman-Koller, University of Pittsburgh, Department of Pathology, 776 Scaife Hall, Pittsburgh, PA 15261.** Deadline: 28 February 1986.

*Equal Opportunity/Affirmative Action Employer*

### BIOLOGY FACULTY POSITIONS (TWO)

The Department of Biology at Wilkes College, a private, 4-year liberal arts college in northeastern Pennsylvania, is soliciting applications for two full-time, tenure-track faculty positions.

Each of these positions is offered at the assistant professor level and the Ph.D. degree is required. Effective date is 27 August 1986.

The successful candidate for the first position will be expected to teach an anatomy and physiology course for nurses, take part in a general biology course, develop an upper level physiology elective, and be willing to direct undergraduate research; experience in electron microscopy is desirable.

The successful candidate for the second position will be expected to teach microbiology, introductory molecular biology, immunology, parasitology, and be willing to direct undergraduate research.

Applicants should submit their curriculum vitae, statement of interests, graduate transcripts, copies of recent publications, and three letters of references. Applications will be accepted until 19 February 1986 and should be directed to:

**Dr. Lester Turoczi  
Chairman, Department of Biology  
Wilkes College  
Wilkes-Barre, PA 18766**

*Wilkes College is an Equal Opportunity/Affirmative Action Employer and encourages applications from all qualified scientists.*

### CHAIRPERSON DEPARTMENT OF PHYSIOLOGY

Marshall University School of Medicine invites applications and nominations for the position of chairperson of the Department of Physiology, which will be available 1 July 1986. Candidates must have a Ph.D. and/or M.D. degree and a record of leadership and achievement in research in an area of physiology suitable to a medical school environment. The chairperson has primary responsibility for providing leadership and direction to the faculty of the department in the development, implementation, and evaluation of research programs and curriculum in undergraduate medical education and the graduate M.S./Ph.D. Program in Biomedical Sciences. Salary is competitive. Applicants should send curriculum vitae, including details of research funding, and the names of four references before 14 February 1986 to: **Dr. Peter J. Kasvinsky, Chair, Search Committee for Chairperson of Physiology, Marshall University School of Medicine, Department of Biochemistry, 1542 Spring Valley Drive, Huntington, West Virginia 25704.** *The Marshall University School of Medicine is an Affirmative Action/Equal Opportunity Employer.*

**CHEMIST-PESTICIDE REGISTRATION.** Senior level position with state regulatory agency as lead scientist for evaluation of residue, product chemistry, and environmental fate data and analytical methodology for agricultural chemicals. Ph.D. or equivalent experience required. Prefer person with experience in development of chemistry data for pesticides or other chemicals and/or related regulatory experience. Salary \$39,084 to \$47,256 per year. Send résumé by 31 January to: **California Department of Food and Agriculture, 1220 N Street, Room 126, Sacramento CA 95814.** Telephone: 916-322-5031.



**DEPARTMENT OF GENETICS  
THE HOSPITAL FOR SICK CHILDREN  
TORONTO, CANADA**

**POSTDOCTORAL POSITIONS**

Available immediately for Ph.D. molecular biologists to participate in one of the following research areas: Fanconi anemia (Buchwald), cystic fibrosis (Buchwald, Tsui), immunoglobulins, DNA polymorphisms and linkage (Cox), lysosomal storage disorders (Gravel), kidney and urea cycle disorders (McInnes), crystallin gene expression (Tsui), Bloom syndrome (Weksberg), interferon action (Williams) and muscular dystrophy (Worton, Ray).

Starting salary \$19-22,000, according to MRC (Canada) scale. Send curriculum vitae and three letters of reference to:



**Dr. R. Worton**  
Geneticist in Chief  
The Hospital for Sick Children  
555 University Avenue  
Toronto, Ontario  
M5G 1X8  
Canada

**THE HOSPITAL FOR SICK CHILDREN**

**Protein Chemistry  
Biochemical  
Enzymology**

The Pharmaceutical Research and Development Division of **The Upjohn Company**, located in Kalamazoo, Michigan, has openings in its Biopolymer Chemistry/Biotechnology Unit for qualified research associates in the area of protein chemistry and biochemical enzymology. Qualified candidates will have a B.S. degree in biochemistry or a related area with at least two years of relevant laboratory experience in protein isolation and characterization or an M.S. degree in a related area. Successful candidates will be expected to conduct experiments of a quality suitable for publication in reputable journals under the supervision of a research scientist.

Kalamazoo is a medium-sized Southwestern Michigan community with immediate access to a mix of excellent cultural, educational and recreational pursuits including numerous lakes and a four-season climate. Upjohn offers an excellent salary, commensurate with experience and an outstanding benefits program.

**For confidential consideration, please call from outside of Michigan toll-free 1-800-253-8600, ext. 3-6767, (inside Michigan call collect (616) 323-6767) to request an employment application be sent to you immediately.** Please refer to ad number **18729-A** when calling.

**Upjohn**

**A century of caring**

An Equal Employment Opportunity Employer M/F

**MICROBIOLOGISTS**

**R&D**

Our expanding microbiotics R&D effort has created the need for two additional key development team members.

**SR. MICROBIOLOGIST/  
GROUP LEADER**

Position requires PhD in Microbiology with several years of R&D experience in antiseptic/topical antimicrobial product development. Candidate must have expertise in all microbiological aspects of topical antimicrobial product development, especially in-vitro and in-vivo evaluations, clinical efficacy studies and a thorough understanding of the methodologies involved. Should be thoroughly familiar with pertinent FDA regulations. Candidate must have project management experience and possess a high degree of communication and supervisory skills.

**MICROBIOLOGIST**

Position requires PhD in Microbiology with a minimum of 2-3 years' experience in the development of new antibiotics. Candidate must have broad training and experience in all microbiological aspects of antibiotic development, especially in enzymology, mode of action, and in-vitro/in-vivo evaluations. Needed for IND/NDA. Familiarity with both conventional and automated susceptibility testing technology is desirable. The candidate must possess solid supervisory/project coordination and communication skills for this high visibility position.

In addition to an excellent compensation/benefits package, we offer an excellent growth opportunity in an attractive suburban campus setting, just 25 miles south of Philadelphia. Please send resume with salary history to: C. Gaito-SCI



**STUART PHARMACEUTICALS**  
Division of ICI Americas Inc.  
Wilmington, DE 19897

An Equal Opportunity Employer m/f

**RADIOLOGICAL  
SCIENCE**

Tenure track appointment as Assistant Professor (3 years) in the Whitaker College and Department of Nuclear Engineering of the Massachusetts Institute of Technology. Candidate should preferably hold an MD/Ph.D. with experience in magnetic resonance imaging and spectroscopy. Duties will include teaching one course per semester in MR imaging and other areas of radiological science. Will develop research program in similar areas in collaboration with other groups at MIT and other institutions.

**Send curriculum vitae and the names of three references to G.L. Brownell, Ph.D., Chairman, Search Committee, E25-406A, Massachusetts Institute of Technology, 77 Massachusetts Avenue, Cambridge, MA 02139.**

MIT is an affirmative action/  
equal opportunity employer.

Qualified minorities and women  
are encouraged to apply.

**MIT**

## POSITIONS OPEN

**BACTERIOLOGIST:** The College of Veterinary Medicine, Auburn University, is seeking a bacteriologist for a tenure-track position. The successful applicant will possess a Ph.D. degree, appropriate postdoctoral experience, and will have an interest and expertise in one or more of the following areas as it relates to an understanding of bacterial infections of animals: anaerobic bacteriology, pathogenesis, molecular biology. Preference will be given to individuals possessing a D.V.M. or equivalent degree. Responsibilities include developing a research program and teaching in the professional and graduate programs. Salary will be commensurate with qualifications and experience. Closing date is 1 February 1986, or until a suitable candidate is selected. Send applications, including curriculum vitae and three references, to: **Dr. P. C. Smith, Department of Microbiology, College of Veterinary Medicine, Auburn University, AL 36849.** Auburn University is an Affirmative Action/Equal Opportunity Educational Institution.

## CELL BIOLOGIST

The Department of Anatomy and Cell Biology, Emory University School of Medicine, invites applications for a position at the assistant professor level. Candidates must demonstrate strong potential for developing a vigorous, independent research program. Individuals who employ molecular and genetic approaches to problems in membrane biogenesis, cytoskeleton-membrane interactions, and protein targeting are of particular interest. Applicants should hold the Ph.D. and/or M.D. degree(s) and have two or more years of relevant postdoctoral training. The successful candidate will participate in team-taught human anatomy courses for professional students. Send curriculum vitae, bibliography, reprints, a summary of specific research interests, and the names of three referees to: **Dr. Jerome Sutin, Chairman, Department of Anatomy and Cell Biology, Emory University School of Medicine, Atlanta, Georgia 30322.**

Emory University is an Equal Opportunity/Affirmative Action Employer.

**DEPARTMENT CHAIR:** The Department of Chemistry at the University of Maryland Baltimore County (UMBC) invites applications and nominations for the position of department chair. The chair will be expected to provide vigorous leadership for a growing department of 17 faculty. The department offers Ph.D. degrees in both chemistry and biochemistry and applications are invited from internationally recognized scholars in any area of these disciplines who have a commitment to quality teaching at both the undergraduate and graduate levels. UMBC is located in suburban Baltimore about 35 miles from Washington, DC. To apply, send a résumé and the names of three persons who can be contacted for supporting letters to: **Dr. R. M. Pollack, Department of Chemistry, UMBC, 5401 Wilkens Avenue, Catonsville, MD 21228.** UMBC is an Equal Opportunity/Affirmative Action Employer, and applications from qualified women and minority candidates are welcomed.

## CHIEF OF HEMATOLOGY/ONCOLOGY

For Department of Pediatrics of Temple University School of Medicine and St. Christopher's Hospital for Children. Successful candidate will lead large, active clinical and teaching service, and develop research program. Department and community groups are committed to support expanded research. Reply to: **Harold W. Lischner, M.D., Hematology/Oncology Search Committee, ST. CHRISTOPHER'S HOSPITAL FOR CHILDREN, 5th Street and Lehigh Avenue, Philadelphia, PA 19133.** Equal Opportunity Employer.

**EPIDEMIOLOGY, ASSISTANT PROFESSOR—**University of Wisconsin—Madison. The Department of Preventive Medicine, Medical School, seeks a Ph.D. or M.D. epidemiologist for a tenure-track appointment as assistant professor. Research and teaching experience in chronic disease or clinical epidemiology desired. Responsibilities will include teaching in the graduate programs in epidemiology to master's, doctoral, and medical students and the establishment of independent and collaborative research. Deadline for receipt of application materials is 31 January 1986. Please send curriculum vitae, statement of research interests, and the names of three references to: **Dr. Donn D'Alessio, Chair, Department of Preventive Medicine, 504 North Walnut Street, Madison, WI 53705.** The University of Wisconsin is an Equal Opportunity/Affirmative Action Employer.

## POSITIONS OPEN

### CHAIRMAN, DEPARTMENT OF MICROBIOLOGY AND IMMUNOLOGY

The University of Maryland School of Medicine is conducting a search for a chairman of microbiology and immunology, with the expectation of developing a department with a strong component in molecular biology. Adequate resources will be made available by the university for this purpose. Individuals wishing to be considered should send curriculum vitae and a letter of interest describing their scientific and administrative experience, as well as their plans. Correspondence should be addressed to:

**Microbiology/Immunology Search Committee  
Office of the Dean  
University of Maryland School of Medicine  
Bressler Research Building, Room 14-034  
655 West Baltimore Street  
Baltimore, MD 21201  
An Equal Opportunity Employer**

### COMPARATIVE PATHOBIOLOGIST

The Department of Pathology of the College of Veterinary Medicine and Biomedical Sciences at Colorado State University invites applications, nominations, and inquiries regarding a regular, full-time, tenure-track faculty position for a comparative pathobiologist within the department. Candidates should have a professional biomedical degree (D.V.M., M.D., D.D.S.) and/or Ph.D. degree in comparative pathology or a closely related field. Board-certification or advanced training in veterinary, human, or comparative pathology is desirable. Applicants will be evaluated by their demonstrable proficiency and excellence in biomedical research and ability to participate in and contribute to the department's responsibilities for professional and graduate teaching/training and intramural diagnostic service. Academic rank and salary are negotiable and will be commensurate with background and experience. Applicants should submit curriculum vitae, a detailed letter of intent, and the names of three individuals from whom direct letters of professional reference have been requested. Applications will be accepted through 1 March 1986, or until a suitable candidate is identified. Address all correspondence to: **Dr. Martin J. Fettman, Chairman of Search Committee, Department of Pathology, Colorado State University, Fort Collins, CO 80523; telephone: 303-491-7592.**

**DEVELOPMENTAL BIOLOGIST.** Tenure-track, assistant professor position effective 1 September 1986. Appointee to conduct independent research program, supervise graduate research, and participate in instruction at graduate and undergraduate levels. The research specialty of applicants is not restricted, but should involve application of modern molecular techniques. Postdoctoral experience is required. Send curriculum vitae, including names of three references, by 1 March to: **Dr. Michael Mullins, Department of Biology, Catholic University of America, Washington, DC 20064.** An Affirmative Action/Equal Opportunity Employer.

## DIRECTOR

**The Glenn T. Seaborg Center for  
Teaching and Learning  
Science and Mathematics  
Northern Michigan University  
Marquette, Michigan**

Applications and nominations are invited for the position of director of The Glenn T. Seaborg Center for Teaching and Learning Science and Mathematics at Northern Michigan University, Marquette, Michigan. The center will develop new programs, and coordinate and promote existing ones, in order to meet the needs of the region in science and mathematics education.

Letters of application or nomination, curriculum vitae, and the names of five references should be submitted by 15 February, or until the position is filled. It is anticipated that the position will be filled by 1 June 1986.

Inquiries, applications, or nominations should be directed to:

**Dr. Fillmore Earney  
Department of Geography, Earth Science  
and Conservation  
Northern Michigan University  
Marquette, Michigan 49855-5342**

Northern Michigan University is an Equal Opportunity/Affirmative Action Employer.

## POSITIONS OPEN

### ECOLOGIST/ECOSYSTEM SCIENTIST

The Institute of Ecosystem Studies of the New York Botanical Garden seeks an established scientist interested in collaborative, multidisciplinary research. Rank and salary will be commensurate with experience. Send statement of research interests, curriculum vitae, and names of three references by 3 February 1986 to: **Gene E. Likens, Director, Institute of Ecosystem Studies, Box AB, Millbrook, New York 12545.**

An Equal Opportunity Employer, M/F

### ECOLOGY/EVOLUTIONARY BIOLOGY

The Department of Biology at the University of Utah seeks to fill a tenure-track position (rank open) in ecology/evolutionary biology. We are especially desirous of applications from individuals with research interests in population biology (including population genetics), but would also welcome outstanding applicants representing other disciplines in the areas of evolutionary biology and ecology. The successful applicant will be expected to develop (or continue) a strong, independent research program, and to contribute to undergraduate and graduate instruction. We are particularly hopeful of attracting a person who will interact in a mutually beneficial way with existing faculty and graduate students.

Interested persons should send a letter of application, curriculum vitae, and three letters of recommendation or the names of three individuals willing to serve as referees to:

**Dr. Diane W. Davidson  
Department of Biology  
University of Utah  
Salt Lake City, UT 84112**

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

### ELECTRON MICROSCOPY TECHNICIAN

The Botany Department of Miami University, Ohio, seeks an electron microscopy technician to maintain and operate the department's electron microscope facility. Starting annual (12-month) salary for this unclassified, non-tenure-track position is \$24,000 plus fringe benefits. The successful candidate will have expertise in maintenance and operation of the scanning electron microscope with energy dispersive x-ray analysis and the transmission electron microscope; demonstrable skill in SEM and TEM specimen preparation and darkroom techniques; and the communicative skills necessary for participation in supervised training of faculty, graduate, and undergraduate students in the use of the instrumentation and collaboration in intra- and inter-departmental research projects. Applications, including curriculum vitae, transcripts, and three letters of reference, should be sent to: **Dr. Roger Meinenheimer, Botany Department, Miami University, Oxford, OH 45056, by 15 February 1986.** This position is contingent upon final funding. Starting date could be as early as 1 March 1986.

Miami University is an Equal Opportunity Employer. Women and members of minority groups are strongly encouraged to apply.

### ENERGY/ENVIRONMENT

Two unclassified positions, one senior, one entry-level, with the state of Maryland's Power Plant Siting Program in Annapolis, Maryland. The program performs studies of all aspects of environmental impacts of existing and future power plants. Positions primarily involve technical management, but require substantial technical involvement in studies. Advanced degree required (Ph.D. preferred, master's degree plus experience equivalent to doctorate may be acceptable) in a physical science or engineering discipline. Training or experience in one or more of the following areas is desirable: chemistry, geology, air quality modeling, statistics, power generation, environmental control technology, groundwater hydrology. Candidates for the senior position should also demonstrate substantial administrative or managerial experience and familiarity with relevant environmental regulations. Salary: \$25,227 to \$38,649, dependent upon experience. Include résumé, technical writing sample, names and telephone numbers of three references. Applications should be received by 1 February 1986 to be assured full consideration and should be sent to: **Director, Power Plant Siting Program, Tawes State Office Building, (B-3), Annapolis, MD 21401.** Minority applicants are encouraged to apply. The state of Maryland is an Equal Opportunity Employer.

## PhD Biosciences

Applications are invited for positions available within the Biotechnology Research Group of Phillips Petroleum Company.

Individuals with a PhD and the following background and experience should apply: Microbiology, Molecular Biology, Cell Biology, Protein Biochemistry.

Phillips Petroleum Company offers competitive salary, excellent benefits, and excellent research facilities with a high quality of living in Bartlesville, Oklahoma.

Please send resumé with references to: Ms. Jeannie Spain, Phillips Research Center, Bartlesville, OK 74004.

An Equal Opportunity Employer



## Bioanalytical Chemist

Arthur D. Little, Inc., a leading international management, research and technical consulting firm, is seeking a bioanalytical chemist to participate in conducting disposition, metabolism and pharmacokinetics studies on drugs and other xenobiotics for government and commercial clients. Chemistry support for toxicology programs is also involved.

Responsibilities include development of methods for analysis of xenobiotics in biological samples and separation and identification of metabolites, utilizing HPLC, GC and GC/MS techniques. Marketing of analytical capabilities to clients, preparation of proposals and supervision of project staff are additional responsibilities.

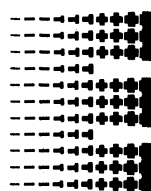
The successful candidate will have a Ph.D. in analytical chemistry or biochemistry and at least 5 years' relevant post-doctorate experience in bioanalytical chemistry. Experience with assays for DNA adducts and with *in vitro* metabolism systems is desirable. Strong supervisory and communication skills are essential.

Please send resume to: Jeanne Crowley, Personnel Manager, Arthur D. Little, Inc., Acorn Park, Cambridge, MA 02140. An equal opportunity employer, M/F.

 **Arthur D. Little, Inc.**

## E C O V A

The Microbial Ecology Corporation



Ecova, an affiliate of BioTechniques Laboratories, Inc. is an emerging force in the research, development, manufacturing and marketing of biological treatments of on-site hazardous and toxic wastes. We are seeking qualified Ph.D. level candidates for the following positions:

### Soil Microbiologist Microbial Ecologist Microbial Physiologist

Candidates must have a record of scientific accomplishment and preference will be given to individuals with experience in biological treatment of hazardous waste. An ability to communicate well is also essential. Ecova offers a dynamic, creative R&D environment at its nine-acre site just minutes from Seattle. We provide competitive salaries, equity participation, a comprehensive benefit package – and a rare opportunity for professional growth and recognition.

Send CV, references and salary requirements, in confidence, to:

Personnel Director  
Ecova Corporation  
15555 NE 33rd  
Redmond, WA 98052

An Equal Opportunity Employer.

## CSIRO

### AUSTRALIA

#### RESEARCH FELLOW

\$26,469–\$38,931

#### DIVISION OF ATMOSPHERIC RESEARCH ASPENDALE VIC

**GENERAL:** The Division of Atmospheric Research has a staff of 130 including 70 professional scientists and undertakes research into physical and chemical aspects of atmospheric phenomena and related areas. The Small Scale Dynamics programme is concerned with the dynamical behaviour of mesoscale phenomena, particularly cold fronts, in the atmosphere and with problems of atmospheric dispersion and flow over complex terrain. The Division is seeking to extend its activity in the turbulent dispersion area through new experimental (both laboratory and field) research initiatives.

**DUTIES:** In collaboration with senior scientists in the Small Scale Dynamics Section to design and implement a research programme based either on laboratory studies of turbulent dispersion or on lidar-based atmospheric field studies of the structure and dispersion of turbulent plumes.

**QUALIFICATIONS:** A PhD or equivalent qualifications in Physics, Mathematics or Engineering. Experience in fluid mechanics especially turbulence, is desirable. Experience in either laboratory modelling of geophysical flows or in lidar remote sensing techniques in the atmosphere would be advantageous.

**TENURE:** A term of 3 years with Australian Government Superannuation Benefits available.

**APPLICATIONS:** Stating relevant personal particulars, including details of qualifications and experience, the names of at least two referees and quoting reference No. A1869, should be directed to:

The Chief  
CSIRO Division of Atmospheric Research  
Private Bag No. 1  
MORDIALLOC VIC 3195 AUSTRALIA  
by 24 January 1986

CSIRO IS AN EQUAL OPPORTUNITY EMPLOYER

## POSITIONS OPEN

### EPIDEMIOLOGIST (RADIATION) CENTERS FOR DISEASE CONTROL (CDC), ATLANTA, GEORGIA

The Division of Chronic Disease Control, Center for Environmental Health, CDC, invites applicants for a staff position in radiation epidemiology. This position will involve assessment of internal and external exposure to radionuclides, the conduct of epidemiologic studies of persons exposed to nonionizing and ionizing radiation, risk assessment of radiation exposures, radiation accident response management, and participation in radiation-related cancer and other chronic disease-control activities. Applicants should have a Ph.D., M.D., or be a certified health physicist and have significant training and experience in radiation biology, health physics, radiation epidemiology, nuclear medicine, or a closely related field. Position is in the Career Civil Service or the Public Health Service Commissioned Corps. Salary range: \$37,000 to \$45,000, depending on qualifications, experience, and personnel system. For program information, contact: **Jim Ruttenber, M.D., Matthew Zack, M.D., or Christie Ehemann, M.S., Cancer Branch, Division of Chronic Disease Control, Center for Environmental Health; telephone: 404-452-4068.** Send résumés and letters of reference to: **Ms. Jenny Garner, Personnel Management Specialist, Personnel Management Office, Centers for Disease Control, Atlanta, GA 30333; telephone: 404-329-3613.** Closing date: 31 January 1986. *An Equal Opportunity Employer.*

### EUKARYOTIC MOLECULAR GENETICIST

The Department of Genetics at the University of California, Davis, invites applications for a tenure-track position at the assistant professor level. Applicants must have a Ph.D. and postdoctoral training in eukaryotic genetics, molecular biology, or a closely related discipline and must be applying recombinant DNA techniques to problems of development and/or gene regulation. Plant molecular biologists are encouraged to apply. Candidates will be expected to develop an active research program in eukaryotic molecular genetics and participate in undergraduate and graduate instruction and advising. Interactions with the faculty and academic professionals from other departments on the Davis campus will be encouraged. Applicants should submit curriculum vitae, list and reprints of published works, transcripts, a statement of professional goals and research interests, and the names and addresses of three referees by 14 February 1986 to: **R. L. Rodriguez, Molecular Geneticist Search Committee, Department of Genetics, University of California, Davis, California 95616.** *The University of California is an Affirmative Action/Equal Opportunity Employer.*

Full-time, 1-year temporary **FACULTY POSITION** in biology available beginning September 1986. General biologist to teach anatomy and physiology in hospital nursing program, as well as other courses in Biology Department programs. College teaching experience is required. Ph.D. preferred. Entry at the instructor or assistant professor rank; salary is negotiable. Send résumé, three letters of reference, and official transcripts to: **Professor Albert F. Answini, Chairperson of Search Committee, Biology Department, Kutztown University of Pennsylvania, Kutztown, PA 19530.** *Kutztown University is an Affirmative Action/Equal Opportunity Employer and actively solicits applications from qualified minority applicants.* Last date for receiving complete applications is 15 March 1986.

### PHARMACOLOGY FACULTY POSITIONS

The Department of Biomedical Sciences of the University of Illinois College of Medicine at Rockford invites applications for two tenure-track faculty positions, preferably at the assistant professor level. Applicants should hold the Ph.D. and/or M.D. degree(s) and have at least 2 years of postdoctoral training. Successful candidates will be expected to develop productive, independently funded research programs and participate in teaching pharmacology to medical students. Applicants with interests in all areas of pharmacology will be considered. Positions will be available beginning 1 July 1986.

Curriculum vitae, statement of research plans, and the names of three references should be sent to: **Pharmacology Search Committee, Department of Biomedical Sciences, University of Illinois College of Medicine at Rockford, 1601 Parkview Avenue, Rockford, Illinois 61107-1897.** Deadline is 15 March 1986. *The University of Illinois is an Affirmative Action/Equal Opportunity Employer.*

## POSITIONS OPEN

**EXECUTIVE VICE PRESIDENT** for the American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America. A proven record of administrative and managerial experience is essential, preferably in agriculture, natural resources, or a closely related field. A Ph.D. in agronomy, crop science, soil science, or a closely related field is required. Responsibilities will include supervising the implementation of policy decisions of the Board of Directors of each society and administrative leadership for professional activities of the societies. Person must have capabilities and characteristics needed to work effectively with Board of Directors, committees, members, and headquarters staff. Salary will be competitive and commensurate with qualifications and experience. Will be located in Madison, Wisconsin. Closing date for receipt of résumés is 15 February 1986 or until suitable candidate is identified. Interested individuals should send their résumé to: **D. R. Buxton, Chair, Screening Committee, Department of Agronomy, Iowa State University, Ames, IA 50011.**

School for Field Studies seeks **FACULTY** for undergraduate courses combining academics and environmental field research at remote sites worldwide. Semester and 1-month courses. Qualifications: Field leadership and research experience, outstanding undergraduate teaching skills, M.S. or Ph.D., and familiarity with research site. Salary: \$1000 to \$1600 per month, plus travel/field expenses. Send curriculum vitae, letter, and three references to: **Director Programs, SFS, 196 Broadway, Cambridge, MA 02139.**

**FACULTY POSITIONS.** Medical School Department of Microbiology and Immunology invites applications for tenure-track positions at assistant or associate professor levels. Applicants must hold a Ph.D. or equivalent degree and have at least 2 years of productive postdoctoral research experience in the areas of cellular and molecular immunology or molecular genetic systems in pathogenic microorganisms. Associate professor candidates must have an established, well-funded research program. Successful candidates will develop and maintain strong, grant-supported, independent research programs and participate in the training of medical and graduate students and postdoctorals. Teaching in medical and graduate courses is required. Salaries and research start-up support are nationally competitive. Submit curriculum vitae, description of research interests, and names of three references by 15 March 1986 to: **Dr. Paul V. Phibbs, Chairman, Department of Microbiology and Immunology, School of Medicine, East Carolina University, Greenville, NC 27834-4354.** *An Equal Opportunity/Affirmative Action Employer.*

**FACULTY POSITION IN PHARMACOLOGY-TOXICOLOGY.** The Department of Pharmaceutical Sciences at Auburn University School of Pharmacy is seeking candidates for a 12-month, tenure-track faculty position at the associate professor or professor level. Candidates for this position should hold a Ph.D. degree in pharmacology, toxicology, or an allied discipline and have experience in directing an active, extramurally funded research program. Responsibilities will include teaching in the department's graduate program, conducting an active research program, and directing graduate students. The position is available 1 September 1986. Salary is competitive and commensurate with qualifications. Applications should include curriculum vitae, description of research program objectives, and names, addresses, and telephone numbers of three references and sent to: **T. N. Riley, Ph.D., Department of Pharmaceutical Sciences, School of Pharmacy, Auburn University, Auburn, AL 36849.** Evaluation of applications will begin February 1986.

*Auburn University is an Equal Opportunity/Affirmative Action Employer.*

### FOOD AND NUTRITION

Faculty position, tenure-track, includes nutrition research and teaching undergraduate/graduate nutrition and dietetics. A doctorate in nutrition or related area is required and postdoctoral experience is preferred. Clinical teaching in a coordinated undergraduate program necessitates practitioner experience and RD status. Position available 1 July 1986; application deadline 1 March 1986 or until position is filled. Send letter of application and credentials to: **Professor Margaret B. Tait, 107 MacKay Hall, Iowa State University, Ames, Iowa 50011.**

## POSITIONS OPEN

The Department of Immunology and Microbiology, Wayne State University, invites applications for a **TENURE-TRACK FACULTY POSITION** at the rank of assistant or associate professor. Applicants must have a Ph.D. and/or M.D. degree with postdoctoral experience. Research interests and publications in the area of **eukaryotic molecular genetics (animal cells or viruses)**. Applicants must be available no later than the summer of 1986 and must have an intense interest in teaching medical and graduate students. The successful candidate will be expected to establish an independent funded research program, as well as to supervise graduate student research. A highly competitive salary and start-up funding will be provided. Send curriculum vitae, a short statement of research interests, and the names of three references to: **Dr. Paul C. Montgomery, Chairman, Department of Immunology and Microbiology, Wayne State University School of Medicine, 540 East Canfield Avenue, Detroit, MI 48201.** *An Equal Opportunity/Affirmative Action Employer.*



### FACULTY POSITION IN TREE ROOT BIOLOGY

A position of assistant professor of biology at Harvard University in tree root biology is available. Applicant should be trained in vascular plant physiology with special interests in tree root physiology in relation to soil microorganisms; for example, symbioses involving ecto- or V.A.-mycorrhizae. The position can be based either in Cambridge or at the Harvard Forest in Petersham. Teaching includes course and individual instruction in plant physiology and the field of specialization. A letter of application describing teaching/research experience and curriculum vitae, and separately, three letters of recommendation should be sent in care of: **Professor J. G. Torrey, Chairman, Tree Root Biology Search Committee, Department of Organismic and Evolutionary Biology, Harvard University, 26 Oxford Street, Cambridge, MA 02138,** by 10 February 1986.

*Harvard University is an Affirmative Action/Equal Opportunity Employer.*

### FOREST MANAGEMENT NATURAL RESOURCES MANAGEMENT PROGRAM SIMON FRASER UNIVERSITY

Applications are invited for a tenure-track appointment at the assistant professor rank beginning 1 September 1986, subject to budgetary authorization. Areas of emphasis are forest management and policy with specialization in: silviculture or economics or soils and land capability in a multiple use context. The appointee will teach graduate courses, direct graduate research, and conduct personal research in a dynamic interdisciplinary program. A Ph.D. degree, practical experience, and eligibility for registration as a professional forester are desired. *Preference will be given to candidates eligible for employment in Canada at the time of application.* Closing date: 1 March 1986 or until filled. Send curriculum vitae, transcripts, samples of relevant publications, and request three referees to send confidential letters of recommendation directly to:

**Dr. J. C. Day  
Natural Resources Management Program  
Simon Fraser University  
Burnaby, B.C., Canada V5A 1S6**

### IMMUNOCHEMIST/BIOCHEMIST

Boston area company seeks an immunochemist/biochemist to develop novel immunoassay reagents to be measured by unique technologies. Goal is to develop a state-of-the-art immunoassay system for existing, as well as new markets.

Position requires a Ph.D., 3 to 5 years of experience, with exposure to an industrial environment. Requires familiarity with immunoassay development, protein purification and chemical modification chemistry, and chemistry of coupling proteins and haptens to surfaces.

Please forward résumé with salary history to: **Wendy Palmor, Instrumentation Laboratory, 1 Burr Road, Andover, MA 01810.**

*An Equal Opportunity Employer*

## CLINICAL DATA COORDINATOR/ SUPERVISOR

Abbott Laboratories is an internationally recognized \$3.3 billion leader in the health care products field. We currently have a position for a Clinical Data Coordinator/Supervisor to participate in the planning of clinical studies and processing of data within our medical research group of the Hospital Products Division.

This position supervises computer programmers and technicians to produce highly accurate clinical data reports, for internal or FDA use, as part of a research team effort. At least 4+ years of experience in the processing of clinical data is required, supervisory experience also necessary. A BS or MS in Biological or Computer Science or related field is a must.

Abbott is attractively located in a suburban setting on the Lake Michigan shoreline, just 30 miles north of Chicago. We offer an advanced technical and systems environment in addition to a competitive salary and benefits package. For consideration, please send your resume to: **Martha Tuttrup/Corporate Placement.** Abbott is an Affirmative Action Employer.



THE FIRST WORD IN...SUCCESS

## Positron Emission Tomography Brookhaven National Laboratory

The Chemistry Department at Brookhaven National Laboratory invites applications to fill a junior staff position. We seek a biochemist/cell biologist interested in joining an ongoing program in radiotracer development for positron emission tomography. This individual will be a member of a multidisciplinary team of chemists, physicians and engineers engaged in the development of new radiotracers for probing metabolism and function in the living body.

Current areas of interest include neurotransmitter receptors, enzyme activity, tissue proliferation and drug metabolism. The new member of the team will be responsible for studying mechanisms of radiotracer interaction with living systems using standard methods of biochemistry and cell biology, and *in vivo* imaging using positron emission tomography. Facilities include two cyclotrons, a positron emission tomograph, an accredited animal facility that includes primates, and well-equipped laboratories for basic research in the chemical and biological sciences. Experience in working with animals is desirable.

Apply by sending curriculum vitae, publications list and research interests, and names of three references to: Dr. Alfred P. Wolf, Chairman, Chemistry Department, Brookhaven National Laboratory, Associated Universities, Inc., Upton, Long Island, NY 11973. An equal opportunity employer m/f.



## CHEMISTS

The Office of Naval Research is seeking two highly qualified individuals to plan and manage contract research programs. The research sponsored is conducted principally at university, industrial, and government laboratories. These are Civil Service positions at the GM-14 or GM-15 (\$44,430-\$67,940) level, depending on individual qualifications.

The responsibilities of the incumbents are:

- ° Chemist (Announcement #85-102)-to serve as Program Manager for all programs in the area of electrochemistry, and to formulate, implement and monitor research programs in electrochemical sciences with particular emphasis on power sources.

- ° Chemist (Announcement #85-103)-to formulate, implement and monitor a research program in physical and analytical chemistry with particular emphasis on photochemistry and chemical diagnostics.

The incumbents will identify new research opportunities, communicate ONR interests to the scientific community, evaluate and select research proposals for funding, manage available resources, and represent the program to Navy management. Successful candidates will have significant opportunities to influence the direction of research conducted at the national level.

Applicants must have a Ph.D. or equivalent in chemistry or a related field and/or at least one to three years of professional experience. Demonstrated research experience is strongly preferred. Interested persons should submit a resume or a Standard Form 171, Application for Federal Employment (available at Federal Job Information Centers or from the address below) to:

Office of the Chief of Naval Research  
Civilian Personnel Division, Code 01242P  
Attn: Announcement #85-102 or #85-103  
800 North Quincy Street  
Arlington, VA 22217-5000

Applications will be accepted through 14 February 1986 and must be received by that date. Applicants are requested to complete the appropriate supplemental forms. For further information and supplemental forms, please call (202) 696-4705.

U.S. Citizenship Required

An Equal Opportunity Employer



# Medicinal Chemistry

The Medicinal Chemistry Department of SK&F Laboratories is seeking a Ph.D. Biochemist interested in isolating and characterizing enzymes and structural proteins; performing rigorous kinetic analyses of enzyme-inhibitor interactions; interacting with synthetic chemists in the design of enzyme inhibitors of therapeutic potential; designing and conducting experiments to determine kinetic and chemical mechanisms of enzyme catalyzed reactions; providing enzymological support for synthetic chemists engaged in the synthesis of mechanism-based therapeutic agents.

The successful candidate must have a Ph.D. in Biochemistry or equivalent; experience in the isolation and characterization of enzymes; experience in the study of enzymes with inhibitors ( $k_{cat}$ , tight binding, or "multisubstrate" types); at least one year of postdoctoral experience is preferred.

Located in an ultra-modern, state-of-the-art research facility near Valley Forge, PA, we offer excellent opportunities for personal and professional growth in addition to an outstanding compensation, benefits, and relocation package. Please forward your c.v. to George P. Kissell, Jr., Manager, Personnel Relations, SK&F Laboratories, 1594 Spring Garden Street, Philadelphia, PA 19101. We are an equal opportunity employer, M/F/H/V.

**SK&F**  
A SmithKline Beckman Company

## MOLECULAR GENETICS SHOWA UNIVERSITY RESEARCH INSTITUTE FOR BIOMEDICINE

Three positions are available in the newly formed Department of Molecular Genetics at the Showa University Research Institute in St. Petersburg, Florida. One investigator is sought to direct a biotechnology facility that will possess state-of-the-art instrumentation for resolution of peptide-protein sequences and synthesis of peptides and gene-specific oligodeoxynucleotide probes. This individual also is expected to conduct an independent research program in an area that complements institutional programs. Two independent scientists are sought who are interested in eukaryotic molecular genetics. Areas of immediate interest are control of gene expression and replication, developmental molecular biology, and transgenic expression and organization of gene families. Persons should utilize molecular genetic approaches and be interested in developing their own programs as well as participating in multidisciplinary collaborative studies. Preference will be given to those programs that are directly involved with or seek to resolve basic issues in human disease.

Showa University is unique in its affiliation with a major Japanese medical university. The Institute is based in a new facility with excellent individual laboratory and office space and centralized services. Investigators are allowed complete freedom to pursue research goals and while generous program support is provided, scientists are expected to secure extramural funding. Both postdoctoral and predoctoral opportunities exist. Ranks will be commensurate with experience and research accomplishments. Salary, fringe benefits, and start-up support are excellent.

Individuals interested in these positions should send their curriculum vitae and list of publications to: **Chairman, Molecular Genetics Search Committee, Showa University Research Institute for Biomedicine, 10900 Roosevelt Boulevard, St. Petersburg, Florida 33702.** Senior and mid-level candidates are invited to submit a brief description of extramurally funded research and a current research support statement. *A not-for-profit organization/Equal Opportunity Employer.*

## POSITIONS OPEN

**YALE UNIVERSITY  
SCHOOL OF FORESTRY AND  
ENVIRONMENTAL STUDIES  
SAGE HALL  
205 PROSPECT STREET  
NEW HAVEN, CT 06511  
TELEPHONE: 203-436-0440**

The School of Forestry and Environmental Studies has been authorized to make a tenured appointment in **FOREST ECONOMICS**. Potential candidates should contact: **John C. Gordon, Dean, School of Forestry and Environmental Studies, Yale University, 205 Prospect Street, New Haven, Connecticut 06511;** telephone: 203-436-0440, by 31 January 1986. *Yale University is an Affirmative Action/Equal Opportunity Employer.*

**HEAD, DEPARTMENT OF NEUROLOGY, BUFFALO GENERAL HOSPITAL, Buffalo, New York.** Voluntary, general hospital, 950 beds, nearing completion of construction/renovation program. Major affiliate of State University of New York/Buffalo, School of Medicine. Strong interest in program expansion. Eligibility for faculty appointment at associate professor or professor level and academic interest required. Research interests encouraged. Send curriculum vitae to: **Michael Cohen, M.D., Professor and Chairman, Department of Neurology, Children's Hospital, 219 Bryant Street, Buffalo, New York 14222.** *Equal Opportunity Employer.*

## HEAD DEPARTMENT OF PHYSICS UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

The Department of Physics at the University of Illinois is seeking well-qualified applicants for the headship of the department. The department has a strong teaching and research program covering a broad range of experimental and theoretical physics. Applicants should have an international reputation in research and a strong interest in developing the research and teaching programs of the department. The head of the department is the chief administrative officer with responsibilities for administrative, budgetary and promotion decisions, and for leading the faculty in the development of research, teaching, and public service. The department head holds the rank of professor of physics with tenure and reports to the dean of the College of Engineering. The appointment will commence on 21 August 1986. Salary is negotiable. Qualified applicants should submit résumés to: **Professor H. K. Birnbaum, Materials Research Laboratory, University of Illinois, 104 South Goodwin Avenue, Urbana, IL 61801;** telephone: 217-333-1901. Résumés should be received by 15 February 1986 to receive full consideration, but the search will proceed until the position is filled. *The University of Illinois is an Affirmative Action/Equal Opportunity Employer.*

**IMMUNOCHEMIST.** The applicant must have a Ph.D. degree in immunology or biochemistry, with a minimum of 5 years of postgraduate research experience in one or more of the following areas: immunoaffinity purification of proteins or peptides; development and utilization of quantitative assays for specific complement components; purification of eukaryotic plasma membrane receptors; or use of monoclonal antibodies in assay development. Cytotech, Inc., 2½ years old, is a biotechnology firm focused on the development of diagnostic products for human autoimmune and infectious diseases. Please send curriculum vitae to: **The Personnel Department, Cytotech, Inc., 11045 Roselle Street, Suite C, San Diego, CA 92121.**

## MARINE GEOPHYSICS

The Rosenstiel School of Marine and Atmospheric Science, University of Miami, invites application for a tenure earning faculty position at the assistant or associate professor level. Specialization in marine geomagnetism (paleomagnetism, rock magnetism, or magnetic anomaly interpretation) is desired. Send application including curriculum vitae, statement of research interests, and the names of three references to: **Dr. C. G. A. Harrison, Chairman, Marine Geomagnetism Search Committee, Rosenstiel School of Marine and Atmospheric Science, University of Miami, 4600 Rickenbacker Causeway, Miami, Florida 33149.** *An Equal Opportunity/Affirmative Action Employer.*

## POSITIONS OPEN

**IMMUNOCHEMIST—IMMUNODIAGNOSTIC DEVELOPMENT.** B.S., M.S., and Ph.D. level candidates with skills and industrial experience in applied immunochemistry are required for a young, dynamic, and rapidly growing diagnostic firm. Strong emphasis on product development skills in enzyme immunoassay systems using paper technology on dipstick devices using innovative portable instrumentation. Personnel will be involved in the development of diagnostic products based on unique concepts requiring enzyme-antibody conjugations, chemically reactive paper technology, isolation and purification of biologically active components, and paper diffusion techniques. Submit résumé stating experience, special interests, salary history, and career goals to:

**Personnel Director  
Genesis, Laboratories, Inc.  
5245 Edina Industrial Boulevard  
Minneapolis, MN 55435**

## INSTRUCTOR

Faculty position in the Department of Pathology, Division of Immunogenetics. A Ph.D. with 2 years postdoctoral is required. Individuals trained in immunogenetics with expertise in molecular immunology mechanisms should apply. Position will be available spring 1986. Submit letter outlining research and teaching interest, curriculum vitae, bibliography, and three reference letters to:

**Nicole Suci-Foca, Ph.D.  
Professor of Pathology, Director Immunogenetics  
College of Physicians and Surgeons of  
Columbia University  
630 West 168 Street, P&S 14-403  
New York City, NY 10032**

*Columbia University is an Equal Opportunity/Affirmative Action Employer.*

Must submit by 1 April 1986.

## MASS SPECTROMETRIST

Responsible for assisting in operation and maintenance of existing mass spectrometry facility which includes operation of quadrupole and magnetic sector instrumentation, and fast atom bombardment high-resolution mass spectrometry. A Ph.D. in mass spectrometry with at least 18 months of postdoctoral training is required. Applicant will be expected to conduct own research projects, in addition to overseeing service activities of the facility using a VG 2AB-SE mass spectrometer. Salary at \$32,000 annually. Send curriculum vitae and brief description of current research interests to: **K. Moody, Missouri Division of Employment Security, 505 Washington Avenue, St. Louis, MO 63101.** Please refer to order Number 203900.

**FULL-TIME POSITION AS MASS SPECTROMETRY OPERATOR—**A full-time position is available for a laboratory technician in the Clinical Mass Spectrometry Laboratories of the Department of Pediatric Gastroenterology and Nutrition. The person will take responsibility for the day-to-day running and maintenance of a Finnigan 4635 Quadrupole Mass Spectrometer equipped with EI, CI, PPNICI, DISIMS, and thermospray facilities. In addition, to a Varian 5000 series HPLC and two capillary column gas chromatographs. The department is engaged in the qualitative and quantitative analysis of a variety of compound classes including bile acids, steroids, sterols, and xenobiotics and various gastrointestinal diseases. Knowledge of chromatographic techniques, including GLC and HPLC is essential. Previous experience in the operation and routine maintenance of mass spectrometry instruments and peripheral equipment, although not essential, would be an advantage. Salary negotiable, but in accordance with previous experience. Candidates interested should apply in writing, enclosing curriculum vitae and the names of two referees to:

**K. D. R. Setchell, Ph.D.  
Associate Professor of Pediatrics  
Director,  
Clinical Mass Spectrometry,  
Division of Gastroenterology  
and Nutrition  
CHILDREN'S HOSPITAL MEDICAL CENTER  
Elland and Bethesda Avenues  
Cincinnati, OH 45229  
*An Equal Opportunity Employer, M/F***

## BIOMEDICAL LITERATURE ANALYSIS

Doctorate degree in the Biological or Medical Sciences or similar.

The MOST IMPORTANT qualification is a PROVEN, OUTSTANDING ABILITY to critically and perceptively ANALYZE published SCIENTIFIC STUDIES, data, meeting presentations and related, in great depth and expeditiously on a peer review level.

Open-mindedness, high intelligence, and professional integrity important. Broad biomedical or related background essential, preferably with emphasis on etiology of chronic diseases, i.e., cancers and/or cardiovascular and/or chronic respiratory, etc. Fast reading comprehension essential. Good writing skills are important, as well as ability to explain complex scientific matters on an intelligent layman's level. Prefer recent post-graduate with some industrial or academic or editorial or similar experience.

A second position requiring a B.S. or Masters degree is also available having a thrust similar to what is specified above.

Positions are with a small New York City firm that is a scientific consultant in the defense of industrial liability litigation.

Please send detailed curriculum vitae including college(s), and positions held since graduation, professional references (no contacts will be made without applicant's consent), etc. to:

Box 274  
SCIENCE

## DIRECTOR, INSTITUTE FOR MOLECULAR AND AGRICULTURAL GENETIC ENGINEERING

The University of Idaho is inviting nominations and applications for Director of the Institute for Molecular and Agricultural Genetic Engineering (IMAGE). The purpose of IMAGE is to encourage research in and development of newly emerging biotechnologies at the University of Idaho and to promote the exploitation of these technologies with respect to agricultural and industrial applications. Equally important is training of students in recombinant DNA technology and biotechnology. IMAGE is composed of scientists from a variety of departments, colleges, and locations within the University of Idaho, and it provides a focus for research interests and encourages research interaction within the University and with cooperating institutions such as the Idaho National Engineering Laboratory (INEL).

Duties will include promotion of research programs in IMAGE, organization of educational programs, budget preparation, and establishment of effective liaison with cooperating institutions and funding agencies. The Director of IMAGE is responsible to the Board of Deans for IMAGE and through them to the Vice President for Academic Affairs and Research.

An accomplished scientist with an earned doctorate, an excellent research record in a Biotechnology related area and proven or potential administrative ability would be an ideal candidate. Salary is competitive and will be related to the qualifications and experience of the candidate.

Letters of nomination or applications including resumes, names, addresses, and phone numbers of at least three references should be sent by March 15, 1986 to:

Dr. A. J. Lingg  
IMAGE Search Committee  
Department of Bacteriology  
and Biochemistry  
University of Idaho  
Moscow, ID 83843

An equal opportunity, affirmative action employer and educational institution.

## Inflammation/ Molecular Immunology Research Opportunity



An equal opportunity employer

Pfizer Central Research has an immediate opening in its Department of Immunology and Infectious Diseases. We are seeking a qualified individual who will join a multidisciplinary research team working to modify the activity of humoral mediators involved in inflammatory disease. In this challenging position you will participate in determining the role of complement anaphylatoxins in triggering cellular inflammatory reactions.

This position requires an MS or BS degree together with several years of relevant laboratory experience in biochemistry or molecular immunology. Useful research experience would include protein/peptide purification and modification, immunochemical methods, protein/peptide-receptor binding, tissue culture, and instrumental methods such as HPLC and spectroscopic techniques. Experience with *in vitro* cellular assay systems also would be helpful but is not required.

In addition to the potential for career growth, this position provides an opportunity for a motivated individual to contribute to all levels of experimental work in a stimulating professional environment. We offer an excellent salary, benefit and relocation package plus an attractive southeastern Connecticut shore location. Qualified applicants should submit their resume, including a summary of research accomplishments and three references, to: Charles P. Norris, Personnel Associate, Pfizer Central Research, Eastern Point Road, Groton, CT 06340.

## SENIOR TOXICOLOGIST

R.J. Reynolds Industries, Inc. has an excellent career opportunity for a Senior Toxicologist to be located in Winston-Salem, N.C.

Responsibilities include the following:

- Communicate to RJR operating company management the scientific concerns regarding the use of artificial sweeteners, coloring agents, preservatives, flavorants or other additives.
- Interface with RJR operating companies involving baked goods, candies, fruits, vegetables, soft drinks, liquor and packaging materials.

The successful candidate must have a Doctoral degree (Ph.D. or DVM) in Toxicology, Biochemistry or other Biomedical Science and a minimum of 3 years of related experience (preferably in food or consumer products). Board certification in toxicology is preferred. The successful candidate must have experience in working with trade groups, professional associations and industrial committees. Knowledge of toxicological methodologies including *in vivo* and *in vitro* assays is required and experience in regulatory toxicology is helpful.

This position offers the opportunity for future professional growth and development. Salary is commensurate with ability and experience. Excellent fringe benefits are provided. Send resume and salary requirements, in confidence, to: **Mr. Thomas M. Brinkley, R&D Toxicology Recruiter, R.J. REYNOLDS INDUSTRIES, INC., World Headquarters Building, 1100 Reynolds Boulevard, Winston-Salem, N.C. 27102**

(No Telephone Inquiries, Please)



RJReynolds Industries, Inc.

An Equal Opportunity Employer M/F

Tobacco Products  
Foods & Beverages  
Packaging  
Spirits and Wine  
Specialty Retailing

## POSITIONS OPEN

### UNIVERSITY OF QUEENSLAND LECTURER (5 years fixed term) PHYSIOLOGY AND PHARMACOLOGY

Undergraduate teaching in neurophysiology to science, medical, paramedical, and veterinary science students. Research interest and qualifications in sensory neuroscience are preferred so that candidate could take advantage of newly developed resources in the recently established neuroscience laboratories of Professor J. D. Pettigrew.

Closing date: 8 February 1986. Reference 48685

Lecturer: Salary per annum: \$A27,233 to \$A35,777.

Additional information and application forms are available from: The Staff Officer, University of Queensland, St. Lucia, 4067, Queensland, Australia.

The University of Queensland is an Equal Opportunity Employer.

### MAMMALIAN MOLECULAR GENETICIST

The University of Illinois invites applicants for an assistant/associate tenure-track professorship in mammalian molecular genetics. This position in the College of Veterinary Medicine is expected to provide additional strength to major college programs on biological regulatory mechanisms and their genetic controls, as well as contribute to campuswide biotechnology programs. The successful candidate should have an understanding and interest in regulation of gene expression as it relates to disease resistance and/or reproduction and growth. Individuals interested in the genetics of control and release of biological response modifiers such as lymphokines and endocrine regulatory molecules are particularly urged to apply. The individual should have a Ph.D. with a strong background in mammalian molecular biology and be knowledgeable in methods pertaining to gene mapping and cloning, gene insertion and regulation, and protein chemistry. The appointee will have an opportunity to collaborate with faculty in existing college and campus programs and will be eligible for an appointment in the University Biotechnology Center.

The position also involves a contribution to the college teaching programs in the applicant's area of expertise. Salary is competitive and negotiable, based on experience and qualifications. Applications will be accepted until 15 February 1986 or until an acceptable candidate is identified. Send résumé and three letters of reference to: Wayne A. F. Tompkins, Department of Pathobiology, College of Veterinary Medicine, University of Illinois, 2001 South Lincoln, Urbana, IL 61801; telephone: 217-333-7825.

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

**POSTDOCTORAL CELLULAR NEUROBIOLOGY** position available immediately to study protein sorting and targeting in neurons. Relevant experience in neural or non-neural systems desirable. Excellent neurosciences and Southern California environments. Send curriculum vitae, research summary, and personal references to: Dr. Richard Hammerschlag, Division of Neurosciences, Beckman Research Institute of the City of Hope, Duarte, CA 91010; telephone: 818-357-9711, extension 2486.

**POSTDOCTORAL FELLOW/RESEARCH ASSOCIATE** beginning summer 1986, to study the regulation of mammalian collagenase gene expression in normal and diseased connective tissue. Experience in molecular genetics helpful, but not essential. Send curriculum vitae and names of three references to: Dr. Constance E. Brinckerhoff, Department of Biochemistry, Dartmouth Medical School, Hanover, New Hampshire 03756.

### POSTDOCTORAL POSITION: MOLECULAR GENETICS

Postdoctoral position available to study developmental expression of the components of the  $\beta$ -adrenergic receptor-adenylate cyclase system. The project will involve cloning and characterization of the genes involved in this system. Stipend is negotiable up to \$18,000, depending on experience. Applicants should have a strong background in molecular biology and biochemistry, with practical experience in molecular cloning. Send curriculum vitae, short statement of research experience, and three letters of recommendation to: Ifeanyi J. Arinze, Ph.D., Department of Biochemistry, Meharry Medical College, Nashville, TN 37208.

## POSITIONS OPEN

### MOLECULAR IMMUNOLOGIST

The Oregon Regional Primate Research Center (ORPRC) has a core-funded research position available in molecular immunology. The appointee will be expected to develop an independent, funded research program on any of a range of topics, such as antigen recognition and immunoregulation, and to interact with other programs at ORPRC. Research projects should utilize or complement existing programs using nonhuman primates to a meaningful extent. Rank and salary are commensurate with experience. Many ORPRC faculty have academic appointments at the Oregon Health Sciences University, Portland, Oregon. A curriculum vitae, statement of research interests, and the names and addresses of three references should be submitted by 1 March 1986 to: Dr. Richard L. Stouffer, Immunology Search Committee, Oregon Regional Primate Research Center, 505 NW 185 Avenue, Beaverton, Oregon 97006. An Affirmative Action/Equal Opportunity Employer.

### NUTRITION FACULTY

Two tenure-track positions at the assistant professor level are available in the Nutrition Program of the School of Health Related Professions. One of these positions is a 12-month position to teach, supervise graduate student research, coordinate and conduct research in basic nutrition, preferably in metabolism or trace elements. Earned Ph.D. degree in nutrition and 2 years of postdoctoral training are required. Starting date 1 July 1986. The second position is a 10-month position to teach, supervise, and conduct research in clinical nutrition. Earned Ph.D. in human nutrition, R.D. and 3 years of clinical experience are required, preferably in acute and long-term care. Starting date 21 August 1986. Applications and nominations will be accepted until 1 March 1986. Send curriculum vitae, names, addresses, and telephone numbers of at least three references to: Atif B. Awad, Ph.D., Director, Nutrition Program, 415 Kimball Tower, State University of New York at Buffalo, Buffalo, NY 14214. Affirmative Action/Equal Opportunity Employer.

**POSTDOCTORAL POSITION (BIOCHEMIST, EUKARYOTIC CELL BIOLOGIST)** to study the energetic regulation of rRNA synthesis, overall protein synthesis, and immunoglobulin secretion in T-cell hybrids at very slow growth rates. Cell biology, biochemical, and genetic approaches are being considered. Recent Ph.D. in biochemistry or related field required. Strong experience in DNA, RNA, HPLC, and mammalian cell culture techniques desired. One to 2 years, dependent on funding and evaluation of performance. Salary negotiable. Potential to develop an independent research program with a stimulating interdisciplinary basic science and engineering institute. Collaborations with biochemistry, genetics and cell biology, microbiology, and chemical engineering faculty possible. Send curriculum vitae, copies of publications, and three letters of recommendation to: Dr. Michael C. Flickinger, Institute for Advanced Studies in Biological Process Technology, 240 Gortner Laboratories, 1479 Gortner Avenue, University of Minnesota, St. Paul, MN 55108, by 10 February 1986. The University of Minnesota is an Equal Opportunity Educator and Employer and specifically invites and encourages applications from women and minorities.

**POSTDOCTORAL POSITION** available immediately to study the expression of insulin-like growth factors in hepatocellular carcinoma associated with chronic hepatitis infection. Studies will include gene cloning, DNA sequencing, mRNA analysis, and tissue culture. Experience in recombinant DNA technology desired. Send curriculum vitae and names of three references to: Dr. Charles E. Rogler, Liver Research Center, Albert Einstein College of Medicine, 1300 Morris Park Avenue, Room U625, Bronx, NY 10461.

**POSTDOCTORAL POSITIONS** in the Laboratory of Biochemical Genetics and Metabolism at Rockefeller University. Research emphasis will be on understanding genetic control of lipoprotein metabolism and human mutations in this process that enhance atherosclerosis susceptibility. Individuals sought with backgrounds in molecular biology, biochemistry, protein chemistry, and/or cell biology. Please send curriculum vitae and names of three references to: Dr. Jan L. Breslow, Rockefeller University, 1230 York Avenue, New York, NY 10021.

## POSITIONS OPEN

### OPPORTUNITIES IN RESEARCH Microbiology-Biochemistry

Immediate openings are available for two positions in our Molecular Biology Department.

Our senior research microbiologist opportunity will require extensive experience in immunology and a background in microbiology, biochemistry, and/or cell biology at the doctorate level. Knowledge and interest in developing immunologic assays for vaccine and adjuvant detection is essential.

The ideal candidate for our position in biochemistry should have at least 3 years of postdoctorate or industrial experience with the role of  $Ca^{2+}$  in cardiac and smooth muscle systems and cell secretion. A knowledge of pharmacology and drug development is desirable.

Excellent benefits, a pleasant working environment, and competitive salaries commensurate with experience and background complement these professionally demanding opportunities. A. H. Robins is headquartered in a southern metropolitan atmosphere within convenient driving distance to Washington, DC, the seashore, and the mountains. Please send résumés and salary requirements in confidence to: Manager, Personnel R&D Division, A. H. Robins Company, 1211 Sherwood Avenue, Richmond, Virginia 23220. Equal Opportunity Employer, Male/Female.

### PHYSICAL BIOCHEMIST UNIVERSITY OF MASSACHUSETTS/ AMHERST

A tenure-track position is available in the Department of Biochemistry at the University of Massachusetts. Candidate should have a strong background in physical and instrumental methods of analysis of macromolecules or macromolecular assemblies and a current research program focused on use of these techniques to study problems in biochemistry or molecular and cellular biology. The successful applicant will be expected to maintain an active research program, contribute to undergraduate teaching in biochemistry, and participate in the interdepartmental graduate program in molecular and cellular biology. In addition to collaboration with colleagues in the biological sciences, the position offers opportunities for research interactions in the Departments of Chemistry, Physics, Polymer Science, Chemical Engineering, Mathematics, and Computer Science. The University of Massachusetts has excellent facilities for computing, applied mathematics statistics, and image analysis. The position will be filled at the level of assistant or associate professor, depending on experience, effective 1 September 1986. Salary commensurate with qualifications and experience. Send résumé, brief statement about present and planned research, and three letters of recommendation to: Physical Biochemistry Search Committee, Department of Biochemistry, University of Massachusetts, Amherst, MA 01003. Closing date for applications is 28 February 1986. An Affirmative Action/Equal Opportunity Employer.

**POSTDOCTORAL POSITION** available immediately to study the interaction of neurotoxins and neurotropic viruses with the acetylcholine receptor and other neuronal receptors. Candidates should have experience in some of the following areas: binding assays, protein purification, HPLC, peptide synthesis/modification, antibody preparation, and cell culture. Send curriculum vitae and the names of three references to: Dr. Thomas L. Lentz, Department of Cell Biology, Yale University School of Medicine, 333 Cedar Street, P.O. Box 3333, New Haven, CT 06510. Yale University is an Equal Opportunity Employer.

**POSTDOCTORAL POSITION IN IMMUNOLOGY** to study (i) developmental defects in antigen processing/presentation or (ii) response to CNS viral infection. Applicants should have experience in cellular immunology. Send curriculum vitae and the names of three references to: Stephen Stohman, Ph.D., Department of Neurology and Microbiology-MCH 142, University of Southern California, School of Medicine, 2025 Zonal Avenue, Los Angeles, California 90033.

**POSTDOCTORAL FELLOWSHIPS** available for neurobehavioralists. The University of Rochester School of Medicine announces a new NIMH multidisciplinary program for postgraduate training using neuroanatomical, neurochemical and physiological approaches to the study of behavior.

**Training Faculty**  
**John R. Sladek, Jr.**  
 Program Director  
 Chemical Neuroanatomy

Robert Ader, Ph.D. **Psychoneuroimmunology**  
 Martha L. Blair, Ph.D. **Neuroendocrine Mechanisms of Blood Pressure Regulation**  
 Paul Coleman, Ph.D. **Neurobiology of Aging**  
 Manuel del Cerro, M.D. **Neural Development**  
 David Felten, M.D., Ph.D. **Neuroimmunology; Monoamines**  
 Don Marshall Gash, Ph.D. **CNS Regeneration and Transplantation**  
 Suzanne Haber, Ph.D. **Limbic-Motor Interactions**  
 Gloria Hoffman, Ph.D. **Neuropeptide Systems**  
 W. Michael King, Ph.D. **Vestibular Oculomotor Systems in Primates**  
 Rebekah Loy, Ph.D. **Neural Plasticity; Sexual Dimorphisms**  
 William H. Merigan, Ph.D. **Primate Visual Psychophysics; Visual Toxicology**  
 Tatiana Pasternak, Ph.D. **Neural Mechanisms of Vision**  
 Celia D. Sladek, Ph.D. **Regulation of Vasopressin Release**  
 Bernard Weiss, Ph.D. **Neurotoxicology**

Candidates should have a Ph.D. or M.D. degree with training in psychology, neuroscience, anatomy, physiology, or related areas. U.S. citizenship or permanent residency required. For further information, send curriculum vitae, a 1-page description of research interests, and a list of three references to: **Dr. M. L. Blair, Department of Physiology, Box 642, University of Rochester, School of Medicine and Dentistry, Rochester, NY 14542.**



**LIFECODES CORPORATION**

## MOLECULAR BIOLOGISTS AND BIOCHEMISTS

Lifecodes Corporation, a rapidly growing biotechnology company, is seeking scientists for three challenging positions.

**GROUP LEADER**—Head a group developing sensitive nucleic acid detection systems. Requires very strong background in nucleic acid chemistry, evidenced by publication, plus demonstrated leadership ability.

**POSTDOCTORAL FELLOWS (2)**—Join a multidisciplinary team applying recombinant DNA technology to medical diagnostics. Qualified applicants will have a recent Ph.D. in one of the biological sciences and should have experience with a wide range of recombinant DNA techniques.

Lifecodes Corporation is located in Westchester, New York, only 30 minutes from midtown Manhattan.

To apply, send your curriculum vitae along with the names and telephone numbers of three references to:

**Dr. Jeffrey Glassberg**  
 Personnel Department  
 Lifecodes Corporation  
 4 Westchester Plaza  
 Elmsford, New York 10523

## Postdoctoral Scientist Cell Biology

The Department of Cell Biology at Smith Kline & French Laboratories, located in suburban Philadelphia, Pennsylvania, has an immediate opening for a Postdoctoral Scientist interested in the role of growth factors and tumor inhibitory factors to join a multidisciplinary team seeking novel therapeutic agents for the treatment of human colon adenocarcinoma. Our postdoctoral positions are normally of a two-year duration.

The successful candidate will:

- identify, isolate and characterize biomolecules that influence the proliferation and differentiation of normal and neoplastic human colon epithelial cells.
- conduct micropurification of polypeptide growth factors and perform structural and functional characterizations of these molecules.
- investigate the role of tumor inhibitory factors on the proliferation of human colon adenocarcinoma cells.

Candidates are required to have:

- a Ph.D. in Biochemistry, Cell Biology or related discipline.
- 0-3 years postdoctoral research experience.
- proven research ability and clear and concise communication skills.

We offer a stimulating research environment, excellent compensation and benefits and an attractive relocation policy. For confidential consideration, send your resume and names of three references to: **Mr. Walter B. Flagg, Senior Employment Consultant, SMITHKLINE BECKMAN CORPORATION, 1596 Spring Garden Street, Philadelphia, PA 19101.** We are an Equal Opportunity Employer, M/F/H/V.

**SK&F**  
 A SmithKline Beckman Company

## Postdoctoral Scientist



What will you  
**Discover**  
 when you join Lederle?

At Lederle Laboratories, American Cyanamid's highly prestigious Medical Research Division, one of our most important objectives is the development of new ideas in response to diverse human health needs. And to help meet that objective, we have recently created a position for a Postdoctoral Scientist which will become available in January, 1986.

Interacting with other postdoctoral scientists, visiting scientists and graduate students, you will be responsible for the application of molecular biologic techniques to clone and express membrane proteins associated with the platelet serotonin transporter.

Experience in DNA cloning, expression vectors, DNA sequencing serology and protein purification is requisite. A background in immunorecognition would be helpful.

At Lederle, you'll find a stimulating, highly professional research environment in beautiful Rockland County, just 35 miles from New York City. For immediate consideration, forward your CV and brief history of related research to: **Mrs. N. Levine, Medical Research Division, American Cyanamid Company, Lederle Laboratories, Pearl River, NY 10965.** Cyanamid is an equal opportunity employer m/f.



**Dedicated People  
 Dedicated to People  
 Since 1906**

## NATIONAL INSTITUTES OF HEALTH PUBLIC HEALTH SERVICE NATIONAL CANCER TREATMENT DEVELOPMENTAL THERAPEUTICS PROGRAM

**Position Title:** Chief, Laboratory of Experimental Therapeutics and Metabolism  
**Grade Range:** GM-15  
**Salary Range:** \$52,262-\$67,940 depending upon qualifications. (Candidates may be eligible for appointment in the Commissioned Corps of the U.S. Public Health Service)

**Location of Position:** Building 37, National Institutes of Health, Bethesda, Maryland

**Qualifications:** Research scientist with credentials in biochemical toxicology, pharmacology, and metabolism of drugs and other environmental chemicals relevant to cancer chemotherapy. Candidates must have a Ph.D. in biochemistry, or its equivalent, and a minimum of six years experience in directing and providing leadership for a large multidisciplinary research program.

Responsibilities include the development and administration of the above research program in order to generate basic information on tumor biology, experimental chemotherapy, and toxicology, that will contribute to the improvement of cancer treatment.

Point of contact for further information:

**Dr. Michael R. Boyd**  
 Associate Director  
 Developmental Therapeutics Program  
 National Cancer Institute  
 National Institutes of Health  
 Landow Building, Room 5A-21  
 9000 Rockville Pike  
 Bethesda, Maryland 20892  
 Telephone: (301) 496-8720

NIH IS AN EQUAL OPPORTUNITY EMPLOYER

# Physical Oceanographer

We plan to make a tenure-track appointment as Assistant Scientist in the Department of Physical Oceanography. Applicants should have a degree in Physical Oceanography or a closely related field and, preferably, some postdoctoral experience. A candidate's area of expertise in oceanography is not specified, but a working knowledge of fluid dynamics is an important qualification.

Apply to:

Personnel Manager  
Box 54P

## WOODS HOLE OCEANOGRAPHIC INSTITUTION



Woods Hole, MA 02543

An equal opportunity employer M/F/H/V

### ASSOCIATE DIRECTOR

The University of Illinois at Chicago and the Illinois Department of Mental Health and Developmental Disabilities invite applications and nominations for the position of associate director of their jointly operated institute, the Institute for the Study of Developmental Disabilities (ISDD). ISDD is engaged in and promotes research into the biomedical and behavioral bases for developmental disabilities; evaluative research on public policies affecting developmental disabilities, development of educational programs and of model service programs. In addition to its permanent staff, faculty of numerous academic departments are associated with the institute including psychology, biological sciences, special education, neurology, and the School of Public Health.

The associate director is expected to assist the director in policy formulation, program development and advocacy, and serve in a leadership role. In addition to administrative functions, the successful candidate will pursue his/her own research interests in an area directly related to developmental disorders. This position is with appropriate academic rank in the University of Illinois and civil service standing in the Department of Mental Health and Developmental Disabilities.

Applicants must have an earned doctorate (Ph.D. or M.D.) and a substantial record of research and scholarly achievement in a discipline relevant to developmental disabilities. Administrative experience and leadership ability are desirable qualities. Preferred starting date is September 1986. Deadline for receipt of applications and nominations is 28 February 1986 or until the position is filled.

Nominations and applications, including curriculum vitae, research plans, and names and addresses of five references should be sent to:

Kenneth R. Swiatek, Director  
Institute for the Study of  
Developmental Disabilities  
1640 West Roosevelt Road  
Chicago, Illinois 60608

The University of Illinois and the Illinois Department of Mental Health and Developmental Disabilities are Equal Opportunity/Affirmative Action Employers.

### POSITIONS OPEN

**POSTDOCTORAL/ASSISTANT RESEARCH POSITIONS** (three) available immediately for 3 years, in an established program on the role of silicon in metabolic processes of a lower eukaryote. Two areas to be studied: (i) regulation of syntheses of DNA, cAMP, cAMP-dependent protein kinase, phosphoproteins, and/or polyamines [*Plant Physiol.* 76, 674 (1984); *Arch. Microbiol.* 137, 291 (1984)]. Background in microbiology/biochemistry, and experience in methodologies for any of the above studies required. Salary starting at \$21,180. (ii) A novel system of regulation of gene expression and replication by silicon in the diatom, by analysis of gene banks previously constructed in this laboratory (two positions). Cloned yeast genes have been used successfully to identify diatom genes of similar function in the banks and at least one yeast mutation *leu 2<sup>-</sup>* has been complemented using cloned diatom DNA sequences [*J. Gen. Microbiol.*, 131, 1735 (1985)]. Background in molecular biology. Proficiency in recombinant DNA techniques: cDNA cloning, analysis of gene banks, vector construction, southern and northern hybridization, transformation, analysis of regulatory sequences; DNA sequencing desirable. Salary starting at \$21,180 to \$23,784, depending on qualifications. Send complete curriculum vitae, reprints, and three letters of reference to: Dr. B. E. Volcani, Scripps Institution of Oceanography, University of California, La Jolla, CA 92093. Telephone: 619-452-2194. Applications will be accepted until positions are filled. *Equal Opportunity/Affirmative Action Employer.*

**POSTDOCTORAL FELLOW.** Position available immediately in a recently expanded department with a strong emphasis in cellular physiology, to study membrane assembly, intracellular sorting and trafficking with a particular emphasis on lipids. Background in biochemistry or cell biology helpful. Send curriculum vitae and three letters of recommendation to: Dr. E. A. Dawidowicz, Department of Physiology, Tufts University School of Medicine, 136 Harrison Avenue, Boston, MA 02111. *An Equal Opportunity/Affirmative Action Employer.*

**POSTDOCTORAL POSITION** available immediately to join a large group in an ongoing project to study the efficacy of using anti-idiotypic antibodies as vaccines in the induction of protective immunity against mucosal pathogens. The candidate should have experience in cellular immunology and immunochemistry. Competitive salary. Send curriculum vitae and names and addresses of three references to: Dr. Susan Jackson, Department of Microbiology, University of Alabama at Birmingham, Birmingham, Alabama 35294. *An Equal Opportunity/Affirmative Action Employer.*

**POSTDOCTORAL POSITIONS.** Molecular virology/RNA biochemistry positions available spring and summer (or fall) for work on the biochemistry of a novel small stable RNA involved in protein synthesis and (separately) the molecular biology of flaviviruses that cause Japanese encephalitis and dengue fever. Molecular genetic and biophysical strategies are being used to characterize the unique structure and function of the *Escherichia coli* 4.5s RNA [*J. Mol. Biol.* 178, 509-531, 533-551 (1984); *Nucleic Acids Res.* 12, 2019-2034 (1984)]. The virus program utilizes cloned cDNA and monoclonal antibodies to study virus replication and for subunit vaccine development; current emphasis is on cDNA expression, epitope mapping and evaluation of vaccine-candidate proteins. Experience with relevant methods preferred. Salary range \$18,000 to \$22,000. Send résumé and names of three references to: Dr. M. J. Fournier, Department of Biochemistry, University of Massachusetts, Amherst, MA 01003. Closing date for applications is 1 March 1986. *An Affirmative Action/Equal Opportunity Employer.*

**POSTDOCTORAL POSITION** at Massachusetts Institute of Technology (MIT) available immediately, or by 1 July to design and synthesize radiopharmaceuticals for detection of human atherosclerosis [see *J. Nucl. Med.* 26, 1056 (1985)]. Chemical synthesis, antibody production, animal and human studies are all involved. M.D., or Ph.D. in chemistry, biochemistry, or pharmacology preferred. Send curriculum vitae and names of three references to: Professor Robert S. Lees, Department of Applied Biological Sciences, Room 26-131, MIT, Cambridge, MA 02139. MIT is an Equal Opportunity/Affirmative Action Employer.

### POSITIONS OPEN

#### POSTDOCTORAL POSITION

Postdoctoral position available immediately to study the molecular biology of human cytomegalovirus. Experience in recombinant DNA methodologies and virology preferred. Send curriculum vitae and three letters of reference to: Dr. Lenore Pereira, School of Dentistry, HSW 604, San Francisco, CA 94143-0512. *An Equal Opportunity Employer.*

**POSTDOCTORAL POSITIONS** available for recent Ph.D.'s to participate in an active research program on the regulation of DNA repair in human cells. Current research efforts focus on the use of monoclonal antibody and recombinant DNA technology for molecular and genetic studies of DNA repair in normal human cells and in cells from cancer-prone individuals. Submit curriculum vitae and names of two references to: Dr. Michael Sirover, Fels Research Institute, Temple University School of Medicine, 3420 North Broad Street, Philadelphia, PA 19140. *Equal Opportunity Employer.*

**POSTDOCTORAL POSITIONS** available for research on hemoparasitic diseases of animals (*Anaplasma babesia*). Research will involve cloning, analysis, and expression of genes coding for membrane surface proteins. Prior experience with recombinant DNA techniques, especially using expression vectors, will be an advantage. Please send curriculum vitae to: Dr. Travis C. McGuire, Department of Veterinary Microbiology and Pathology, Washington State University (WSU), Pullman, WA 99164. WSU is an Equal Employment Opportunity/Affirmative Action Employer.

**POSTDOCTORAL POSITIONS IN CARDIOVASCULAR RESEARCH.** One or two positions for recent Ph.D. to work on the molecular biology of specific differentiation-dependent cardiac proteins and immunohistochemistry of contractile proteins in the developing heart are available. Candidates should have a strong background in recombinant DNA technology and/or immunohistochemical techniques. Potential candidates should send a copy of their curriculum vitae, a brief statement of research interests, and three letters of recommendation to: Dr. George Jackowski, Cardiovascular Research Focus, Research Institute, The Hospital for Sick Children, 555 University Avenue, Toronto, Canada M5G 1X8; telephone: 416-598-5918.

#### POSTDOCTORAL POSITION CONIFER CELL AND TISSUE CULTURE

The Institute of Paper Chemistry is seeking a postdoctoral scientist to participate in the multidisciplinary research program on regeneration of loblolly pine and Douglas fir via somatic embryogenesis. The candidate must have a Ph.D. in botany, plant physiology, or a related field with emphasis in plant cell and tissue culture, preferably on somatic embryogenesis. Previous experience in conifer cell and tissue culture not necessary. The Institute of Paper Chemistry is an accredited independent graduate school and research center in the natural sciences and engineering, supported by the paper industry for over 55 years. We conduct our research in an open, academic-like environment which strongly encourages publication and interaction with other scientists throughout the world. Send résumé, transcripts, and three letters of recommendation to:

Dr. Douglas Wharen  
Director of Research  
The Institute of Paper Chemistry  
P.O. Box 1039  
Appleton, WI 54912  
Telephone: 414-738-3232

We are an Equal Opportunity/Affirmative Action Employer.

#### POSTDOCTORAL POSITION IN TOXICOLOGY

Two immediate openings in biochemical toxicology, one to study effect of metal ions on heme and hemoglobin metabolism and one to study molecular biology and genetic aspects of heme metabolism enzymes. A Ph.D. in biochemistry or related area and expertise in enzyme purification, characterization and/or molecular biology are required. Send résumé and names of three references to: Mahin D. Maines, Department of Radiation Biology and Biophysics, University of Rochester School of Medicine, Rochester, NY 14642.

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



**NATIONAL INSTITUTES OF HEALTH  
PUBLIC HEALTH SERVICE  
DEPARTMENT OF HEALTH AND HUMAN SERVICES**

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 \$61,296 to \$68,700 per annum. The person selected may be eligible for Physician's Comparability pay up to \$10,000 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, of 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. A Personal Qualifications Statement (SF-171), accompanied by a current curriculum vitae and bibliography, should be submitted to: NIA Personnel, Building 31, Room 2B-63, National Institutes of Health, 9000 Rockville Pike, Bethesda, Maryland 20892.

APPLICATION MUST BE POSTMARKED NO LATER THAN  
JANUARY 31, 1986.

ALL QUALIFIED CANDIDATES WILL RECEIVE CONSIDERATION WITHOUT REGARD TO RACE, RELIGION, COLOR, SEX, AGE, NATIONAL ORIGIN, LAWFUL POLITICAL AFFILIATION, MARITAL STATUS, UNION MEMBERSHIP, OR ANY NONDISQUALIFYING PHYSICAL OR MENTAL HANDICAP.

*NIH IS AN EQUAL OPPORTUNITY EMPLOYER.*

**AAAS MASS MEDIA  
SCIENCE AND  
ENGINEERING  
FELLOWS PROGRAM**

The American Association for the Advancement of Science (AAAS) invites outstanding students in the natural and social sciences and engineering, preferably those at the graduate level, to apply for the 1986 Mass Media Science and Engineering Fellows Program. Students majoring in English, journalism, or other nontechnical fields are not eligible for these fellowships.

Fellows will work as reporters, researchers, production assistants, and script consultants for 10 weeks during the summer at newspapers, news magazines, and radio and television stations across the country. Fellows will have the opportunity to participate in the news-making process, to increase their understanding of editorial decision-making, and to develop skill in conveying to the public a better understanding and appreciation of science and technology.

AAAS pays a \$300 weekly stipend and travel expenses. Deadline for receipt of applications is 1 February 1986. *Minorities and handicapped persons are especially encouraged to apply.*

For further information and applications, write:

**Mass Media Science and Engineering  
Fellows Program  
AAAS  
1333 H Street, NW  
Washington, DC 20005**

**UNIVERSITY OF UTAH  
SCHOOL OF MEDICINE**

**announces**

**Faculty Positions in  
Biomedical Sciences**

Over the past 15 years, the University of Utah has developed a very strong research and training program in the biological sciences. Outstanding faculty have been assembled in a number of departments in the College of Science and the School of Medicine.

The building effort at Utah is continuing. In the coming year, several positions are available in three departments: Biochemistry; Cellular, Viral and Molecular Biology; and Human Genetics. Applicants at the level of Assistant Professor will be given highest priority, but appointments may be made at Associate Professor or Professor. More detailed descriptions of the particular positions will appear in separate announcements from each department. In the meantime, inquiries should be accompanied by a resume and addressed to: **Ms. Shery Harris, Office of the Dean, University of Utah School of Medicine, Salt Lake City, Utah 84132.**

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

**SUMMER 1986  
TEN ENVIRONMENTAL SCIENCE AND  
ENGINEERING FELLOWSHIPS**

**Applications invited.**

The American Association for the Advancement of Science (AAAS) invites applications for ten environmental science and engineering fellowships available for summer 1986. The fellows will work closely with the Environmental Protection Agency (EPA), Office of Research and Development, and other program offices, in Washington, DC, and assist in identifying and assessing the significance of long-range environmental problems and opportunities. The 10-week appointments are scheduled for 9 June through 15 August 1986. The awards will be announced prior to the end of April 1986.

Postdoctoral to mid-career scientists, engineers, and other appropriate professionals are encouraged to apply. Candidates may be from the physical, biological, or behavioral sciences, or any field of engineering or other relevant professional fields. They are expected to be critical thinkers, articulate, adaptable, and able to work with a variety of people from different professional backgrounds.

The 1986 Environmental Fellows will receive a taxable stipend of \$630 per week and a nominal additional amount for temporary relocation expenses and travel in connection with the fellowships.

A detailed, future-oriented research project will be conducted by each fellow which is of mutual interest to him or herself and the EPA. A project report will be submitted at the completion of the summer's work. Typical areas of research interest within EPA include: environmental risk assessment, biological pesticides, acid deposition, mobile source air pollution; oxidants, gases and particles; municipal waste water and spills; drinking water; hazardous waste; chemical testing and assessment; pesticides; radiation; and energy.

For further information and specific application requirements contact:

**Patricia S. Curlin, Manager  
Environmental Science and Engineering Fellows Program  
American Association for the Advancement of Science  
1333 H Street, NW, Washington, DC 20005  
Telephone: 202-326-6600**

*Deadline for applications is 10 March 1986.*

## POSITIONS OPEN

**POSTDOCTORAL RESEARCH ASSOCIATE IN PHARMACOLOGY**—Research in regulation of heme biosynthesis, steroidogenesis, and drug metabolism in the liver and endocrine organs by drugs, toxicants, and hormones; \$16,000 per year, renewable annually. Funded by National Institutes of Health. University of Nebraska Medical Center has well-equipped laboratory facilities with ongoing on-site training. Require Ph.D. in pharmacology with course work in biochemistry and toxicology. No previous experience required. Applications and curriculum vitae to be received by 31 January 1986. Send to: **Keith Myers, Job Service, P.O. Box 94600, Lincoln, NE 68509.** Refer to Job Order Number 253078.

### POSTDOCTORAL RESEARCH POSITION TREE GROWTH AND WOOD FORMATION

A postdoctoral research position is available to study causes of patterned variation in wood structure within trees. Research will focus on effects of apical and cambial development and photohormone levels on xylem differentiation. The position will be under the direction of **Dr. Richard Dodd**, and will be available from 1 March 1986 initially for an 18-month period, with a possibility for renewal. Salary will be \$20,904 per annum. Interested applicants, with a background in plant physiology and plant anatomy or related fields, should send curriculum vitae, reprints of publications, and three letters of recommendation by 15 February 1986 to: **Dr. Richard Dodd, University of California, Berkeley, Forest Products Laboratory, 1301 South 46 Street, Richmond, California 94804.**

**RESEARCH ASSOCIATE**, biochemistry, molecular biology, or allied science Ph.D.; to study heme biosynthetic enzymes using monoclonal antibody technology. Initial 1-year appointment, possible renewal. Résumé to: **M. B. Poh-Fitzpatrick, Department of Dermatology, Columbia University College of Physical & Surgery, 630 West 168 Street, New York, NY 10032.** *Affirmative Action/Equal Opportunity Employer.*

## POSITIONS OPEN

### POSTDOCTORAL RESEARCH ASSOCIATES

Positions for NCI postdoctoral training program in molecular and cellular mechanisms of carcinogenesis are available at The University of Texas System Cancer Center—Science Park. Research programs focus on the following areas: somatic cell genetics, DNA repair and mutagenesis, carcinogen metabolism and adduct formation, tumor promotion, mechanisms of lymphomagenesis, normal and tumor cell differentiation, biochemical genetics, growth factors. Current approaches in whole animal and in vitro culture systems include: flow cytometry (BD FACS 440), HPLC, monoclonal antibody production, Southern blot analysis and DNA sequencing, isoenzyme analyses, and electron microscopy. Applicants must be U.S. citizens or permanent residents and have a Ph.D., M.D., or D.V.M. degree. For application forms contact: **Dr. Thomas J. Slaga, Director, UTSCC, Science Park—Research Division, P.O. Box 389, Smithville, TX 78957.** Telephone: 512-237-2403. *An Equal Opportunity/Affirmative Action Employer.*

**POSTDOCTORAL RESEARCH ASSOCIATE POSITION** is immediately available to study the role of platelet-secreted thrombospondin in tumor cell metastasis. Previous experience in cell biology, animal models, immunofluorescence, and immunoelectromicroscopy preferred. Salary negotiable. Appointment for 1 year, with opportunity for growth. Contact: **Dr. George P. Tuszyński, The Lankenau Medical Research Center, Lancaster Avenue (West of City Line), Philadelphia, PA 19151.** Telephone: 215-645-2674. *Equal Opportunity Employer.*

**POSTDOCTORAL RESEARCH POSITION** is available in diabetes-related research concerned with insulin action and phospholipid metabolism. Contact: **Robert V. Farese, M.D., Associate Chief of Staff for Research and Development (151), James A. Haley Veterans Hospital, 13000 North 30 Street, Tampa, FL 33612.** Telephone: 813-972-2000, extension 566. A federal position—U.S. citizenship required. *An Equal Opportunity Employer.*

## POSITIONS OPEN

**POSTDOCTORAL RESEARCH** in molecular and cellular biology of contractile protein genes. Work involves studies of gene structure and function, regulation of transcription, and molecular mechanisms of tissue-specific RNA processing. Send curriculum vitae and a brief description of background and interests to: **Dr. David Helfman, Cold Spring Harbor Laboratory, P.O. Box 100, Cold Spring Harbor, New York 11724.**

### POSTDOCTORAL RESEARCH POSITION.

Available immediately to study ion transport reactions in isolated heart cells and subcellular fractions. Send curriculum vitae and names of three references to: **Dr. Gerald Brierley, Chairman, Department of Physiological Chemistry, Ohio State University Medical Center, Columbus, Ohio 43210.**

**FOUR PREDOCTORAL AND TWO POSTDOCTORAL POSITIONS** funded by the National Institutes of Health are open in the Department of Microbiology at the University of Southern California (USC) School of Medicine. Research advisors for predoctoral and postdoctoral students are available in the areas of: RNA tumor viruses and coronaviruses (Lai, Vogt, Weissman, Fung), control of eukaryotic protein synthesis (Tahara), recombination and mutation in bacteriophage lambda (Lieb), molecular biology of chemical carcinogenesis and mutagenesis (Landolph, Weissman), molecular biology and genetics of differentiation (Fournier), and cellular and molecular immunology (Aladjem, Deans, Dennert, McMillan, Pattengale, Stohlman). For specific information, write: **Graduate Studies, Department of Microbiology, HMR 401, 2011 Zonal Avenue, USC School of Medicine, Los Angeles, CA 90033.** Individuals interested in postdoctoral positions should contact prospective advisors directly. Deadline for receipt of completed predoctoral applications is 1 May 1986, and start date for beginning studies is approximately 1 August 1986. No deadline for postdoctoral applicants. NIH requires that applicants must be U.S. citizens or permanent residents.

## CSIRO AUSTRALIA RESEARCH FELLOW MOLECULAR BIOLOGY \$A27,475—\$A40,410 DIVISION OF PLANT INDUSTRY CANBERRA ACT

**FIELD:** Plant gene expression.

**GENERAL:** The CSIRO Division of Plant Industry conducts research on problems fundamental to plant biology and agricultural production. Prominent in this research are programs concerned with plant improvement via molecular genetics, gene transfer and expression, cell culture and plant regeneration as well as more conventional genetic methods.

The appointee will work on a project which aims to understand the regulation of plant gene expression using the alcohol dehydrogenase genes as a model system.

**DUTIES:** In collaboration with molecular geneticists and cell and tissue culture experts, undertake research aimed at identifying the DNA sequences controlling anaerobic and tissue specific expression of the alcohol dehydrogenase genes by introducing modified genes into tissue culture cells or plants and monitoring expression of the gene. Also participate in research on the identification of specific proteins which regulate gene expression.

**QUALIFICATIONS:** A PhD degree or equivalent qualifications in a relevant field. Experience in molecular biology is essential.

**TENURE:** A term of two years with Australian Government superannuation benefits available.

**APPLICATIONS:** Stating relevant personal particulars, including details of qualifications and experience, the names of at least two professional referees and quoting reference No. M8782 should be directed to:

The Chief  
CSIRO Division of Plant Industry  
GPO Box 1600  
CANBERRA ACT 2601  
AUSTRALIA

by 4 weeks from date of publication

CSIRO IS AN EQUAL OPPORTUNITY EMPLOYER

## DEPARTMENT OF GENETICS THE HOSPITAL FOR SICK CHILDREN TORONTO, CANADA

### ASSISTANT PROFESSOR

Applications are invited for a position in the Department of Genetics at the level of Assistant Professor to begin 1 July 1986. Candidates should hold an MD or PhD degree and have a minimum of two years postdoctoral experience in molecular genetics. The Department covers a broad range of research interests in somatic, molecular and developmental genetics. In addition, staff in this department also hold appointments in the Research Institute of The Hospital for Sick Children. This Institute offers a unique opportunity for collaboration with other groups using molecular biological approaches in studying human diseases. The successful applicant will be expected to develop a strong independent research programme in molecular genetics with an emphasis on human disease or development.

In accordance with Canadian immigration requirements this advertisement is directed, in the first instance, to Canadian citizens and permanent residents.

Applicants should send a curriculum vitae, a statement of research interests and the names of three referees to:



Dr. R. G. Worton  
Geneticist in Chief  
Department of Genetics  
The Hospital for Sick Children  
555 University Avenue  
Toronto, Ontario, Canada  
M5G 1X8

THE HOSPITAL FOR SICK CHILDREN

## MEDICAL REVIEW

The Gillette Medical Evaluation Laboratories, a division of the Gillette Company, has an opening in Medical Review to implement Company Medical/Legal procedures and applicable government regulations to ensure the distribution of safe consumer products. Work includes initiating medical/biological studies, some participating in industrial hygiene programs, and reviewing drug/device claims and adverse reaction claims. MS or PhD in Physiology, Pharmacology or Toxicology required and two to three years experience in designing toxicological or clinical tests and evaluating data. Knowledge of industrial hygiene is desirable. Please forward confidential resume and salary history to



**Gillette Medical Evaluation  
Laboratories**  
1413 Research Blvd  
Rockville, MD 20850  
424-2000  
EOE

## PLANT BIOLOGIST EXPERIMENTAL PLANT GENETICS

**The Upjohn Company**, a leader in worldwide research, manufacturing and marketing of pharmaceuticals, chemicals and agricultural products, is seeking a research associate to join an interdisciplinary team dedicated to the improvement of Asgrow Seed products. Asgrow is a broadly-based seed company with strong market positions in a variety of vegetable and agronomic species.

The incumbent will be associated with an expanding research program in the area of plant pathogen interactions and invasion responses with the objective of increasing the disease resistance of Asgrow products. The program involves an interdisciplinary approach and candidates with a variety of backgrounds will be considered. This position offers the opportunity for considerable scientific independence and a challenging scientific program. Candidates should have a B.S. in Biology with research experience in plant pathology or plant molecular biology or an M.S. in either of those areas. Experience with plant tissue culture is desirable.

Kalamazoo is a medium-sized Southwestern Michigan community with immediate access to a mix of excellent cultural, educational and recreational pursuits including numerous lakes and a four-season climate. Upjohn offers an excellent salary, commensurate with experience and an outstanding benefits program.

**For confidential consideration, please call from outside of Michigan toll-free 1-800-253-8600, ext. 3-6767, (inside Michigan call collect (616) 323-6767) to request an employment application be sent to you immediately. Please refer to ad number 18623-A when calling.**

**Upjohn**

**A century of caring**

An Equal Employment Opportunity Employer M/F

## THE FIRST WORD IN... PHARMACEUTICAL NEUROSCIENCE RESEARCH

Abbott Laboratories is an internationally renowned \$3.3 billion leader in the medical care industry. Our tradition of success in pharmaceutical research has been intensified by the development of our Pharmaceutical Discovery Group. Composed of top scientists utilizing the best technologies available and full corporate support, our Discovery Group now seeks additional talent as we explore new areas of neuroscience.

### BEHAVIORAL TECHNICIAN

Immediate opportunity for a BS or MS level lab technician with experience in neuroscience research. Should be familiar with small animal surgery and behavioral assessment techniques. Knowledge of brain anatomy, neurochemistry, HPLC, and computers preferred. **Reply to Dept. BT.**

### NEUROPHARMACOLOGY TECHNICIAN

An excellent opportunity for BS level technicians. The ideal candidate will have a background in radioreceptor binding, radioimmunoassay, and related biochemical techniques. One to two years experience in at least one of these areas is preferred. A BS in Biology or Biochemistry is required. **Reply to Dept. NT.**

### COMPUTER-ASSISTED IMAGE ANALYSIS TECHNICIAN

A unique research opportunity blending computer-assisted image analysis and neuroanatomical research. The successful candidate will have a BS in Computer Science with experience in biological applications, or a BS in biological science with significant experience in computer applications to biological research/medical imaging. Knowledge of Fortran and RT-11 operating system essential; graphics programming experience preferred. **Reply to Dept. CT.**

In addition to an exceptional scientific environment, we offer an excellent salary and benefits package including profit sharing and stock retirement plan. Abbott is headquartered in an attractive suburban area on the Lake Michigan shoreline just 30 miles north of Chicago. For confidential consideration, please send resume with salary history, replying to the appropriate department, to: **Christopher George/Corporate Placement**. Abbott is an Affirmative Action Employer.

**ABBOTT**  
ABBOTT PARK IL 60064

"HEALTH CARE WORLDWIDE"

**THE FIRST WORD IN...SUCCESS**

## POSITIONS OPEN

### PSYCHIATRIST TO DIRECT EATING DISORDERS CLINICAL RESEARCH PROGRAM

The University of Michigan Department of Psychiatry has a tenure-track faculty position as director of an Eating Disorders Program. Program to be research-oriented, emphasizing continuity of care between inpatient and outpatient components. Special resources include laboratory and clinical research support, already well-functioning outpatient eating disorders program, new inpatient facility in recently completed University of Michigan Hospitals, availability of positron emission tomography and magnetic resonance imaging facilities and strong neuroendocrine and peptide collaborators. M.D. degree and Board-eligibility in psychiatry is required. Candidate should submit curriculum vitae and the names of three references to: **John F. Greden, M.D., Professor and Chairman, Department of Psychiatry, University of Michigan Medical Center, Ann Arbor, MI 48109.** The University is an Affirmative Action Employer.

### RENAL CELL BIOLOGIST

The Department of Morphology, University of Geneva Medical School, Geneva, Switzerland, has a tenure-track position at the level of research associate for a M.D. or Ph.D. with expertise in the cell biology of the renal tubule. Large facilities for EM, cryofracture, and immunocytochemical techniques.

Send résumé with a recent photograph to: **The Chairman, Department of Morphology, University Medical Center, 1, rue Michel Servet, 1211 Genève 4, Switzerland.**

### RESEARCH Ph.D.

The Pulmonary Division of the Albert Einstein Medical Center-Northern Division is seeking a Ph.D. with a background in biochemistry or immunology. Current interests include: bronchoalveolar lavage studies in patients with interstitial lung disorders, pneumonia ARDS, and cancer. Also, ability to collaborate with others in projects on emphysema. If interested please contact: **Michael L. Lippmann, M.D., Head, Pulmonary Division, ALBERT EINSTEIN MEDICAL CENTER, Northern Division, York and Tabor Roads, Philadelphia, PA 19141.** Equal Opportunity Employer.

**RESEARCH ASSOCIATE** position available starting immediately to study the structure and hormonal regulation of phosphoprotein phosphatases. Projects include conventional protein purification and enzymological studies, as well as cloning and expression of cDNA's encoding protein phosphatases. Experience in protein purification and/or basic molecular biology is desirable. Please send curriculum vitae and have three letters of recommendation forwarded to: **Dr. Anna DePaoli-Roach, Indiana University School of Medicine, Department of Biochemistry, 635 Barnhill Drive, Indianapolis, Indiana 46223.** Telephone: 317-264-2931.

*Indiana University is an Equal Opportunity Employer, M/F.*

### RESEARCH ASSOCIATE IN TUMOR IMMUNOLOGY

The Harrington Cancer Center, Amarillo, Texas, wishes to recruit two positions for a research group in tumor immunology which will focus on the biology of B cell lymphomas. Candidates should possess a Ph.D. or M.D. degree and several years of postdoctoral experience in areas of monoclonal antibodies, recombinant DNA procedures, histocompatibility antigens, or related fields of investigation. Send curriculum vitae to: **Dr. John Morrow, Department of Biochemistry, Texas Tech University Health Sciences Center, Lubbock, TX 79430.**

The California Department of Food and Agriculture has several **STAFF TOXICOLOGIST** positions in Sacramento. Ph.D. in toxicology or related science followed by 3 years of recent, related experience is required. The work is primarily review of animal toxicology studies done to support pesticide/registration applications and required risk assessments. Salary: \$3663 to \$4430 per month. Submit résumés to: **Department of Food and Agriculture, 1220 N Street, Room 126, Sacramento, CA 95814,** by 7 March 1986.

## POSITIONS OPEN

**RESEARCH ASSISTANT PROFESSOR**—A non-tenured position is available in the Thrombosis Research Center for an individual with a Ph.D. in biochemistry. Experience in protein chemistry and specific experience in the purification and characterization of fibrinogen and fibrin helpful. Research field is in information and dissolution of fibrant clots. Qualified applicants should send curriculum vitae and detailed statement of accomplishments and research interests, and names and addresses of three references to: **Dr. Andrei Z. Budzynski, Temple University Health Sciences Center, 3400 North Broad Street, Philadelphia, PA 19140.** Equal Opportunity Employer.

**SCIENTIFIC RESEARCH INSTITUTE** is seeking candidates for a **RESEARCH POSITION** to begin early 1986. The successful applicant will conduct analytical and preparative protein chemistry, peptide, and protein purification and characterization. Candidates should have a B.S. or M.S. in protein chemistry with at least 3 years of laboratory experience with HPLC of peptides, proteins, amino acids, and SDS-PAGE. Knowledge of protein sequencing and amino acid analysis is preferred. Interested applicants should forward résumé with three letters of reference to:

**Personnel Manager  
W. ALTON JONES CELL SCIENCE CENTER,  
10 Old Barn Road  
Lake Placid, New York 12946  
Please refer to Job Order CR510**

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### SLOAN-KETTERING INSTITUTE SENIOR AND JUNIOR RESEARCH POSITIONS

Available immediately to study the structure and function of lymphocyte surface differentiation antigens and interaction molecules and their genetic determinants. Applicants should have postdoctoral experience in immunogenetics and immunochemistry. For the senior position (\$30,450), a Ph.D. in biology or biochemistry and at least 3 years of postdoctoral experience is required. Junior position salary commensurate with experience. Preference will be given to candidates with experience in isolation and characterization of cell membrane proteins and/or in gene cloning techniques.

Send curriculum vitae, summary of research experience, and names of referees to:

**Dr. Ulrich Hammerling  
Department of Immunochimistry  
Memorial Sloan-Kettering Cancer Center  
1275 York Avenue—321C  
New York, New York 10021**

*Sloan-Kettering Institute is an Equal Opportunity/Affirmative Action Employer*

**VIROLOGIST.** Rapidly growing medical diagnostic manufacturer needs a highly motivated individual to develop rapid viral diagnostic antigen and antibody assays. Requires a Ph.D. in virology, with experience in immunoassay development preferred. Qualified individuals may submit résumés and salary requirements to: **Mr. J. Holland, Meridian Diagnostics, Inc., 3471 River Hills Drive, Cincinnati, Ohio 45244.**

**WILDLIFE TERRESTRIAL ECOLOGIST.** The Appalachian Environmental Laboratory (AEL) of the Center for Environmental and Estuarine Studies, University of Maryland (UMCEES), emphasizes basic and applied ecological research. Unique opportunities are available for participation in international and regional studies. A faculty position is available for a wildlife terrestrial ecologist with rank and salary commensurate with qualifications. The successful applicant will be required to generate extramural research funds, actively publish in peer-reviewed journals, advise graduate students, and teach one graduate-level course in their specialty. Preference will be given to those with strong quantitative and experimental approaches to research problems. Expertise in biometry and/or computer modeling would be desirable. Applicants should submit by 1 March 1986 a curriculum vitae; a brief statement of research interests; their three most significant publications; and names, addresses, and telephone numbers of five references to: **Dr. J. Edward Gates, AEL, UMCEES, Frostburg, Maryland 21532; telephone: 301-689-3115.**

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## POSITIONS OPEN

### SYSTEMATIC ENTOMOLOGIST AMERICAN MUSEUM OF NATURAL HISTORY

Tenure-track curatorial position in department with collection in excess of 16 million insect and spider specimens. Primary duty to conduct original collection-based revisionary research of a monographic nature on insects, arachnids, or myriapods, to undertake research-related fieldwork, and to advise graduate students as appropriate. Must assume responsibility for approximately 1/6 of collection and undertake administrative and exhibition responsibilities as assigned, including rotating chairmanship. Background should include broad interest and training in entomology and evolutionary biology, with specialization in phylogenetics, biogeography, co-evolution, or related areas. Appointment at level of assistant curator; salary commensurate with experience. Ph.D. required; postdoctoral experience desirable. Application deadline: 15 February 1986. Starting date: 15 April 1986 or later. Send curriculum vitae, three letters of reference, statement of research goals and interests, and copies of publications to: **Dr. Randall T. Schuh, Department of Entomology, American Museum of Natural History, Central Park West and 79th Street, New York, NY 10024.** An Equal Opportunity/Affirmative Action Employer, M/F/H.

**SYSTEMS ANALYSIS/MODELING.** Assistant/associate professor, 12-month, tenure-accruing position beginning 1 September 1986. Expertise required in systems analysis/modeling of ecological function and managerial strategies of rangelands at the population and community levels. Ph.D. in range science, plant ecology, or closely related area required. Submit letter of application, curriculum vitae, and three letters of reference to: **Dr. J. L. Schuster, Department of Range Science, Texas A&M University, College Station, Texas 77843; telephone: 409-845-5579.** Application deadline is 21 February 1986. *Texas A&M is an Equal Opportunity/Affirmative Action Employer.*

**TERRESTRIAL ECOLOGIST.** Assistant professor, Ph.D. required, full-time, tenure-track, fall 1986. Responsibilities include an undergraduate ecology course, developing a course in biometrics and research design, and one or two other undergraduate courses. The continuation of a research program is expected. Send curriculum vitae, transcripts, and three to five references to: **Dr. W. H. Heidcamp, Chairman, Department of Biology, Gustavus Adolphus College, St. Peter, MN 56082,** by 15 February 1986.

The Department of Comparative Medicine, Tufts University School of Veterinary Medicine, is recruiting a D.V.M., Ph.D., or M.D. **TOXICOLOGIST.** Candidates specializing in the areas of aquatic toxicology, molecular toxicology, or immunotoxicology are encouraged to apply. Responsibilities will include: developing an active research program within the veterinary school, developing and directing a course in toxicology for veterinary students, and participating in collaborative research programs. Rank and salary are negotiable based on experience. Evidence of external research support, a solid publication record, and proven excellence in teaching will be factors in selecting the successful candidate. Interested individuals should send curriculum vitae plus the names of three references to:

**Dr. Carol L. Reinisch, Chairman,  
Department of Comparative Medicine,  
Tufts University School of Veterinary Medicine,  
136 Harrison Avenue,  
Boston, MA 02111.**

*Tufts University is an Affirmative Action/Equal Opportunity Employer.*

Closing date: 1 April 1986.

### VIROLOGIST

**Research Associate/Postdoctoral Fellowship** position is available to participate in multidisciplinary study of AIDS-related dementia and HTLV-III infection of the central nervous system. Studies will focus on the pathogenesis of HTLV-III infection of neural cells in vivo and in cell culture using both classical virological and molecular techniques to define viral replication, viral gene expression, and altered cell function. Please send curriculum vitae and bibliography, along with the names of three references, to: **Richard W. Price, M.D., Department of Neurology, Memorial Sloan-Kettering Cancer Center, 1275 York Avenue, New York, NY 10021.** Equal Opportunity Employer, M/F/H.

## SYMPOSIUM

### Sixteenth Steenblock Symposium RNA POLYMERASE AND THE REGULATION OF TRANSCRIPTION 13 to 17 July 1986

University of Wisconsin-Madison

Scheduled sessions on eukaryotic and prokaryotic transcription. Applications for poster presentations are welcome.

Organizers: W. Reznikoff, Chairman; R. Burgess, J. Dahlberg, C. Gross, T. Record, M. Wickens.

FOR INFORMATION AND FORMS WRITE:

Sixteenth Steenblock Symposium  
Department of Biochemistry  
University of Wisconsin-Madison  
Madison, WI 53706

## GRADUATE STUDY

The University of Connecticut Department of Physiology and Neurobiology **GRADUATE STUDY**. The newly formed Department of Physiology and Neurobiology has several tuition-free teaching and research assistantships available to qualified Ph.D. students. Major research areas: neurobiology, endocrinology, and epithelial membrane transport.

An exceptional predoctoral applicant will be selected as the **Edward G. Boettiger Fellow in Physiology**. In addition to a tuition-free teaching or research assistantship (\$7000 starting salary per 9 months, summer salaries available), the Boettiger Fellow will receive a special award of \$6000 for the first year of graduate study.

Postdoctoral Positions available in neurobiology, endocrinology, and epithelial membrane transport. Research area, stipend, and availability vary. Contact: The University of Connecticut, Department of Physiology and Neurobiology, Box U-42, TLS 416, 75 North Eagleville Road, Storrs, CT 06268. Telephone: 203-486-4326. *Equal Opportunity/Affirmative Action Employer.*

## GRADUATE STUDY

**GRADUATE STUDY in MOLECULAR BIOLOGY and BIOCHEMISTRY** at Oregon Graduate Center. Research programs in microbial and plant enzymology and physiology, cloning and characterization of fungal and plant genes, plant tissue culture, mechanisms of plant hormone action fungal and plant genetics and biochemistry, extracellular enzymes, structure and function of heme enzymes, lignin biosynthesis, and biodegradation. Research assistantships of \$8600 with remission of tuition for qualified Ph.D. applicants. Write: **Chairman, Department of Chemical, Biological, and Environmental Sciences, Oregon Graduate Center, 19600 Northwest Von Neumann, Beaverton, OR 97006.** *Affirmative Action/Equal Opportunity Employer.*

## GRADUATE STUDY IN ENVIRONMENTAL HEALTH AND PLANNING

Course work and research opportunities are offered in analytical laboratories conducting research in water quality and environmental microbiology, air pollution monitoring and health assessment, and elemental baseline biogeochemistry leading to the M.A. and Ph.D. degrees in social ecology, an internationally recognized interdisciplinary program which includes scientists and specialists in public health, planning, and environmental law. For further information: **Jan Martin, Program in Social Ecology, University of California, Irvine, CA 92717.** *Equal Opportunity/Affirmative Action Employer.*

## TRAINEESHIP

Applications sought for 3-year **TRAINEESHIPS** to begin summer 1986, in multi disciplinary research/studies on dental caries, leading to M.S., M.P.H., or Ph.D. Applicants must hold dental, M.D., D.V.M. or Ph.D. degrees. Stipend range \$15,996 to \$30,000, depending on experience. *Equal Opportunity Educator; women and minority applicants encouraged.* Contact: **Dr. L. Messer, 18:214 Moos Tower, University of Minnesota School of Dentistry, Minneapolis, MN 55455.**

## PROGRAM

The Department of Medicine at Columbia University invites applications for its federally funded **PHYSICIAN-SCIENTIST AWARD PROGRAM**. Candidates must have a serious interest in pursuing a career of research in basic science. Applicants should have completed their clinical training. Physicians holding the Ph.D. degree in the biological sciences are not eligible. The program allows for work in one of the basic science laboratories at Columbia University College of Physicians and Surgeons. Send inquiries, accompanied by curriculum vitae, to: **Dr. Q. Al-Awqati, Department of Medicine, 630 West 168 Street, New York, NY 10032.** *Columbia is especially interested in applications from eligible minorities and women.*

## FELLOWSHIPS

The Institute of Ecosystem Studies of The New York Botanical Garden is accepting applications for a 2-year **POSTDOCTORAL FELLOWSHIP**. The successful applicant will be expected to interact with a diverse staff of terrestrial and aquatic ecosystem ecologists. Annual salary is \$18,000. Send statement of research interests, curriculum vitae, and names of three references by 7 February 1986 to: **Mark J. McDonnell, Institute of Ecosystem Studies, Box AB, Millbrook, NY 12545.** *An Equal Opportunity Employer, M/F.*

## POSTDOCTORAL FELLOWSHIP IN CELL AND MOLECULAR BIOLOGY

Postdoctoral position to study the molecular basis of cell differentiation. Approaches include immunochemistry, eukaryotic cell transfection, establishment of temperature-sensitive cell lines, and various cellular and molecular biological techniques. Experience in molecular biology including recombinant DNA techniques preferred. Send curriculum vitae and names of three references to:

**Frank E. Stockdale, M.D., Ph.D.**  
Stanford School of Medicine, M-211  
Stanford, CA 94305

## Biotechnology & Environmental Research Scientists

IGT, a leader in advanced energy R&D, seeks talented scientists to become part of a multi-disciplinary research team involved in resource recovery, energy utilization, and biochemical degradation. You will be responsible for conducting innovative research on existing programs with the opportunity to develop new programs in related areas of your interest.

### MICROBIAL BIOCHEMIST/PHYSIOLOGIST

Ph.D. in related field with training in microbial genetics, physiology or enzymology preferred. Experience in hydrocarbon metabolism is desirable. Must have skills in state-of-the-art techniques in enzymology or microbial genetics.

### ENVIRONMENTAL MICROBIOLOGIST

Ph.D. in a discipline related to aerobic or anaerobic microbial degradation. Experience in degradation of sulfur-containing or toxic organic compounds is strongly preferred.

Applicant should have strong analytical skills and supervisory potential. Effective interpersonal and communication skills are essential.

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## GASTROINTESTINAL PHYSIOLOGY B.S./M.S. LEVEL

An opportunity exists at **The Upjohn Company** for a motivated individual to engage in discovery research in the area of digestive physiology and biochemistry of clinically healthy food-producing animals. Duties will include quantitative analyses of nutrients and metabolites relevant to absorption, translocation, and metabolism by the digestive tract. In vitro studies will be conducted at the tissue level to identify those processes suitable to pharmaceutical manipulation.

Qualified candidates will have a B.S. degree in biochemistry, analytical chemistry, cell biology or a related science, or an M.S. degree in a related area, with knowledge and experience in analytical and biological techniques. Direct experience with spectrophotometry and chromatography is essential. Successful candidates will be familiar with tissue preparations of gastrointestinal tissues and radioisotope usage. Experience with livestock is desirable but not required.

Kalamazoo is a medium-sized Southwestern Michigan community with immediate access to a mix of excellent cultural, educational and recreational pursuits including numerous lakes and a four-season climate. Upjohn offers a very competitive salary, commensurate with experience, and a comprehensive benefits program.

**For confidential consideration, please call from outside of Michigan toll-free 1-800-253-8600, ext. 3-6767, (inside Michigan call collect 616-323-6767) to request an employment application be sent to you immediately.** Please refer to ad number 18715-A when calling.

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## FELLOWSHIPS

**POSTDOCTORAL FELLOWSHIPS** (M.D., Ph.D., or equivalent degree) in a multidisciplinary program supported by NIH are available in a variety of disciplines related to hypertension research. Specific areas of interest include CNS regulation of arterial pressure, membrane ion transport, hemodynamics, vasopressin as a modulator of arterial pressure, renal functional abnormalities in experimental hypertension, role of renal nerves in renovascular hypertension, mechanisms of cardiac hypertrophy, post-renal transplantation hypertension, salt-dependent hypertension, adrenal cortical dysfunction, the renin-angiotensin system, and the cell biology of endothelium and vascular smooth muscle.

Applicants must be U.S. citizens or hold a permanent visa.

Contact: Suzanne Oparil, M.D., University of Alabama at Birmingham, 1012 Zeigler Research Building, University Station, Birmingham, AL 35294.

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**POSTDOCTORAL FELLOWSHIPS—PEDIATRIC INFECTIOUS DISEASE**, sponsored by the NIH. Investigations on natural history of herpesviruses in man, perinatal infections, antiviral studies, pneumococcal and group B streptococcal studies, diagnostic virology, immunogenetics, and basic virology available. Training geared for academic career. Degrees required: M.D. with pediatric subspecialty or Ph.D. Positions available immediately through June 1986. Send curriculum vitae to: Charles Alford, M.D., Department of Pediatrics, University of Alabama at Birmingham, Medical Center, University Station, Birmingham, Alabama 35294; telephone: 205-934-2441.

Harvard University announces **FELLOWSHIPS IN FOREST RESOURCES** with stipends available for advanced study and research. Fellowships are open to individuals in academic careers, public service, or private forestry with stipends up to \$15,000.

Apply by 1 February to: Committee on the Charles Bullard Fund for Forest Research, Harvard Forest, Harvard University, Petersham, MA 01366.

### LA TROBE UNIVERSITY AUSTRALIA

#### LA TROBE RESEARCH FELLOWSHIPS 1986 to 1987

Applications for research fellowships are invited from persons who have gained doctoral or equivalent qualifications within the last 5 years. A project must be proposed by an applicant and should ideally be in collaboration with a La Trobe University research worker or team of the applicant's choice, that is, it should complement an existing area of research at La Trobe.

Fellowships will be awarded for an initial period of 12 months, with the possibility of renewal for a further maximum period of 12 months.

Salary offered is within the range of \$A23,473 to \$A26,889.

A fellowship will not be awarded to an applicant who currently holds a permanent appointment.

Prospective applicants should note that application must be made on the university's form which will be sent on request together with a copy of the conditions of award.

Inquiries should briefly indicate the research discipline of interest to them. The closing date for applications is 31 March 1986. For further information, write to: The Staff Officer, La Trobe University, Bundoora Victoria, Australia 3083.

**CELLULAR MOLECULAR BIOLOGY AND PATHOLOGY OF CARDIOVASCULAR DISEASE, PRE- AND POSTDOCTORAL POSITIONS:** Applications of cell and molecular biology to atherosclerosis and hypertension: growth control; growth factors, role of oncogenes in vascular growth and development; mutagenesis; mechanisms of action of secondary messengers; lipid metabolism; connective tissue biology; platelet, smooth muscle, and endothelial cell function.

Inquiries: Dr. S. M. Schwartz, Department of Pathology SJ-60, University of Washington, Seattle, WA 98195.

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

## FELLOWSHIPS

### FELLOWSHIPS ANNOUNCEMENT

**NEUROBEHAVIORAL FELLOWSHIP** (September 1986 to August 1988). The Department of Neurology, University of Wisconsin Medical School, Milwaukee Clinical Campus, wishes to announce an opening in a 2-year, postdoctoral fellowship program in clinical neurophysiology. Requirements: APA-accredited internship and Ph.D. in clinical psychology; course work in neuropsychology. For details, write to: Kerry Hamsher, Ph.D., Mount Sinai Medical Center, 950 North 12 Street, Milwaukee, WI 53201-0342. Application deadline: 31 March 1986. An Equal Opportunity Employer.

**POSTDOCTORAL FELLOWSHIPS IN CLINICAL CHEMISTRY.** Two-year fellowships in a CO-MACC-approved Clinical Chemistry Training Program are available to individuals seeking training for a career in clinical chemistry. Fellows are also involved in service, teaching, and research. Requirements include an M.D. or Ph.D. degree in chemistry or life sciences. Salary: approximately \$21,600 for the first year. For further information, contact:

Dr. Edward W. Bernes, Jr.

Department of Pathology

Loyola University Medical Center

Maywood, IL 60153

**POSTDOCTORAL FELLOWSHIP/RESEARCH ASSOCIATE.** Positions are available immediately with a multidisciplinary investigative team working on molecular aspects of viral infections of the central nervous system. A background in molecular biology, virology, immunochemistry, or biochemistry is required, preferably with a Ph.D. or equivalent degree. Salary commensurate with experience. Send résumé and names of three references to: Dr. Jerry S. Wolinsky, University of Texas Health Science Center Houston, Department of Neurology, P.O. Box 20708, Houston, TX 77225. The University of Texas is an Affirmative Action/Equal Opportunity Employer.

### UNIVERSITY OF CALIFORNIA, SAN FRANCISCO POSTDOCTORAL FELLOWSHIPS IN MOLECULAR GENETICS AND CELL BIOLOGY

Fellowships are available for research on the molecular, cellular, genetic, and developmental aspects of mammalian cells. The faculty include: M. J. Banda (angiogenesis, wound healing, and macrophage proteinase), J. E. Cleaver (DNA repair genes), W. F. Morgan (sister chromatid exchange), J. P. Murnane (DNA recombination), R. B. Painter (DNA replication and repair), R. Pederson (early mammalian development), M. R. Wabl (molecular immunology), Z. Werb (macrophages, extracellular matrix degradation), and S. Wolff (radiation genetics, cytogenetics).

Stipends are funded through a National Research Service training program in carcinogenesis and mutagenesis sponsored by NIEHS. Appointments can begin immediately. The requirements are U.S. citizenship or permanent residency and a Ph.D. degree or equivalent. Send résumé, graduate transcript, statement of research interests, and three letters of recommendation before 1 February 1986 to: W. F. Morgan, Acting Program Director, Laboratory of Radiobiology and Environmental Health, LR-102, University of California, San Francisco, CA 94143. An Equal Opportunity/Affirmative Action Employer.

**DREXEL FELLOWSHIPS IN BIOMEDICAL ENGINEERING AND SCIENCE.** These are supported by the Calhoun Endowment. Students can specialize in the following areas: biomedical imaging and signal processing; biomedical science; biomaterials; biomedical systems and controls; cardiovascular dynamics; biomedical computer applications; diagnostic ultrasound; heart assist devices; and sensors. Each fellowship provides a minimum of \$8500 tax-free stipend for a 12-month appointment, plus waiver of tuition and fees beginning fall 1986. Deadline for completed application: 25 February 1986. For application and information about this and other financial support, write: Dr. Dov Jaron, Director, Biomedical Engineering and Science Institute, Drexel University, Philadelphia, PA 19104.

## FELLOWSHIPS

The Neurosciences Program of the University of Alabama at Birmingham, School of Medicine, announces the availability of three **POSTDOCTORAL FELLOWSHIPS** in the field of **MEDICAL NEUROBIOLOGY**. This training program provides opportunity for the successful applicants to expand their research experience in one or more of several medical neuroscience areas, including epilepsy, major psychoses, neuromuscular disease, multiple sclerosis, dementias, movement disorders, and stroke. Well-equipped laboratories are available for research at the molecular, cellular, or whole animal level. Salary support will be at the NIH scale. Interested individuals with a commitment to a career in medical neuroscience research are encouraged to apply prior to the deadline of 15 February 1986, by forwarding curriculum vitae, indication of research interest, and three letters of reference to: Dr. George B. Brown, The Neurosciences Program, University of Alabama at Birmingham, School of Medicine, University Station, Birmingham, AL 35294.

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**INTERNATIONAL CANCER RESEARCH FELLOWSHIP.** The Hayashibara Mutual Aid Fund, a non-profit making organization within the Hayashibara Group announces a fellowship program. Two awards will be made annually. Fellowship will be taken up at the newly opened Fujisaki Cell Center, which is devoted to the basic and applied research related to the problems in human cancer. The fellowship is normally made for 1 year and is renewable for up to 5 years. The fellowship will be expected to commence within 6 months of the announcement of the awards. The awards are for high quality research work in one of the three categories described below.

- 1) Fundamental Leukemia-Lymphoma Research,
- 2) Cytokine-Lymphokine Research,
- 3) Hematopoietic Cell Cultures.

Qualified person who has a Ph.D., an M.D., or equivalent qualifications will be awarded on merit to suitably qualified research proposal and experiences. Additional information and application forms will be obtained from: Jun Minowada, M.D., Director, Fujisaki Cell Center, 675-1, Fujisaki, Okayama 702, Japan.

### PREDOCTORAL EXCELLENCE FELLOWSHIPS

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|--------------|---------------|
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| NEUROSCIENCE | PSYCHOBIOLOGY |
| PSYCHOLOGY   | ZOOLOGY       |

### GRADUATE SCHOOL-NEWARK RUTGERS, THE STATE UNIVERSITY OF NEW JERSEY

Outstanding applicants are invited to apply to the above doctoral programs and compete for our **excellence fellowships** for the fall 1986 semester. Tax-exempt stipends of \$10,000, plus tuition remission, renewable for up to 4 years of full-time study, are available to support outstanding students entering any of these graduate programs at Rutgers University in Newark. Applicants are required to submit complete transcripts, results of the GRE, and recommendations from individuals who are willing to attest to the strength of the applicant's academic and research potential. Applicant credentials should be submitted before 1 March 1986 to ensure consideration. For application information contact: Associate Dean Jean Ambrose, Excellence Fellowship Program, Graduate School-Newark, Rutgers University, 360 M. L. King, Jr. Boulevard, Newark, New Jersey 07102, or telephone: 202-648-5384.

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As part of its newly established International Seeds Business, ICI is expanding its research capabilities to work at the leading edge of plant genetic manipulation technology.

We are seeking talented and imaginative individuals with experience in the techniques of plant molecular biology, tissue culture and genetic engineering.

These appointments offer unique opportunities to participate in the establishment of a major plant biotechnology research organisation and to interact with existing molecular biologists, biochemists and pesticide research groups within ICI and with breeders and agronomists in associated seed companies in Europe and N America.

Initially, we require Project Leaders to organise and expand research in three areas:

## Plant Genetic Manipulation

To lead a research team employing state-of-the-art skills in vector construction, transformation, associated cell and tissue culture techniques and design of expression control systems for major crop plant species including corn. This post will be based in new laboratories at ICI's Jealott's Hill Research Station, near Bracknell, U.K. Ref: DS/PG.

## Plant Molecular Genetics

To organise research projects providing molecular probes and genetic markers for crop plant species. An important aspect of this post will be the development of methodology to allow the use of molecular techniques in high through-put screens operated in plant breeding laboratories. Posts in this area will be based in laboratories at Jealott's Hill Research Station and at the Garst Seed Company in the USA. Ref: DS/PM.

## Plant Tissue Culture

To establish a team operating all aspects of tissue culture with direct application to corn breeding programmes. Examples would include generation of somaclonal variants, in vitro selection and production of dihaploid lines. This post will be based in recently completed laboratories at the Garst Seed company in the USA. Ref: DS/PT.

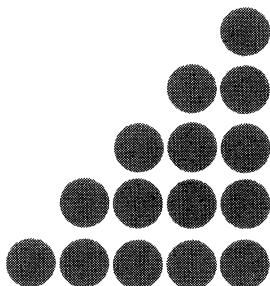
Applicants should have a PhD or equivalent in an appropriate area of science together with post-doctoral research experience. Successful candidates will have the ability to take a broad view of the agricultural applications of research, and demonstrate good team work and communication skills. Experience of managing staff and of working in a commercial environment will be an advantage.

Jealott's Hill Research Station is the main research site of ICI Plant Protection Division, one of the world's largest suppliers of agricultural effect-chemicals. The station is located on a farm estate in the Berkshire countryside but within easy reach of London and Heathrow Airport.

The Garst Seed Company, now part of ICI International Seeds Business, is an established corn breeding and seed distribution organisation. Their recently completed research headquarters are located close to Ames, Iowa in the centre of the major corn growing region of the USA. Scientists located here will have the opportunity to interact directly with a large corn breeding programme.

In both locations, we offer competitive salaries and an attractive range of benefits including relocation assistance.

Please write with full career and qualification details, quoting the appropriate job reference either to Duncan Spence, Site Personnel Officer, ICI International Seeds Business, Jealott's Hill Research Station, Bracknell, Berkshire RG12 6EY England or to Dr T M Crosbie, Director of Research, Garst Seed Company, PO Box 500, Slater, Iowa 50244, USA.



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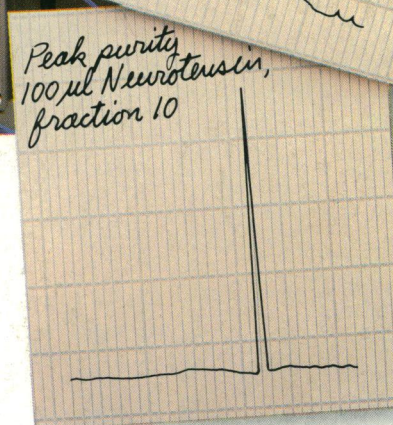
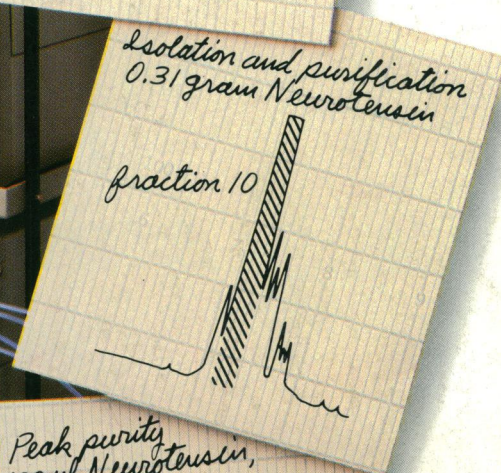
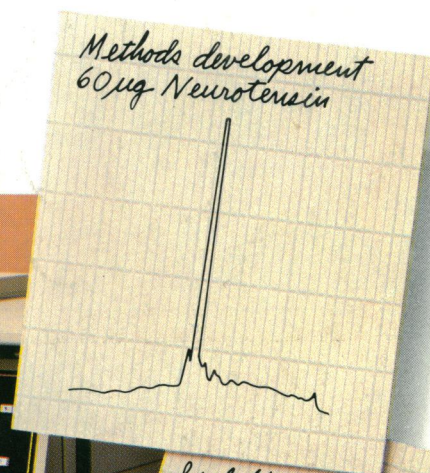
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