

## Some Other Books of Interest

**Human Polymorphic Genes.** World Distribution. ARUN K. ROYCHOUDHURY and MASATOSHI NEI. Oxford University Press, New York, 1988. xii, 393 pp., illus. \$56.

Noting that human populations are polymorphic for a large number of genetic loci and that data on polymorphisms are useful for both scientific and practical purposes, Roychoudhury and Nei have undertaken "to compile the gene frequency data for all polymorphic loci so far studied." In this book they present such data for 362 loci or genetic systems from some 180 populations. The book opens with 30 pages of "general guidance," including a technical discussion of the utility of gene frequency data directed to workers in human genetics, physical anthropology, genetic counseling, and paternity testing and a tabular guide to loci included in the book. Some 230 pages are then given over to the tables of data, grouped under the headings Enzymes, Proteins, Blood Group and Platelet Antigen Systems, HLA (Histocompatibility) Systems, Immunoglobulin Systems, DNA Polymorphism, and Miscellaneous. Loci are arranged alphabetically within the tables, and for each are given place and population studied, alleles, number of individuals examined, heterozygosity expected under random mating, paternity exclusion probability, and literature sources. A set of 53 maps showing world distributions of gene frequencies follows the tables. Appendixes listing loci by populations examined and by gene symbol and a bibliography of some 1500 references conclude the volume. The compilers intend to continue the project and ask to be notified of new data or any errors found in the book.—K.L.

**Sex Determination in Mouse and Man.** ANNE McLAREN and M. A. FERGUSON-SMITH, Eds. The Royal Society, London, 1988. viii pp. + pp. 3–157, illus., + plates. £37.60. Reprinted from *Philosophical Transactions of the Royal Society of London*, vol. B322 (1988). From a meeting, London, U.K., March 1988.

The title of this volume should be interpreted figuratively, for in fact it covers a range of species, including the nematode *Caenorhabditis elegans* and *Alligator mississippiensis*. As the editors note in the preface, the 1987 report by Page *et al.* of the cloning of a possible sex-determining gene has given rise to interest in the role of the zinc finger protein, and the implications of this and other new developments are considered by the contributors. In one of the four papers devoted specifically to *Homo sapiens* Page

himself considers whether the gene *ZFY* is the testis-determining factor. The other three papers consist of a review by J. Weissenbach of efforts to map the Y chromosome, a discussion by Ferguson-Smith and N. A. Alfara of anomalies possibly associated with X-Y interchange, and an account by P. N. Goodfellow *et al.* of the pseudoautosomal gene *MIC2*. In the one paper devoted explicitly to mice C. E. Bishop *et al.* present an "alternative model" for the origin of the *Sxr* ("sex reversed") region of the Y chromosome. Other papers deal with mammals more generally, considering among other topics the role of autosomal genes and of the H-T antigen, aberrant chromosomal mechanisms, events controlling testicular differentiation, and the existence of a marsupial-eutherian dichotomy in the process of sex determination. In all, the volume contains 15 papers, most accompanied by transcripts of discussion that followed their original presentation.—K.L.

**Algae as Experimental Systems.** ANNETTE W. COLEMAN, LYNDA J. GOFF, and JANET R. STEINTAYLOR, Eds. Liss, New York, 1989. xiv, 333 pp., illus. \$70. *Plant Biology*, vol. 7. Based on a conference, June 1988.

"Nearly all the structures and functions that have evolved in eukaryotic organisms can be studied in one or more of the many groups of algae," write Coleman and Goff in the preface to this volume. Citing several "landmark discoveries" that have been based on algae and predicting that algae will continue to be important model systems in biology, they present this volume in the hope that it "will serve as a source of reference and inspiration, creating an awareness of the potentials and advantages of the algae as research tools." The papers in the volume are expanded, refereed versions of presentations made at a conference sponsored by the American Society for Cell Biology. Section 1, focused on components of the cytoskeleton, contains six papers discussing studies of anaphase spindle elongation, the centrosome-associated protein centrin, the genetics of basal body function and assembly, cytoplasmic movement and morphogenesis, and the formation and activity of scales and spines. In section 2 morphogenesis and differentiation are discussed with reference to studies of *Fucus*, *Griffithsia*, *Volvox carteri*, and desmids. Cellular recognition is the theme of section 3, which includes papers on recognition proteins, the modulation of sexual agglutinability, and rhodopsin activation in *Chlamydomonas* and the role of pheromones in sexual reproduction in brown algae. The fourth and final section is devoted to photoreactions, includ-

ing photosynthetic membrane organization, the photosynthetic apparatus in red algae, phycobilisome biosynthesis, and circadian rhythms in dinoflagellates. A listing of poster presentations from the meeting and a subject index conclude the volume.—K.L.

## Books Received

**Blood Substitutes.** Thomas M. S. Chang and Robert P. Geyer, Eds. Dekker, New York, 1989. xvi, 716 pp., illus. \$99.75. Reprinted from *Biomaterials, Artificial Cells, and Artificial Organs*, vol. 16, nos. 1–3 (1988). From a symposium, Montreal, Quebec, 1987.

**The Book of the Year.** Middle American Calendrical Systems. Munro S. Edmonson. University of Utah Press, Salt Lake City, 1988. x, 313 pp., illus. \$40.

**Crimes of Obedience.** Toward a Social Psychology of Authority and Responsibility. Herbert C. Kelman and V. Lee Hamilton. Yale University Press, New Haven, CT, 1989. xvi, 382 pp. \$29.95.

**Crop Safeners for Herbicides.** Development, Uses, and Mechanisms of Action. Kriton K. Hatzios and Robert E. Hoagland, Eds. Academic Press, San Diego, CA, 1988. xiv, 400 pp., illus. \$69.95.

**Ecological Implications of Contemporary Agriculture.** H. Eijssackers and A. Quispel, Eds. Munksgaard, Copenhagen, 1988. 211 pp., illus. Dkr 250. *Ecological Bulletins*, no. 39. From a symposium, Wageningen, The Netherlands, Sept. 1986.

**Electrooptical Arrays.** D. I. Voskresenskii, A. I. Grinev, and E. N. Voronin. Springer-Verlag, New York, 1989. xx, 318 pp., illus. \$84.50. Translated from the Russian edition (Moscow, 1986) by Peter F. H. Priest.

**A Guide to Museum Pest Control.** Lynda A. Zycherman and John Richard Schrock, Eds. Foundation of the American Institute for Conservation of Historic and Artistic Works and Association of Systematics Collections, Washington, DC, 1988. xii, 205 pp., illus. Paper, \$36.

**Handbook of Systems Analysis.** Vol. 2, Craft Issues and Procedural Choices. Hugh J. Miser and Edward S. Quade, Eds. North-Holland (Elsevier), New York, 1988. xxii, 681 pp. \$115.

**An Introduction to Zeolite Molecular Sieves.** A. Dyer. Wiley, New York, 1988. xiv, 149 pp., illus. \$64.95.

**The Jurassic Ammonite Zones of the Soviet Union.** G. Ya. Krymholts, M. S. Mesezhnikov, and G. E. G. Westermann, Eds. Geological Society of America, Boulder, CO, 1988. viii, 116 pp., illus. Paper, \$22.50. GSA Special Paper no. 223. Translated from the Russian edition (Leningrad, 1986).

**Laccoliths.** Mechanics of Emplacement and Growth. Charles E. Corry. Geological Society of America, Boulder, CO, 1988. x, 110 pp., illus. + plates in pocket. Paper, \$27.50. GSA Special Paper no. 220.

**Public Policies and the Misuse of Forest Resources.** Robert Repetto and Malcolm Gillis, Eds. Cambridge University Press, New York, 1988. xiv, 432 pp. \$69.50; paper, \$27.95. A World Resources Institute Book.

**Quantum Description of High-Resolution NMR in Liquids.** Maurice Goldman. Clarendon (Oxford), New York, 1988. xvi, 268 pp., illus. \$65. *International Series of Monographs on Chemistry*, vol. 15.

**The Secretary Event.** W. T. Mason and D. B. Sattelle, Eds. The Company of Biologists, Cambridge, U.K., 1988 (distributor, Biochemical Society Book Depot, Colchester, U.K.). iv, 345 pp., illus., + plates. \$75. *Journal of Experimental Biology*, vol. 139. From a meeting, Kolimbari, Greece, March 1988.

**Vegetation History.** B. Huntley and T. Webb III, Eds. Kluwer, Norwell, MA, 1988. xx, 803 pp., illus. \$220. *Handbook of Vegetation Sciences*, vol. 7.

**VLSI in Medicine.** Normal G. Einspruch and Robert G. Gold, Eds. Academic Press, San Diego, CA, 1988. xii, 270 pp., illus. \$85. *VLSI Electronics Microstructure Science*, vol. 17.

**Wave Phenomena.** Theoretical, Computational, and Practical Aspects. Lui Lam and Hedley C. Morris, Eds. Springer-Verlag, New York, 1989. xii, 275 pp., illus. \$49.95. From a conference, San Jose, CA, June 1988.

**Western Chou Civilization.** Cho-Yun Hsu and Kathryn M. Linduff. Yale University Press, New Haven, CT, 1989. xxvi, 421 pp., illus. \$45. *Early Chinese Civilization*.

## Products & Materials

### Image Synthesis, Graphics Generation Software

VRIFS is a software program for encoding and re-creating graphics. One thousand high-resolution color images can be designed and stored in 1 megabyte of disk space. The program does not map an image pixel by pixel; rather, it stores a file of instructions for creating the image out of fractals. Pictures can be decoded with extremely high magnification. Pictures may contain natural scenes, man-made objects, standard graphics, fonts, maps, and textures. VRIFS operates on Sun 3 and Sun 4 workstations. Iterated Systems. Circle 508.

### Cell Culture Starter Kit

The Network 1000 is a hollow-fiber cell culture starter kit for research-level production of proteins excreted from the culture of mammalian and insect cells. Benefits of continuous perfusion cell culture in hollow-fiber bioreactors include low shear and easy cell containment. Gas-exchange module oxygenator cartridges permit nutrient and oxygen transfer and product removal without the need for stirring or mixing mechanisms. In addition to the bioreactor and the gas-exchange module, the Network 1000 system includes a medium reservoir, a molded silicone cap insert, Norprene tubing, an electropolished tray, and clamps and fittings. Once assembled, the system is autoclaved, seeded with a modest inoculum without disassembly, and placed in an incubator. No cytotoxic wetting agents are necessary. Kinetek Systems. Circle 552.

### Transfer Solution for RNA Blotting

HETS is a concentrated solution of inorganic and organic salts designed for the transfer of RNA from agarose gels to a hybridization membrane in RNA blotting. HETS can visualize RNA on the membrane

under ultraviolet light and without staining with the carcinogen ethidium bromide. Compared to standard saline citrate and saline-sodium phosphate-ethylenediamine-tetraacetate solutions, HETS increases the transfer efficiency and intensity of the specific hybridization. HETS works with any hybridization protocol and with nylon or other plastic-based hybridization membranes. It does not work, however, for transfer to nitrocellulose membranes. HETS is also appropriate for DNA blotting. The solution has a shelf life of 1 year and comes as  $\times 15$  concentrate in 500-ml bottles. CINNA/Biotecx International. Circle 555.

### Disposable Filter for Media

AcroCap is a sterilized disposable filter for filtration of as many as 3 liters of serum-free cell-culture media, media additives, and buffers. The AcroCap allows filtration directly into cell-culture flasks or freezable containers. The attached filling bell fits wide-mouthed cell-culture bottles. The filter contains 15 cm<sup>2</sup> of the membrane Supor and has a typical flow rate of 200 ml/min. A built-in automatic 0.02- $\mu$ m polytetrafluoroethylene vent reduces the chances of air block. The AcroCap attaches to standard 0.25-inch surgical-grade tubing and can be connected to a laboratory peristaltic pump or a repeating syringe. Gelman Sciences. Circle 557.

### Calculator Replaces Statistical Tables

The HP-21S Stat/Math calculator computes common statistics distribution values and their inverses. Data are entered by algebraic entry. Built-in functions include sum, mean, sample standard deviation, population standard deviation, linear regression, correlation coefficient, slope, intercept, combinations, permutations, random-num-

ber generation, normal distributions, Student's *t* distribution, and chi square distribution. The HP-21S can calculate binomial distributions, time value of money (for example, present value, future value, and compound interest), and statistics for one-sample, two-sample, linear regression, and chi square tests. Programs may be as long as 99 steps and may contain subroutines and branching. The HP-21S measures 7.8 by 14.7 by 1.5 cm. \$49.95. Hewlett-Packard. Circle 560.

### Optical Micropositioner

The Optical Piezo-Flex *x-y* micropositioner is a piezoelectrically positioned *x-y* stage with a range of 200 by 200  $\mu$ m. It has linear slew rates as high as 2000  $\mu$ m/s. Its frictionless flexure pivots eliminate mechanical backlash, stick-slip friction, and bearing noise. Because the stage can be operated remotely, high-vacuum and low-temperature operation are possible, as is isolation of the stage from environmental vibrations. The Optical Piezo-Flex can operate with optical, scanning electron, scanning tunneling, acoustic, and thermal microscopes. Wye Creek Instruments. Circle 563.

### Literature

The *Service Brochure* describes maintenance and instrumentation services and customer training programs. ICN Biomedicals, Diagnostics Division. Circle 571.

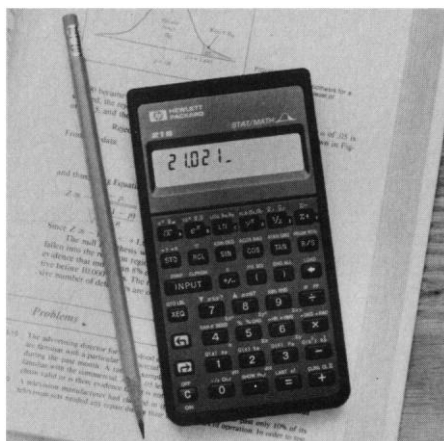
*Practical pH* gives a history of *pH* and tells how to care for and use *pH* meters, how to select electrodes, and how to clean and store probes. Whatman LabSales. Circle 572.

The 1989-1990 *Catalog* lists more than 4000 products, including high-purity materials, precious metals, inorganic compounds, pure elements, rare earths, and superconducting materials. Johnson Matthey/AE-SAR. Circle 573.

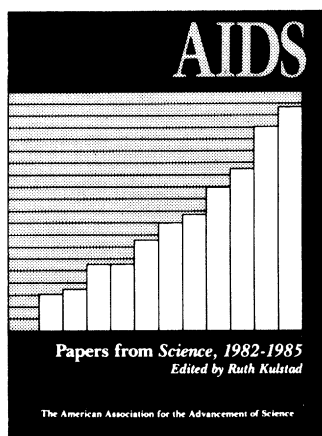
The *Recombinant DNA Materials Listing* is a multiply indexed catalog of 800 recombinant DNA items, such as cloning vectors, hosts, cloned inserts, and libraries. American Type Culture Collection. Circle 574.

*Guide to Frozen Competent Cells* describes nine varieties of competent cells and gives instructions for choosing the right efficiency and host for an application, performing the transformation, and troubleshooting transformation protocols. Bethesda Research Laboratories. Circle 575.

BIO-NOTE 201 is a protocol for incorporating biotinylated nucleotides into double-stranded DNA by nick translation. Enzo Diagnostics. Circle 434.



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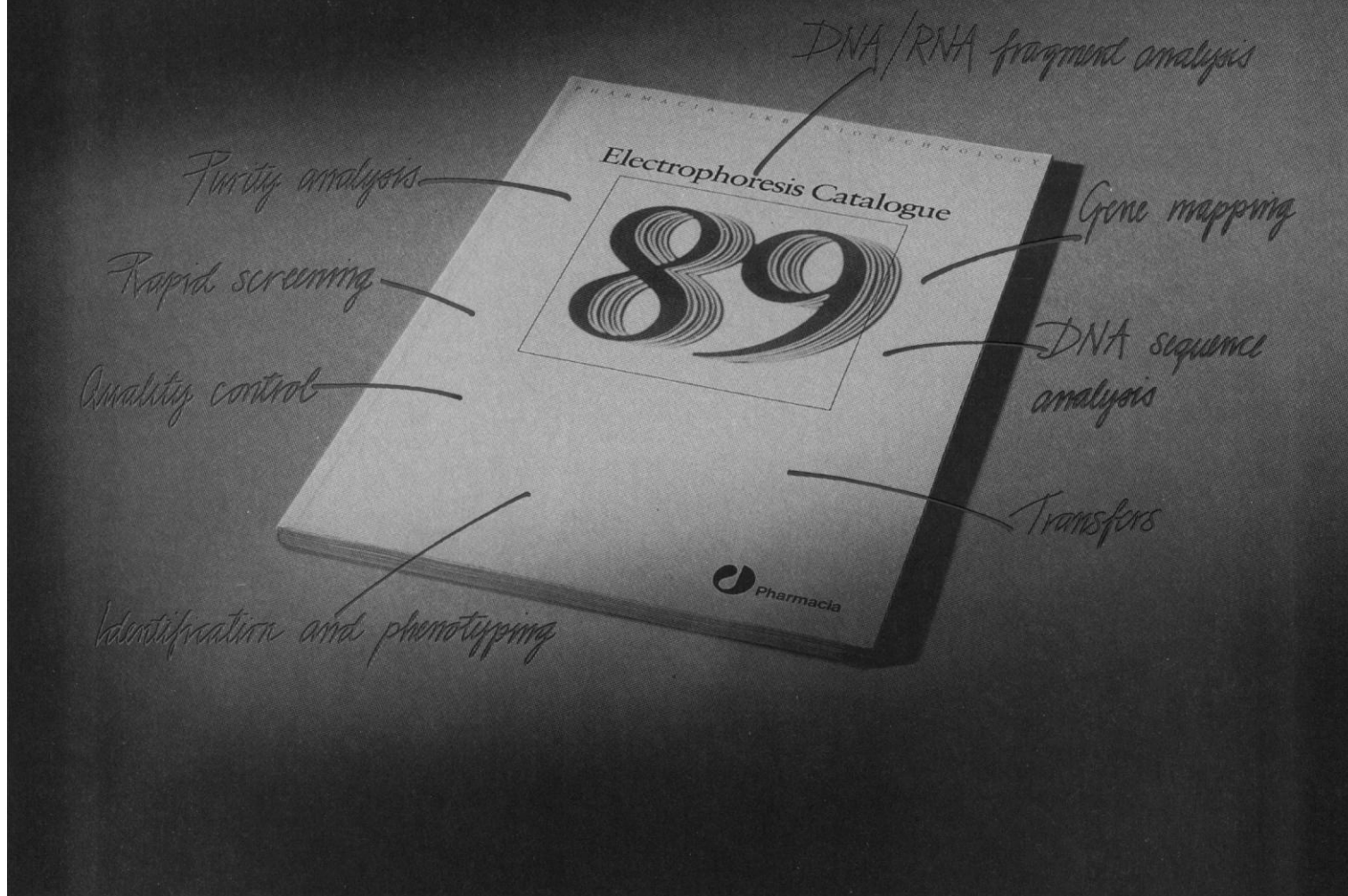
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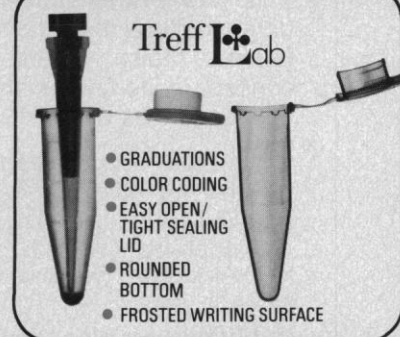
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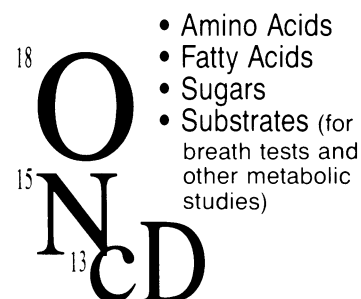
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## POSITIONS WANTED

**Cardiovascular Physiologist, Ph.D.**, seeks position in academia at assistant professor level. Interest and background in cardiac function during circulatory shock, myocardial ischemia. Seven years of postdoctoral experience. Also excellent background in computers. Excellent teacher and research scientist. Curriculum vitae available on request. Will also consider industry. Prefer Chicago area but will consider other locations. Box 52, **SCIENCE**.

**Native Plant Horticulturalist, M.S.** Course work in plant physiology, weed science and weed biology, statistics and technical writing. Seeks research position or employment writing reports, articles, etc., pertaining to North American native plants. A. Doukas, 1317 Whispering Pines, Clearwater, FL 34624.

**Neuroanatomist, Ph.D.** Postdoctoral experience, publications. Light microscopic and ultrastructural techniques, freeze fracture, electrophysiology. Areas of interest: development, cytoarchitecture, synapses. Seeks research position. Box 62, **SCIENCE**.

**Science Writer/Editor** for free-lance assignments. Biology degree and broad science knowledge. Research and foreign language skills. Douglas Garner, Box 7956, Austin, TX 78713-7956.

## POSITIONS OPEN

### ANALYST—U.S. CONGRESS

For study of land and resource planning technologies. Requires a Ph.D. or master's degree with work experience in resource planning or related discipline and knowledge of computer modeling and federal land planning. Strong verbal, writing, and analytical skills a must.

Appointment is 18 months starting 1 July 1989. Send curriculum vitae, writing samples, salary history, and references to: **Denise DeSanctis, Office of Technology Assessment, U.S. Congress, Washington, DC 20510-8025** by no later than 16 June 1989. *Equal Opportunity Employer.*

**ANIMAL NUTRITIONIST** position with primary responsibility for comprehensive applied research program in fish nutrition, diet formulation, feed technology, and feeding strategies. Require Ph.D. or M.S. with minimum of 4 years of experience. Desire strong background in general animal nutrition, comparative physiology, biochemistry, and analytical instrumentation analysis. Send letter of application with résumé by 26 May 1989. For further information contact: **Dr. Robert A. Busch, Clear Springs Trout Company, P.O. Box 712, Buhl, ID 83316. Telephone: 208-543-8217 Fax: 208-543-5608.**

### ASSISTANT PROFESSOR, MICROBIOLOGY

The Department of Microbiology, Faculty of Medicine, Dalhousie University, seeks a Ph.D. with a strong background in microbiology and postdoctoral training, preferably in molecular/tumor virology, to establish an independent research program and participate enthusiastically in undergraduate and graduate teaching programs. Specialists in other areas may also be considered. Interested applicants should send curriculum vitae, three letters of reference, and an outline of their proposed research program as soon as possible to: **Dr. K. B. Easterbrook, Head, Department of Microbiology, Dalhousie University, Halifax, Nova Scotia B3H 4H7.** It is expected that this will be a tenure-track position and it will remain open until filled. *In accordance with Canadian immigration requirements, this advertisement is directed to Canadian citizens and permanent residents. Dalhousie University has a policy of affirmative action in hiring qualified women academic staff.*

**ASSISTANT PROFESSOR—TENURE TRACK.** Must have Ph.D. and postdoctoral experience in molecular biology. Duties include development of hybridization methods for diagnostic microbiology referral laboratory, as well as teaching and research. Salary: \$35,000 negotiable, depending on qualifications. Send curriculum vitae to: **Kenneth Rand, M.D., University of Florida, Box J 275, JHMHC, Gainesville, FL 32610.**

*Equal Employment Opportunity/Affirmative Action Employer.*

## POSITIONS OPEN

### ASSISTANT CHEMIST

Ph.D. in theoretical chemistry. Two years of experience as a researcher in theoretical and computational chemistry. Experience should include molecular electronic structure theory and modern electronic structure calculations, computer science and numerical analysis, the development of computer codes for calculating electronic energies of molecules, including electron correlation, vector and parallel computers, the management of a computer system. All of the above evidenced by a minimum of five publications in refereed journals.

Develop new methods for calculating the electronic energies of molecular systems including the effect of electron correlation. Apply existing and new techniques to outstanding problems in the theory of chemical reactions. Explore parallel implementations of existing codes and develop new codes for parallel computer systems. Manage the Group's computer system.

Salary: \$3400 per month—40 hours per week/8:30 a.m. to 5:00 p.m. Send résumé to: **Illinois Department of Employment Security, 401 South State Street—3 South, Chicago, IL 60605, Attention: Robert S. Felton, Reference #V-IL-9065-F.** An employer-paid ad.

**ASSISTANT PROFESSOR** positions in anatomy, biochemistry and pharmacology. Tenure-track, 12-month positions at Indiana University School of Medicine. Applicants must possess an earned doctoral degree in discipline and have the potential to develop and sustain a fundable independent research program. Academic duties include a significant portion of time in teaching first- and/or second-year medical students. Interested individuals are invited to submit curriculum vitae and three letters of reference to: **Dr. Alvin S. Levine, Assistant Dean and Director, Terre Haute Center for Medical Education, Indiana University School of Medicine, 135 Holmstedt Hall, Terre Haute, IN 47809.** *Indiana University is an Equal Opportunity/Affirmative Action Employer.*

### ASSISTANT PROFESSOR DEPARTMENT OF PHARMACOLOGY AND TOXICOLOGY DARTMOUTH MEDICAL SCHOOL

Applications are invited from qualified individuals possessing a Ph.D. or M.D. degree and postdoctoral experience. Although preference will be given to applicants with a funded research program in neuropharmacology (e.g., signal transduction, molecular pharmacology of ion channels, developmental neurobiology, molecular aspects of neurodegenerative diseases), immunotoxicology (e.g., immuno-radiotherapy), or molecular toxicology, other areas of research will also be considered. Responsibilities will include medical and graduate teaching in pharmacology and/or toxicology. Applicants should forward a complete curriculum vitae including any teaching experience and grant support, an outline of future research plans, and three letters of reference to: **Chairman, Department of Pharmacology and Toxicology, Dartmouth Medical School, Hanover, NH 03756.** *Dartmouth College is an Equal Opportunity/Affirmative Action Employer.*

### ASSISTANT PROFESSOR POSITIONS CELLULAR NEUROBIOLOGY AND SYSTEMS NEUROBIOLOGY DEPARTMENT OF PSYCHOBIOLOGY UNIVERSITY OF CALIFORNIA, IRVINE

Applications are invited for two tenure-track positions at the level of assistant professor in cellular neurobiology and systems neurobiology. Preference will be given to applicants who have demonstrated expertise in research areas of interest to the department. The Department of Psychobiology emphasizes interdisciplinary approaches to the study of neural plasticity and behavior. The current major research themes of the department are development, reorganization following injury and disease, and learning and memory. Please submit by 15 August 1989, curriculum vitae, description of research interests, and three confidential letters of recommendation to: **Chair, Department of Psychobiology, University of California, Irvine, CA 92717.**

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



## POSITIONS OPEN

**ASSISTANT PROFESSOR:** The Department of Microbiology, Immunology and Parasitology at Louisiana State University (LSU) Medical Center invites applications for a tenure-track position at the assistant professor level. Applicants must have a Ph.D. degree and three or more years of postdoctoral research experience with an interest in the molecular biology of microbial pathogenesis. Specific experience using biochemical techniques to study molecular aspects of pathogenesis is preferred. The individual hired will be involved in teaching medical and graduate students. Applicants must send curriculum vitae, statement of research interests, and names of three references to: **Dr. Kenneth Johnston, Chairman, Search Committee, LSU Medical Center, 1901 Perdido Street, New Orleans, LA 70112.** An Equal Opportunity/Affirmative Action Employer.

### ASSISTANT PROFESSOR TENURE-TRACK POSITION DEPARTMENT OF OTOLARYNGOLOGY

The Otolaryngological Research Group is seeking a biochemist with a background in carbohydrate/protein biochemistry with an emphasis on receptors, or cell adherence related to mucosal infection and/or developmental biology, to develop a biochemical/molecular biological program in the Department of Otolaryngology. Additional skill/knowledge of molecular biology in gene expression desirable. Individual will participate in a team effort with a group of researchers studying ear disease. Salary commensurate with experience. Postdoctoral experience required. Send curriculum vitae with three professional references to: **Ms. Teresa Martin, The Ohio State University, Otolaryngological Research Laboratories, 456 West 10th Avenue, Room 4331, Columbus, OH 43210.**

**ASSISTANT/ASSOCIATE PROFESSOR OF PHARMACOLOGY**—Candidates are sought for a tenure-track teaching position with research interests in neuroscience related to molecular mechanisms of drug actions. Send curriculum vitae, a statement of research and teaching experience, and three to five references to: **Harbans Lal, Ph.D., Chairman, Department of Pharmacology, Texas College of Osteopathic Medicine, 3500 Camp Bowie Boulevard, Fort Worth, TX 76107.** Affirmative Action/Equal Opportunity Employer.

University of California Irvine (UCI), College of Medicine, OB/GYN. **ASSISTANT/ASSOCIATE RESEARCHER** (Ph.D.—Laboratory Director), gynecologic oncology; experience in immunology and/or pharmacology and proven ability to secure grant funding.

Position requires strong academic and research credentials and postgraduate teaching. *UCI is an Equal Opportunity/Affirmative Action Employer.* Send curriculum vitae and five references to: **Thomas J. Garite, M.D., Obstetrics and Gynecology, UCI Medical Center, 101 The City Drive, Orange, CA 92668.**

**ASSISTANT OR ASSOCIATE BIOCHEMIST.** A tenure-track faculty position is immediately available for a biochemist to perform research on the chemistry/biochemistry of natural or man-made toxicants. The successful candidate will also be responsible for teaching undergraduate biochemistry and a specialty graduate course. Minimum qualifications: Ph.D. in biochemistry or closely related discipline with 2 years of relevant postdoctoral experience for assistant, 4 years for associate. Desirable: Ability to compete successfully for extramural funding; ability to effectively instruct graduate and undergraduate students. To apply, send curriculum vitae with the names and telephone numbers of three professional references to: **Chairman, Search Committee, Department of Agricultural Biochemistry, University of Hawaii, 1800 East-West Road, Honolulu, HI 96822.** Closing date: 31 May 1989. An Equal Opportunity Employer.

**ASSOCIATE, BIOMATHEMATICAL SCIENCES**—Two-year position for theoretical research in protein conformation and interactions. Background in physical chemistry and Fortran programming required. Helpful: exposure to biophysics and some experience with UNIX and/or CMS. Send curriculum vitae, transcripts, and three letters of recommendation to: **Professor George Nemethy, Department of Biomathematical Sciences, Box 1023, The Mount Sinai School of Medicine, One Gustave L. Levy Place, New York, NY 10029.** An Equal Opportunity Employer.

## POSITIONS OPEN

**ASSISTANT/ASSOCIATE PROFESSOR,** Human Genetics. The Human Genetics Division, Graduate School of Public Health, University of Pittsburgh, seeks to fill a tenure-track position in human population/quantitative genetics. Minimum qualifications include doctoral training in human genetics or a related area, postdoctoral research experience, and a commitment to graduate education and to the development of an independent research program. Rank and salary dependent on experience. Send a letter of application, curriculum vitae, statement of research plans, and names and addresses of four references to: **Dr. Robert E. Ferrell, Director, Human Genetics Division, Graduate School of Public Health, University of Pittsburgh, PA 15261.** The University of Pittsburgh is an Affirmative Action/Equal Opportunity Employer.

**ASSISTANT/ASSOCIATE PROFESSOR,** Forest Genetics/Tree Improvement, School of Forestry, Wildlife, and Fisheries, Louisiana State University, Baton Rouge, Louisiana.

This is a full-time, tenure-track position. Responsibilities include teaching one undergraduate and one graduate level course, student advising, conducting research in area of specialization, and serving on school, college and university committees. Recruitment and direction of graduate students, especially at the Ph.D. level, is expected. The incumbent is also expected to be aggressive in securing extramural funding and in establishing a strong publication record in forest genetics research. Qualifications include earned doctorate in the field of genetics, and at least one degree in forestry. Specialization and experience in some aspect of molecular genetics highly desirable. Application deadline is 1 July 1989, or until suitable candidate is found. To apply send a letter of application, résumé including names of five references, and transcripts covering all academic work to: **Dr. Jim L. Chambers, Chairman, Search Committee, School of Forestry, Wildlife, and Fisheries, Louisiana State University, Baton Rouge, LA 70803.** Telephone: 504-388-4222. Louisiana State University and the Louisiana Agricultural Experiment Station are Equal Opportunity/Affirmative Action Employers.

### ASSOCIATE PATHOLOGIST

University-affiliated community teaching hospital in Connecticut seeks AP/CP certified associate pathologist. Strength in surgical pathology, cytopathology, and special interest/training in blood banking and/or hematopathology preferred. Send résumé with references to: **Griffin Hospital, 130 Division Street, Derby, CT 06418.** Attention: **Chairman, Department of Pathology.**

### ASSOCIATE PROVOST AND DEAN OF RESEARCH THE UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL

The University of North Carolina at Chapel Hill invites applications and nominations for the position of Associate Provost and Dean of Research. Nominees and applicants should be scholars with strong reputations in research or the creative arts and a background in teaching, to warrant a tenured professorship in a department or School. They should have demonstrated success in grantsmanship, possess leadership qualities, and have a strong commitment to the ideals of a research university.

The University of North Carolina at Chapel Hill is one of the leading graduate research universities in the United States. Currently, there are 58 doctoral-level programs and 70 master's level programs in the Graduate School. The library ranks fifteenth in the nation, first in the Southeast.

Salary will be competitive. *Women and minority candidates are encouraged to identify themselves voluntarily.*

Applications and nominations will begin to be reviewed by 1 June 1989. Materials should be sent to:

**Chair, Search Committee  
for Associate Provost for Research  
Office of the Provost  
CB #3000, 104 South Building  
The University of North Carolina at Chapel Hill  
Chapel Hill, NC 27599-3000**

*The University of North Carolina is an Equal Opportunity/Affirmative Action Institution.*

## POSITIONS OPEN

### ASSOCIATE PROVOST AND DEAN OF THE GRADUATE SCHOOL THE UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL

Applications and nominations are invited for the position of Associate Provost and Dean of the Graduate School at the University of North Carolina at Chapel Hill. The university is a major research institution and has an enrollment of 21,000 students including approximately 5000 graduate students in the liberal arts, sciences, health affairs and in several professional schools.

The candidate for this position is expected to hold an earned doctoral degree from an accredited institution, to be an established scholar with a distinguished professional record and to have demonstrated administrative skills in an academic setting. The candidate will be appointed to a tenured position in an appropriate academic department and is expected to maintain a program of scholarly research while acting in an administrative capacity.

The Associate Provost and Dean reports to the Provost. He/she is responsible for maintaining and improving the quality of all graduate programs at the university. He/she is responsible for reviewing departmental graduate programs, increasing funding for graduate education, administering the minority postdoctoral program and for developing new initiatives that will improve the quality of graduate life on campus. The Associate Provost and Dean is supported by a professional staff including one Associate Dean and two Assistant Deans.

The search committee will begin considering applications on 1 June 1989, and will continue until an appropriate candidate is identified. Applicants should submit a letter of application, a professional résumé, the names of four references, and a brief statement of their philosophy on graduate education.

*The University of North Carolina is an Equal Opportunity/Affirmative Action Institution. Women and minorities are especially encouraged to apply. Materials should be sent to:*

**Linda L. Spemulli, Chair  
Search Committee for Associate Provost  
and Dean of the Graduate School  
Office of the Provost**

**The University of North Carolina at Chapel Hill  
CB #3000, 104 South Building  
Chapel Hill, NC 27599-3000**

**BIOCHEMIST.** Responsible for development of enzymatic or other biochemical assays for various metabolites and substances of biological importance. For this purpose, analogues of substrates or cofactors of the enzymes will be chemically or biochemically synthesized. Responsible for synthesizing undecagold cluster-based electron dense labels in the development of new chemical markers used in the introduction of new diagnostic products. These markers will be synthesized by attaching biologicals through chemical modifications of functional sites on these clusters. Forty hours; 8:00 a.m. to 5:00 p.m.; \$716 per week. Ph.D. in biochemistry required; 1½ years of experience in the job offered or 1½ years of experience as a postdoctoral fellow and/or scientist required. Previous experience must have included academic research and publication in area of undecagold clusters. Send résumé and Social Security number to: **Illinois Department of Employment Security, 401 South State Street—3 South, Chicago, IL 60605.** Attention: **Connie M. Evans, Reference #8903-E.** An employer paid ad.

### CHAIR DEPARTMENT OF PHARMACOLOGY

Applications are invited for the Chair, Department of Pharmacology, UCLA School of Medicine. This preclinical department has instructional responsibilities for M.D. and Ph.D. students. In addition to continued development of excellent ongoing programs, the new chair will have the opportunity of initiating new interfaces with clinical departments and organized research units at UCLA. Interested applicants should submit their curriculum vitae by 1 August 1989 to:

**Search Committee  
c/o Ms. Carol Gallion  
UCLA School of Medicine  
Jerry Lewis Center  
700 Westwood Plaza  
Los Angeles, CA 90024-1770**

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

## CAREER OPPORTUNITIES IN ANTISENSE THERAPEUTICS

ISIS Pharmaceuticals, located in Carlsbad, Ca., is a new pharmaceutical and technology company focusing on antisense oligonucleotide therapeutics. The Company is seeking outstanding scientists to fill the following positions in the Departments of Molecular/Cellular Biology and Medicinal Chemistry.

### MOLECULAR VIROLOGISTS

Scientists, B.S., M.S., Ph.D., to develop a research program in molecular virology, expression of viral genes and the effects of antisense oligonucleotide analogs on viral processes. Candidates should have working experience in herpes or papilloma viral culture.

### MOLECULAR BIOLOGISTS

Scientists, B.S., M.S., Ph.D., to develop a research program in RNA structure, processing, translation and the identification of novel therapeutic targets for antisense oligonucleotides within these processes. Ph.D. candidates must have experience in the molecular biology and biochemistry of RNA processing. B.S., M.S. candidates should have general experience in molecular biology, biochemistry and tissue culture techniques.

### NUCLEIC ACID CHEMISTS

Scientists, B.S., M.S. Ph.D., to develop an aggressive research program in the design and synthesis of novel oligonucleotide analogs. Ph.D. candidates should have direct experience in oligonucleotide synthetic chemistry. M.S., B.S. candidates must have experience in organic synthesis, analytical or structural chemistry preferably with nucleic acids.

### BIOPHYSICAL CHEMIST-NUCLEIC ACID STRUCTURE

Senior Scientist, Ph.D. We are seeking an outstanding individual with experience in RNA and DNA structure to participate in the design of compounds to specifically interact with nucleic acids. Hands on experience with state of the art NMR, CD and molecular modeling is essential.

### LABORATORY MANAGER

Scientist, B.S., with a desire to be trained in laboratory organization and management. Responsibilities will include: overseeing laboratory safety (biohazards, chemical, radioisotopes), equipment and supply purchase and maintenance, preparation of biochemical reagents and media, and other laboratory functions.

ISIS Pharmaceuticals offers a competitive salary, excellent benefits and equity participation. Please submit a cover letter, c.v., reprints of relevant publications and the names and telephone numbers of references to Dr. Christopher K. Mirabelli, Vice President of Research, ISIS Pharmaceuticals, Carlsbad Research Center, 2280 Faraday Avenue, Carlsbad, CA 92008. An Equal Opportunity Employer.

**ISIS PHARMACEUTICALS**



## PROGRAM OFFICER

The Allergy, Immunology and Transplantation Program (AITP) of the National Institute of Allergy and Infectious Diseases, NIH is currently recruiting for one Program Officer.

The Program is divided into four Branches: Asthma and Allergy; Basic Immunology Branch; Clinical Immunology Branch; and Genetics and Transplantation Branch. We are currently seeking one Program Officer for the Genetics and Transplantation Branch. The Program Officer assists the Branch Chief in the duties of their respective Branch, which include: contract functions, conference activities, special reports, budget and publication materials, and surveys and analyses of scientific and administrative issues.

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

Applicants for the Program Officer position must qualify for a GS-13/14 rating with salary range of \$41,121 to \$70,420 or an appointment in the USPHS Commissioned Corps; salary to be consistent with appropriate rank. Physician's Comparability Pay up to \$20,000 may be payable, also.

For further information about this position please write directly to:

**Robert A. Goldstein, M.D., Ph.D.,**  
Acting Director, AITP, NIAID  
Building 31, Room 7A-52  
National Institutes of Health  
9000 Rockville Pike  
Bethesda, MD 20892  
(301) 496-1886



U.S. CITIZENSHIP IS REQUIRED

NIH IS AN EQUAL OPPORTUNITY EMPLOYER

## Staff Researcher Retrovirology

Syntex, an international leader in the pharmaceutical and health care industry, is looking for a Staff Researcher to join our expanding retrovirology effort in our Palo Alto, CA research headquarters.

The challenge involves the development of novel approaches for identification of antiviral chemotherapeutic agents, as well as supervision of technical personnel to develop targeted screens. Requirements include a PhD in virology, molecular biology, or allied discipline, along with at least 6 years of relevant post PhD experience. We will also consider especially accomplished candidates with fewer years of experience. Familiarity with antiviral drug screening will be helpful.

Syntex Research combines the best of the research and corporate worlds, providing unique opportunities to do basic research in a comfortable and superbly equipped industrial setting. We strongly encourage publication of research and view it as a criterion for advancement.

**Other positions currently available for: BS/MS/PhD  
Pharmacy/Chemistry/Biology.**

Syntex offers a competitive compensation and relocation package in a campus-like setting. For immediate consideration, please send your resume to: Syntex, Professional Staffing, Dept. KH, 3401 Hillview Avenue, Palo Alto, CA 94304. We are an equal opportunity employer.



**SYNTEX**

## Assistant Director Biopharmaceutical Development

Smith Kline & French Laboratories has an excellent opportunity available in our state-of-the-art research facility in the Philadelphia suburb of Valley Forge.

As Assistant Director of Biopharmaceutical Development, this position will manage the technical, operational, regulatory and financial aspects of biopharmaceutical manufacturing contracts between our Research & Development organization and extramural companies which directly relate to the development of Biopharmaceutical R&D programs and projects. A Ph.D. in a biological science field plus 3-5 years postdoctoral research and development experience in an established biopharmaceutical/biotechnical company is required. A minimum of two years experience managing Biopharmaceutical development projects, within a matrix structure, as well as excellent interpersonal skills is also required. Experience in the negotiation of research collaborations or technical agreements is helpful.

We offer an excellent compensation and benefits package. For confidential review, interested candidates should forward a C.V. to: Melanie Graper, Employment Manager, SK&F Laboratories, P.O. Box 1539, King of Prussia, PA 19406-0939. Equal Opportunity Employer M/F/H/V.

**SK&F**  
A SmithKline Beckman Company

## POSITIONS OPEN

### AGRICULTURAL RESEARCH SERVICE (ARS) U.S. DEPARTMENT OF AGRICULTURE (USDA) BIOCHEMIST/MICROBIOLOGIST, NORTHERN REGIONAL RESEARCH CENTER, PEORIA, ILLINOIS

ARS is seeking a biochemist to join an interdisciplinary research group studying the biochemical, genetic, and physiological aspects related to degradation of plant cell wall components and production of polysaccharides by anaerobic bacteria of ruminal and gut origin. Biochemistry research areas include purification and characterization of enzymes/enzyme complexes, protein sequencing, and determination of enzyme/gene products from native species and from species harboring cloned genes. In addition, other areas include determination of biochemical or other factors that mediate association of components (proteins, enzymes, polysaccharides) into complexes and association of these complexes with specific substrates. Candidates must have knowledge of biochemistry, enzymology, and must be a U.S. citizen. A Ph.D. degree in biochemistry or microbiology is desirable. Experience and knowledge of molecular genetics and anaerobic microbiology, while helpful, is not necessary. Salary is commensurate with experience (\$28,852 to \$53,460). For more information, please include curriculum vitae and names of three references in a letter to: **Dr. Robert B. Hespell, Northern Regional Research Center, 1815 North University Street, Peoria, IL 61604.** For information on application procedures/forms, contact: **Angela B. Canterini, Telephone: 301-344-1542.** Applications in response to this advertisement must be marked 9N015 and be received by 17 July 1989. ARS is an Equal Opportunity Employer.

**BIOLOGIST.** One-year, non-renewable, full-time position beginning fall 1989 at instructor/assistant professor level. Kalamazoo College invites applications from broadly-trained physiologists to teach comparative animal physiology and other courses in area of specialty to biology majors as well as course for non-science majors. A commitment to excellence in undergraduate teaching is required. Send letter of application, curriculum vitae, and three letters of recommendation to: **Dr. Carolyn R. Newton, Department of Biology, Kalamazoo College, Kalamazoo, MI 49007** by 19 May 1989. Affirmative Action/Equal Opportunity Employer. Kalamazoo College is committed to diversity and particularly encourages women and members of minority groups to apply.

**CHEMIST** for information service in central Ohio to read, translate, and analyze technical contents of patent specifications in area of nuclear technology written in Japanese, prepare in English abstracts (summaries) and index entries to these patents for inclusion in technical information services used by scientists throughout the world. No experience required. Must have M.S. in physics or nuclear chemistry and be able to read Japanese. Forty hours per week; 8:00 a.m. to 5:00 p.m.; \$34,700 per year. Qualified applicants reply with résumé to: **R. Lechler, JO#1172005, Ohio Bureau of Employment Services, P.O. Box 1618, Columbus, OH 43216.**

An Equal Opportunity Employer M/F.

**CLINICAL EPIDEMIOLOGIST**—Applications are invited for a funded position of clinical investigator/epidemiologist in the Division of Population Oncology at the Fox Chase Cancer Center. The Division is concerned with population studies of the roles of viruses and genes in the etiology of cancer. A large cohort study of hepatitis B virus carriers and liver cancer is in progress. The study combines evaluation of methods of preventing liver cancer in hepatitis B carriers with investigation of virologic and behavioral risk factors in the etiology of liver cancer. The successful candidate will be expected to participate as a clinician and investigator in this prospective study, as well as develop independent research projects. Applicants should have an M.D. and either training or experience in epidemiology or public health. The level of appointment and salary will be commensurate with qualifications and experience. Applicants should send curriculum vitae, statement of research interests, and the names of three references to: **Epidemiologist Search Committee, c/o Personnel Department, Fox Chase Cancer Center, 7701 Burholme Avenue, Philadelphia, PA 19111.** Equal Opportunity Employer.

## POSITIONS OPEN

### CHAIR DEPARTMENT OF MICROBIOLOGY AND IMMUNOLOGY

Wright State University invites nominations and applications for the position of Chair, Department of Microbiology and Immunology. This person will have administrative responsibility for a growing department that is in both the College of Science and Mathematics and the School of Medicine. Applicants should hold the Ph.D. and/or M.D. degree and have an established record of excellence in research, teaching, and administration. Individuals from all subdisciplines are welcome to apply, but those with a molecular approach to immunology or virology, including vaccine development, are especially encouraged. Teaching responsibilities are in the School of Medicine and the College of Science and Mathematics. The department also participates in a multidisciplinary Biomedical Sciences Ph.D. Program.

Applicants should submit curriculum vitae and the names of three or more references to: **D. T. Organisciak, Ph.D., Chair of the Search Committee for Microbiology and Immunology, Wright State University, Dayton, OH 45435.**

Applications received before 1 August 1989 will be assured of full consideration in the screening process, but applications will be accepted until the position is filled.

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

### CHAIRPERSON DEPARTMENT OF MEDICAL PHYSICS COLLEGE OF HEALTH SCIENCES OF RUSH UNIVERSITY

The College of Health Sciences of Rush University is searching for a chairperson of the Department of Medical Physics. Candidates for the position must have an earned doctorate in the appropriate discipline and be eligible for certification by the American Board of Radiology. They should have a minimum of 5 years of teaching, research and experience in the practice of physics with good administrative and interpersonal skills. They should be active in the American Association of Physicists and Medicine or other appropriate professional organizations. Letters of application including curriculum vitae should be submitted by 15 July 1989 to:

**A. K. Murthy, M.D.  
Chairman, Search Committee for  
Chairperson of the Department of  
Medical Physics**

**Rush-Presbyterian-St. Luke's Medical Center  
1753 West Congress Parkway  
Chicago, IL 60612  
Telephone: 312-942-5751**

Rush is an Equal Opportunity/Affirmative Action Employer.

### DEPUTY DIRECTOR

The Office for Interdisciplinary Earth Studies works to facilitate research in the United States and international programs in Global Change. The Deputy Director will assist the Director in formulating activities of the office and oversee all management and operation. We anticipate a starting date of 1 June 1989 or by arrangement.

The successful candidate will have administrative experience and hold an M.S. or equivalent in an area of science relevant to problems of global environmental change. For a job description or to apply, send letter promptly to: **R. Foco, University Corporation for Atmospheric Research (UCAR), P.O. Box 3000, Boulder, CO 80307.**

Equal Opportunity/Affirmative Action Employer.

**DIRECTOR, PESTICIDE AND PLANT PEST MANAGEMENT DIVISION (PPMD),** Michigan Department of Agriculture. Seeking individual with good administrative and communication skills and understanding of pesticide issues. Position requires minimum bachelor's degree and 2 years of professional managerial experience. Director serves as administrator of a regulatory division with responsibility for pesticide programs, plant pest control, and agricultural products assurance. Applicants please submit résumé by 2 June 1989 to: **Katherine Fedder, Michigan Department of Agriculture, PPMD, P.O. Box 30017, Lansing, MI 48909.** Telephone: 517-373-1087. Equal Employment Opportunity/Affirmative Action Employer.

## POSITIONS OPEN

**CYTOGENETICIST M.D./Ph.D.** Physician or pathologist preferred. Specialty certification (or equivalent training) and background in clinical diagnostic and research work important. Funded basic research grant support and evidence of productivity critical. Experience and a record of scholarship with a strong publication record are required. Minimum of 2 years of experience in human cytogenetics necessary. *Women and members of minority groups are encouraged to apply.* Please forward curriculum vitae to: **John E. Craighead, M.D., Department of Pathology, University of Vermont, Burlington, VT 05405.** Applications will be accepted until position is filled. Affirmative Action/Equal Opportunity Employer.

**DIRECTOR OF RESEARCH AND DEVELOPMENT LIQUID CRYSTALS.** Applicant will conduct research and development into applications and uses of cholesteric and thermochronic liquid crystals for industrial and consumer products and scientific instrumentation. Ph.D. in chemistry. Three years of experience in job offered. Forty hours per week; 8:00 a.m. to 5:00 p.m. \$54,600 per year. Please send résumé to: **Illinois Department of Employment Security, 401 South State Street—3 South, Chicago, IL 60605, Attention: Marie Ninneman, Reference #9015N.** An Employer-paid ad.

### THE UNIVERSITY OF TEXAS AT DALLAS DIRECTOR OF THE INSTITUTE FOR ENVIRONMENTAL SCIENCES

The University of Texas at Dallas seeks applications for a non-faculty research scientist position as Director of the newly established Institute for Environmental Sciences (IES). Through the use of simulation modeling, including analysis of model reliability, IES will address significant environmental issues by conducting multidisciplinary research that integrates scientific, social, and economic concepts. Aggressive leadership will be required to launch the institute and to persuade specialists from diverse backgrounds to participate in IES research. The successful applicant will be an established scientist with competence in computer-based modeling, the ability to secure external funding, and experience administering multidisciplinary teams. Preferred areas of specialization include: systems ecology or surface or groundwater hydrology. Salary will be commensurate with experience and qualifications. Applications must be received by 15 June 1989 (indication of sex and ethnicity is requested for statistical purposes but is not required) and must contain a résumé and a list of references who can be contacted. Applications should be sent to:

**Search # 290  
The University of Texas at Dallas  
P.O. Box 830688  
Richardson, TX 75083-0688**

The University of Texas at Dallas is an Affirmative Action/Equal Opportunity Employer.

### DIRECTOR PROGRAM IN MOLECULAR BIOLOGY AND BIOTECHNOLOGY

The University of North Carolina at Chapel Hill is searching for a Director for its established Program in Molecular Biology and Biotechnology. We seek an accomplished scientist interested in providing leadership for a campus-wide program who would be appointed as a faculty member in an appropriate department. Assets of the Program include newly constructed research laboratories, faculty positions, permanent budget and training activities plus an interactive group of molecularly oriented faculty. The Research Triangle area of North Carolina, consisting of three major universities and several research institutes and pharmaceutical companies, provides an exceptional regional environment in which to build an outstanding national program. The North Carolina Biotechnology Center, funded by the State of North Carolina, is a significant additional resource. Preference will be given to candidates who reply before 15 August 1989. Reply with curriculum vitae and at least three references to: **Joseph S. Pagano, M.D., Chair, Search Committee for the Director of the Program in Molecular Biology and Biotechnology, Office of the Dean, The School of Medicine, CB #7000 MacNider Building, The University of North Carolina, Chapel Hill, NC 27599-7000.** Women and minorities are encouraged to identify themselves voluntarily. UNC-CH is an Equal Opportunity/Affirmative Action Employer.



# PHARMACEUTICAL BIOPROCESS DEVELOPMENT

**H**

offmann-La Roche is an internationally recognized leader in the research, development and manufacture of pharmaceuticals and medical products. Due to the planned expansion of our Bioprocess Development and Protein Production operations, we have a variety of opportunities for team oriented Scientists and Engineers with good oral and written communication skills. The chosen candidates will work with multi-disciplinary teams on fermentation, purification and microbiology for antibiotics, vitamins and proteins.

## MICROBIOLOGY & FERMENTATION

### MICROBIOLOGISTS

The selected candidates will be responsible for developing and optimizing recombinant DNA, antibiotic and vitamin fermentation processes on a laboratory scale, and supporting pilot plant and plant activities. A PhD, preferably in Microbiology, along with extensive industrial experience in microbial biochemistry and molecular genetics are required. A background including the validation of fermentation processes and facilities for biotech products produced under cGMP conditions is desirable. **Please refer to position VR-M-19 on resume.**

## CHEMICAL/BIOCHEMICAL ENGINEER PILOT PLANT

Responsibilities will include the design, installation and operation of pilot plant and plant fermentation facilities. An MS or PhD in Chemical/Biochemical Engineering is required, along with experience in fermentation process development scale-up, and maintenance and validation of fermentation/recovery facilities for biotech products produced under cGMP conditions. **Please refer to position LB-19 on resume.**

## MICROBIOLOGIST- VAIDATION

Qualifications include an MS in Microbiology and experience in validating fermentation and purification facilities and processes. Knowledge of cGMP and FDA requirements helpful. **Please refer to position VR-M-15 on resume.**

## PROTEIN PURIFICATION

### SENIOR SCIENTISTS

Using conventional and state-of-the-art technology, you will be responsible for the isolation and purification of natural and recombinant proteins from bacteria and mammalian cells. In addition, you will plan and design laboratory and production experiments; maintain records; evaluate and draw conclusions from experimental data; and communicate the results in an effective manner. A PhD in Biochemistry plus 2-3 years of postdoctoral experience in enzymology and protein biochemistry is required; knowledge of HPLC and FPLC is desirable. **Please refer to position FK-19 on resume.**

### SCIENTIST

You will be involved in many of the same projects as the Senior Scientists above. A BS/MS (preferably in Biochemistry or a related field) and 6+ years' relevant experience is required; a background including protein immobilization techniques, SDS-PAGE, Western blot, isoelectric focussing and HPLC/FPLC of proteins is also essential. **Please refer to position FK-15 on resume.**

## CHEMICAL OR CHEMICAL/BIOCHEMICAL ENGINEER

You will conceive, plan, evaluate and manage long-range and creative approaches to the development and scale-up of proteins, vitamins and antibiotic purification processes; as well as produce material for clinical trials and the initial product launch. A PhD in Chemical Engineering or Chemical/Biochemical Engineering, relevant academic or industrial background, and knowledge of experience in protein purification and scale-up purification processes are required. **Please refer to position VR-E-19 on resume.**

You'll enjoy the atmosphere of discovery and our state-of-the-art facilities, as you receive a comprehensive compensation package. In addition, we are conveniently located in suburban New Jersey, 12 miles from New York City. For consideration, please send your resume, indicating the code for the position of interest and present salary (those without this information will not be acknowledged), to: **Mrs. Eleanor M. Malone, Hoffmann-La Roche Inc., Nutley, New Jersey 07110.** We are an equal opportunity employer.

**ROCHE**

**Hoffmann-La Roche**

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## CHEMIST Drug Metabolism

The Animal and Exploratory Drug Metabolism Department at Merck Sharp and Dohme Research Laboratories is seeking applications from qualified candidates for the position of a chemist in the animal health drug metabolism area.

Qualifications for this position include a B.S./M.S. or equivalent in chemistry, biochemistry or related field with 1-3 years of research experience in areas relevant to the duties of this position. Working knowledge of HPLC instrumentation, computers and radioisotopes is required. Knowledge of NMR and Mass Spectroscopic data interpretation is desired but not required.

The successful candidate will be involved in metabolism and environmental fate studies of animal health drugs; isolation, characterization, and quantification of drug and metabolites from biological and environmental media. Duties also include preparation of technical reports on the above studies.

Merck Sharp and Dohme Research Laboratories is located in Rahway, New Jersey approximately 25 miles from New York City. Our salaries, benefits and growth potential are excellent. For consideration, send your resume with the names of three references to **Dan Hoffman, Merck & Co., Inc., P.O. Box 2000, Rahway, New Jersey 07065.**

AN EQUAL OPPORTUNITY EMPLOYER, M/F/H



**Merck & Co., Inc.**

## DNA PROBE GROUP LEADER

ImClone Systems Incorporated, an innovative, rapidly growing biotechnology company is seeking a highly motivated individual to become leader of its DNA probe group.

The successful candidate will be responsible for a multidisciplinary team developing clinical diagnostic products based on ImClone's AmpliProbe® technology. Qualifications include creativity in research and development as demonstrated by successful product introductions and/or publications, as well as leadership and management skills.

Located in Manhattan, ImClone has projects in immunodiagnostics, DNA probe diagnostics, vaccines and therapeutics. ImClone has business relations with several major pharmaceutical companies and draws on a large base of consultants who are pre-eminent in their fields of research.

ImClone offers excellent salary and benefits. Please send your CV and salary requirements to:

**M. Satterlee**  
**ImClone Systems Incorporated**  
**180 Varick St.**  
**New York, New York 10014**



ImClone Systems Incorporated

## POSTDOCTORAL POSITION Immunoregulation

Bristol-Myers' headquarters for pharmaceutical research and development in Wallingford, Connecticut is a state-of-the-art facility created for the encouragement of professional achievement and interdisciplinary cooperation.

We seek a qualified individual to join an interdisciplinary group working on molecular and biochemical pathways in immunoregulation. Option available for research on regulation of gene expression, signal transduction pathways, and growth factors involved in the modulation of the immune response. A strong background in the modern cellular immunology and/or one of the above areas required. Candidate should have Ph.D. in a relevant biological discipline.

Bristol-Myers offers sustained growth, highly competitive salaries, extensive benefits and career support. Our location is convenient to Connecticut cultural centers, New York and New England. To apply, please send resume to: **BRTISTOL-MYERS COMPANY, Pharmaceutical Research & Development Division, Attn: MH149, P.O. Box 5101, 5 Research Parkway, Wallingford, CT 06492-7661.** An Equal Opportunity Employer M/F/H/V.



**Bristol-Myers Company**

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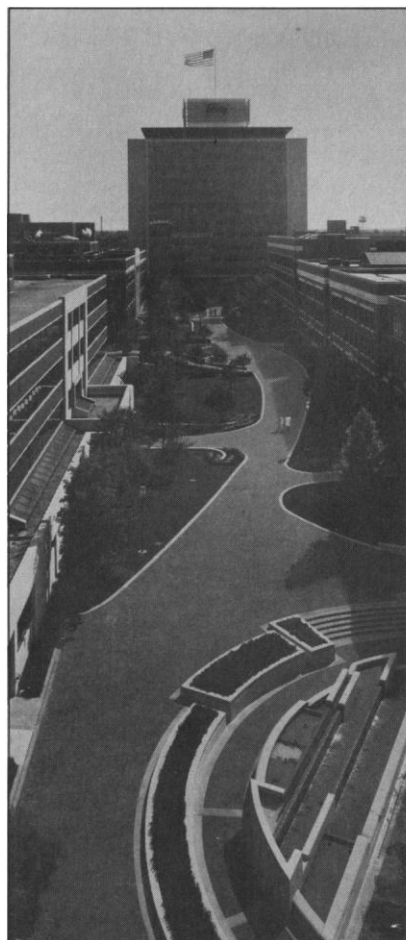
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**NEW LAB SERVICE DEPT.**  
**1515 BROADWAY**  
**NEW YORK, N.Y. 10036**



## BS/MS SCIENTIST Developmental Toxicology Laboratory



Equal Opportunity Employer

For more than a century, scientists at ELI LILLY AND COMPANY have developed innovative, high quality pharmaceutical products. Lilly invests over \$500 million annually in research-and-development programs. More than 3,000 scientists at the company's Lilly Research Laboratories are pursuing creative research programs that involve many important health care needs.

To further build its research capabilities, Lilly is seeking a self-motivated, innovative scientist for the Toxicology Division to assist in the development of *in vitro* laboratory methods used to assess reproductive toxicity and to assist in basic research involving fertilization, cleavage and implantation of eggs/embryos. The ideal candidate will have the following qualifications:

- Bachelor's or Master's degree in Life Sciences with emphasis on reproduction/development.
- Good working knowledge of reproductive physiology and experience in culturing of preimplantation embryos.
- Sterile technique and good general laboratory skills with expertise in data analysis using various statistical methods.
- Independent research or project on some aspect of reproductive physiology/pharmacology.
- Excellent oral and written communications skills.

Eli Lilly and Company is committed to scientific excellence. Lilly provides a stimulating professional atmosphere with many opportunities for collaborative, multidisciplinary research. The company offers an attractive total compensation program. Entry level and salary will be based upon each candidate's experience.

For prompt consideration, please forward your *résumé* to:

Blake A. Caley  
Science Recruitment (TGL-1)  
Eli Lilly and Company  
Lilly Corporate Center  
Indianapolis, Indiana 46285



### UCAR Visitor Research Programs for Senior and Postdoctoral Scientists

The University Corporation for Atmospheric Research (UCAR) announces the continuation of its Visiting Research Programs, which provide research opportunities at the Naval Environmental Prediction and Research Facility (NEPRF) in Monterey, California, and the National Meteorological Center (NMC) in Camp Springs, Maryland. The program offers visiting research appointments in the atmospheric and related sciences at two of the premier R&D centers devoted to operational weather prediction in the United States.

Openings in the UCAR program include positions for senior and postdoctoral scientists. Remuneration will be commensurate with the experience of the scientists and local living costs, and will be competitive with analogous university and government appointments. Appointments will be for up to two years.

No formal application form is required. Qualified scientists are encouraged to apply for these programs by sending a resume along with a statement of how their research interests and experience relate to the areas of scientific interest at the host institution. Applicants should designate their choice of program site and should include a brief description of proposed work. All applications should include four professional references.

The application deadline is 1 August 1989. Send the required information to Meg Austin, Corporate Projects, UCAR, P.O. Box 3000, Boulder, CO 80307. For further information or to receive a flyer describing the program in more detail, please contact her at 303-497-8995.



## Postdoctoral Associate Join Our International Project Team Working Towards A Breakthrough In Crop Improvements

The Agricultural Division of CIBA-GEIGY is respected worldwide for both the quality of its research and the highly accomplished scientists it attracts. We have made a major commitment to expanded research in plant photobiology, at our facility in Research Triangle Park, NC.

As part of the team, you will be working on projects involving the genetic engineering of phytochrome. We welcome your input into research direction.

Individuals with plant molecular biology training or experience in cell biology and/or biochemistry are encouraged to apply.

You will find that CIBA-GEIGY offers exceptional career support and advancement opportunities, as well as competitive salary and generous company-paid benefits. Please forward curriculum vitae and 3 letters of professional recommendation to: **Dr. Mary-Dell Chilton, CIBA-GEIGY Corporation, Agricultural Division, P.O. Box 12257, Research Triangle Park, NC 27717.** We Are An Equal Opportunity Employer M/F/H/V.

Science Serving Mankind

# CIBA—GEIGY



## POSITIONS OPEN

The Waterloo Centre for Groundwater Research (a Centre of Excellence funded by the Government of Ontario) is seeking applications for a **RESEARCH POSITION IN ENVIRONMENTAL BIOCHEMISTRY/MICROBIOLOGY**.

The appointment will be at the University of Waterloo at a professorial rank dependent upon qualifications and experience for a term of 5 years contingent upon continued funding. The successful applicant will work as part of a multidisciplinary team involved in research on aspects of groundwater contamination and will develop a research program with major support obtained from industry and government agencies. A candidate with a Ph.D. degree in an area of biochemistry or microbiology with applications to biochemical studies of biodegradation and biotransformation of organic compounds in groundwater will be given preference.

The closing date for applications is upon appointment of a suitable candidate. The appointment will be effective 1 June 1989 or as soon as possible after that date. *With permission of Employment and Immigration Canada, competition is open to Canadian citizens, permanent residents and non-Canadians.* Please send a complete curriculum vitae and the names, addresses, and telephone numbers of three referees to: **D. J. A. Smyth, Manager, Waterloo Centre for Groundwater Research, University of Waterloo, Waterloo, Ontario, Canada N2L 3G1.**

## EXECUTIVE DIRECTOR CALIFORNIA COUNCIL ON SCIENCE AND TECHNOLOGY

The newly established California Council on Science and Technology seeks applications for its first permanent Executive Director. The Council is a nonprofit association established by the major California higher education institutions to analyze and report on major policy developments and issues affecting the State's science and technology industries and its economic development and competitiveness.

**Responsibilities:** Provide administrative and policy guidance to the Council's work; develop and implement procedures for selection, review, and management of Council projects, as well as preparation and dissemination of final reports. Consultation and liaison with government, industry, and other clients, and fundraising. The Executive Office will be located in a major urban area in California.

**Qualifications:** Extensive administrative and policy experience on issues of science and technology; demonstrated capacity to work in cooperation with the higher education community, business and industry, and state and federal government; and knowledge of science and technology relating to California. Should have a Ph.D. in a relevant discipline or equivalent experience in research policy and management. To apply: Position to be filled 1 September 1989 or earlier; open until filled. Salary and benefits competitive. Applications (letter, résumé, salary history, names of four references) should be sent by 1 June 1989 to:

**Chair, California Council on Science and Technology  
c/o Office of the Chancellor  
University of California, Davis  
Davis, CA 95616**

*An Equal Opportunity/Affirmative Action Employer.*

## FACULTY POSITION IN PHARMACOLOGY

Applications are invited for a tenure-track faculty position at the associate professor or professor level. Candidates for either position should have an active, established research program emphasizing biochemical/cellular approaches to the study of cardiovascular and/or renal function. In addition to performing high quality, independent and collaborative research, other responsibilities include participation in teaching of professional and graduate students. Applicants should submit curriculum vitae, a statement of research objectives, and names of three reference sources to:

**Dr. Mustafa F. Lokhandwala, Chairman  
Department of Pharmacology  
College of Pharmacy  
University of Houston  
Houston, TX 77204-5515**

*An Affirmative Action/Equal Opportunity Employer.*

## POSITIONS OPEN

**FACULTY POSITION IN DEPARTMENT OF MICROBIOLOGY, MOLECULAR GENETICS, AND IMMUNOLOGY** to participate in basic research in immunology and molecular biology of bacterial lipopolysaccharide receptor molecules on lymphocytes and macrophages. Salary \$25,000 to \$35,000. Ph.D. in immunology, molecular biology, biochemistry, or related field along with 5 years of relevant postdoctoral experience. Send curriculum vitae to: **David C. Morrison, Ph.D., Chairman, Department of Microbiology, 39th Rainbow Boulevard, 3026 WHW, Kansas City, KS 66103.** *An Affirmative Action/Equal Opportunity Employer.*

## FACULTY POSITION

Department of Physiology and Biophysics, University of Southern California (USC) School of Medicine. Assistant or associate professor, tenure-track, to conduct independent research program and teach. Experimental background in renal physiology, experience in computer simulation, and interest in the analysis of non-linear complex systems strongly preferred. Applications, including curriculum vitae, and three letters of reference should be sent to: **Dr. Donald J. Marsh, Department of Physiology and Biophysics, USC School of Medicine, 1333 San Pablo Street, Los Angeles, CA 90033.**

Application deadline: 16 June 1989.

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

## FACULTY POSITION IN MARINE REMOTE SENSING

The Applied Ocean Science Program at the University of Delaware's College of Marine Studies invites applications for tenure-track faculty position to start any time after 1 September 1989.

Requires Ph.D. in the physical sciences or engineering, with strong background in theoretical and experimental work on hydrologic optics and/or ocean/coastal remote sensing desirable. Involves teaching at the graduate level, and development of an independent, funded research program on the optical and physical properties of particles and dissolved substances in estuaries and electromagnetic wave interaction with surface films, waves and particles. Opportunity to interact with ongoing research in remote sensing of wetlands and estuarine productivity; coastal circulation and fronts; air-sea interaction; spectral/spatial analysis of satellite imagery; electromagnetic and sound wave interaction with suspended particles; and Laser Doppler characterization of marine plankton.

Send résumé with names and addresses of three references to: **Dr. Stephen C. Dexter, College of Marine Studies, University of Delaware, Lewes, DE 19958.** Closing date: 1 July 1989. *The University of Delaware is an Affirmative Action/Equal Opportunity Employer.*

## FACULTY POSITIONS IN MOLECULAR BIOLOGY

The Department of Environmental Health at the University of Cincinnati invites applications for two senior tenure-track faculty in the area of molecular biology and genetics. One position is for a **FULL PROFESSOR** (M.D. required) with international stature to develop and direct a vigorous, externally-funded research program in molecular toxicology. This individual should conduct independent research on the characterization of genes coding for drug-metabolizing enzymes that break down carcinogens, mutagens, drugs and other environmental pollutants; with the ultimate goal of designing tests for determining which individuals are at increased risk when exposed to environmental/occupational chemicals or drugs. The other position is an **ASSOCIATE PROFESSOR** (Ph.D. required) to conduct independent research in the areas of DNA replication and mutagenesis in eukaryotic systems. Typical research interests might include use of viruses and shuttle vectors as probes for analysis of in vivo mutagenesis, development of new mutagenesis test systems, and development of in vitro systems for studying mechanisms of eukaryotic DNA replication and mutagenesis. Candidates should submit a letter of application, a current curriculum vitae, and three letters of reference to: **Dr. Dale R. Johnson, Chairman, Molecular Biology Search Committee, Department of Environmental Health, University of Cincinnati, Cincinnati, OH 45267-0056** by 1 June 1989. *The University of Cincinnati is an Equal Opportunity/Affirmative Action Employer.*

## GENPROBE TECHNOLOGIES LTD.

Genprobe Technologies Ltd., a publicly-traded (VSE listing; GPO) biotechnology company located near Victoria, B.C., Canada, is seeking two outstanding recently-graduated Ph.D. level scientists.

### Position 1— Protein Biochemist (CBM-1)

The successful candidate will participate in an active R&D program to develop drug delivery systems. This unique position offers an opportunity to work with leading researchers in a combined industrial, university, and government research program. Experience in membrane-biochemistry or pharmacology of prokaryotes would be an asset.

### Position 2— Environmental Microbiologist (CBR-1)

The successful candidate will join a team of scientists developing innovative technologies for the detection of natural and genetically-engineered organisms in natural environments. Experimental experience with soil or water systems is required. Previous experience with any of polyclonal, monoclonal or DNA-based technologies would also be an asset.

The preferred candidates for these positions will have R&D potential and a commitment to a biotechnology company with close ties to university and government research environments. Genprobe offers a competitive salary and benefits package, in addition to an excellent opportunity for scientific and personal development.

Please submit two copies of your resume by May 26, 1989 to:

**Genprobe Technologies Ltd.  
P.O. Box 2010  
101-9865 West Saanich Rd.  
Sidney, British Columbia  
Canada  
V8L 3S3**

## POSTDOCTORAL TRAINING PROGRAM IN IMMUNOLOGY

Postdoctoral training in immunology is offered at Duke University Medical Center. Fellowships in laboratories conducting research in molecular genetics, molecular immunology, immunogenetics, developmental biology, cellular immunology, immunochemistry, transplantation and tumor immunology, immunopathology, and allergy and autoimmune diseases are available. Fellowships are open to U.S. citizens and foreign nationals with permanent resident visas holding the Ph.D., M.D., or equivalent degrees who have had fewer than 3 years of postdoctoral experience. Send letters of inquiry to

**Dr. Frances E. Ward  
Department of Microbiology and Immunology  
Box 3010  
Duke University Medical Center,  
NC 27710**

*An equal opportunity/  
affirmative action employer*

The Universities of Strasbourg, Freiburg im Breisgau, Karlsruhe and Basel have created a trinational curriculum in Biotechnology. The

### **Faculty of Sciences of the University of Basel**

has assumed the responsibility for the teaching of *Microbiology* in this curriculum, and for this purpose a new

### **Professorship in Biotechnology**

has been funded for January 1, 1990.

The duties will include:

- Organisation and execution of Microbiology teaching in the new curriculum with the help of the existing infrastructure.
- Research on an aspect of Microbiology relevant to Biotechnology.
- Participation in advanced level teaching at the Biozentrum of the University of Basel.

The University will provide core support in the form of salaried positions, equipment and running expenses.

Applications including a curriculum vitae, list of publications, reprints of about five representative publications, a short overview of past and planned research activities and a description of teaching experience should be submitted before June 1, 1989, to the Dean of the Faculty of Sciences at the following address:

Dekan der Philosophisch-Naturwissenschaftlichen Fakultät,  
Klingelbergstrasse 23, CH-4056 Basel, Schweiz.

Further information on the curriculum in Biotechnology and on the Biozentrum is available on request.

## **Immunology and Infectious Diseases Research Assistants**

Pfizer Central Research seeks several innovative research assistants to join our Immunology and Infectious Diseases Department in Groton, Connecticut. Our research assistants collaborate with highly motivated scientists carrying out basic research on the pathogenesis of human infectious diseases in order to advance our drug discovery and medicinal research programs.

You should have a BS or MS degree in biological science with relevant laboratory experience involving biochemistry, microbiology or immunology. In addition, strength in any one or combinations of the following is considered a plus:

- An understanding of the basic mechanisms of pathogenesis of infectious diseases
- Protein/enzyme purification and assays; FPLC expertise
- Mammalian cell culture
- Manipulation of DNA and gene expression in bacteria/mammalian cells
- Immunological techniques

Pfizer offers a stimulating scientific research environment with the opportunity to interact with scientists from several disciplines. In addition, Pfizer has a competitive compensation/benefit package along with relocation assistance to this southeastern Connecticut shoreline community. Please send a description of your research experience and names of three references to: Mrs. Lorraine C. Corr, Personnel Associate, Pfizer Central Research, Eastern Point Road, Groton, CT 06340. An equal opportunity employer.



National Cancer Institute  
National Institutes of Health,  
Public Health Service

### **CANCER PREVENTION FELLOWSHIP PROGRAM**

The **Division of Cancer Prevention and Control (DCPC)** is accepting applications for the Cancer Prevention Fellowship Program (CPFP). The purpose of this program is to attract individuals from a multiplicity of health science disciplines into the field of cancer prevention and control. The program provides for: Participation in the DCPC Cancer Prevention and Control Academic Course; Working at NCI directly with individual preceptors on cancer prevention and control projects; Brief assignments in cancer prevention and control programs at cancer centers, State Health Departments or other institutions. Funding permitting, ten Fellows will be accepted for up to three years of training, beginning July 1, 1990. Benefits include selected relocation and travel expenses, paid federal holidays, and participatory health insurance.

#### **ELIGIBILITY**

1. M.D. or D.O. from a U.S., territorial, or Canadian Medical School. Foreign medical graduates must have current ECFMG/IMG certification and one year residency in a training program approved by the Accreditation Council for Graduate Medical Education.
- OR
2. Ph.D., Dr. P.H. or other doctoral degree in a related discipline (epidemiology, biostatistics, biomedical, nutritional, public health or behavioral sciences). Foreign education must be comparable to that received in accredited U.S., territorial, or Canadian institutions.
3. U.S. citizenship or resident alien eligible for citizenship within four years.

For details and application packet send a **POSTCARD** with your name and home address to:

**Douglas L. Weed, M.D., Ph.D.**  
**Cancer Prevention Fellowship  
Program**  
**Division of Cancer Prevention and  
Control**  
**National Cancer Institute**  
**Executive Plaza South, T-41**  
**Bethesda, MD 20892**

Further inquiries: Mrs. Barbara Redding,  
(301) 496-8640 or 496-8641.

**DEADLINE FOR RECEIPT OF  
APPLICATIONS: SEPTEMBER 8, 1989.**



NIH IS AN EQUAL OPPORTUNITY  
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## POSITIONS OPEN

**FACULTY POSITION IN MOLECULAR BIOLOGY** to lead a vigorous research and graduate program involving state-of-the-art molecular approaches. Research may include protein secretion, regulation of gene expression, lactation, organelle biogenesis, or cellular growth. Competitive salary. Up to \$150,000 start-up funds will be requested. This tenure-track position is part of a university-wide program of excellence in molecular biology and biotechnology. Send letter of interest, résumé, transcripts and three reference letters by 1 June 1989, or until filled, to: **Dr. S. A. Ewing, Department of Animal Science, Iowa State University, Ames, IA 50011.** An Equal Opportunity/Affirmative Action Employer.

### FACULTY POSITIONS IN MOLECULAR BIOLOGY AND MOLECULAR PHARMACOLOGY

The Department of Pharmacology and Molecular Biology at the Chicago Medical School is soliciting applications for tenure-track positions preferably at the associate professor level. Although we are seeking candidates with research interests in eukaryotic gene regulation, molecular mechanism of action of hormones, growth factors, molecular aspects of development and cancer, outstanding candidates in other areas of molecular biology/molecular pharmacology will be considered. Candidates with funded research programs will be preferred. The school relocated to a new modern facility adjacent to the very pleasant North Shore community of Lake Bluff, 38 miles from downtown Chicago and yet easily accessible by car or train. Excellent core facilities. Strong M.D.-Ph.D. and Ph.D. programs with substantial financial support. Salary and other benefits highly competitive. Please send by 30 June 1989 curriculum vitae, research plans and three names of references to: **Dr. Samson T. Jacob, Chairman Designate, Department of Pharmacology and Molecular Biology, The Chicago Medical School, 3333 Green Bay Road, North Chicago, IL 60064.** Chicago Medical School is an Equal Opportunity/Affirmative Action Employer.

**FACULTY POSITIONS IN MOLECULAR VIROLOGY**—Applications are being sought for a tenure-track position in virology in the Division of Population Oncology at the Fox Chase Cancer Center. The Division currently has active research programs in the molecular biology and epidemiology of hepatitis viruses and hepatocellular carcinoma, as well as in the development of antiviral therapies. The successful applicant will have a Ph.D. or equivalent training and will be expected to secure independent funding to pursue basic studies with hepatitis or other cancer-associated viruses at the molecular and cellular levels. Start-up funds are available. The Fox Chase Cancer Center provides outstanding shared facilities to enhance research, and the Division provides many opportunities for both multi and interdisciplinary groups. Please send curriculum vitae, outline of future research plans, and the names of three individuals who could provide letters of recommendation to: **Virologist Search Committee, c/o Personnel Department, Fox Chase Cancer Center, 7701 Burholme Avenue, Philadelphia, PA 19111.** The Center is an Equal Opportunity Employer.

**Florida—IMMUNOLOGY:** Full time **TENURE-TRACK POSITION** available in oral biology. Ph.D. or Ph.D./D.D.S./D.M.D. from an accredited institution required. Research interest in inflammation, host-parasite interactions or basic immunology, and a record indicating ability to perform independent research and potential to establish a competitive, extramurally funded research program is desired. Duties will also include participation in team teaching of basic and oral immunology, and an oral biology graduate program. Academic rank and salary commensurate with training and experience. *The University of Florida is an Equal Opportunity/Affirmative Action Employer.* The selection process will be conducted under the Provisions of Florida's "Government in the Sunshine" and Public Record Laws.

Interested applicants should send a letter describing research goals and extramural funding history, and curriculum vitae by 1 September 1989 to: **William B. Clark, Box J-424 JHMHSC, University of Florida, Gainesville, FL 32610.**

## POSITIONS OPEN

### FUNGAL MOLECULAR EVOLUTION

Two **POSTDOCTORAL POSITIONS** are available for a period up to 3 years to study the molecular evolution of Ascomycetes and Basidiomycetes focusing on medically important fungi. The project will use the polymerase chain reaction and DNA sequence analysis to study phylogeny, and to develop identification methods for fungi. The project is a collaboration between laboratories located at the University of California, Berkeley, Hoffmann-La Roche, Inc. and Cetus Corporation, Emeryville, California. Candidates should have a background in fungal evolution and molecular evolution, and should write to: **Dr. John Taylor, Department of Botany, University of California, Berkeley, CA 94720** or to: **Dr. Tom White, Hoffmann-La Roche, Inc., 5301 Horton Street, Emeryville, CA 94608.**

**IMMUNOLOGIST**/The University of Colorado School of Medicine, Department of Medicine, has a position at the assistant/associate professor level in the research specialty track. Applicants should have a Ph.D. in immunology and 2 years of postdoctoral experience, with skills in immunochemistry, cellular immunology, and monoclonal techniques. Send curriculum vitae and three references to: **William Brown, M.D., Division of Gastroenterology B158, University of Colorado Health Sciences Center, Denver CO 80262.** Equal Opportunity/Affirmative Action Employer.

### INSTRUCTOR (RESEARCH TRACK)

The Emory University Department of Pediatrics, Division of Pediatric Endocrinology, is seeking a biochemist with 2 years of postdoctoral experience in cell isolation and tissue culture to work on hormone production by isolated human placental cells. Submit curriculum vitae by 1 June 1989 to: **John S. Parks, M.D., Ph.D., 2040 Ridgewood Drive, Atlanta, GA 30322.** Affirmative Action/Equal Opportunity Employer, M/F.

### THE UNIVERSITY OF QUEENSLAND Equal Opportunity in Employment is University Policy LECTURER (TENURABLE) DEPARTMENT OF ANATOMY

The appointee will be required to contribute to the teaching of gross and functional anatomy to students enrolled in courses within the Health and Biological Sciences Groups. Applicants should have a higher degree with demonstrated research ability in functional anatomy/biomechanics, or human biology. The functional anatomy group within the Department is actively engaged in research on connective tissue biomechanics, and electromyographic analysis of human movement. Salary: \$A30,737 to \$A40,100 per annum. Closing date: 2 June 1989. Reference No: 20789.

For further information please contact: **Dr. A. W. Parker, Head, Department of Anatomy, telephone (07) 377-2722.**

Please forward an original plus seven copies of application and résumé to: **The Director, Personnel Services, The University of Queensland, St. Lucia 4067, Queensland, Australia.**

### MEDICAL RETINA SPECIALIST

Full-time assistant professor in the Department of Ophthalmology at the University of Medicine and Dentistry of New Jersey to lead research team in study of retinal diseases. Requirements are Board Certification, 10 years of research experience in medical retina, vitreous fluorophotometry and clinical trials. \$60,000 per annum.

*UMDNJ is an Affirmative Action/Equal Opportunity Employer.* Contact: **Alfonse Cinotti, M.D., Professor and Chairman, Eye Institute of New Jersey, 15 South Ninth Street, Newark, NJ 07107.**

**NEUROSCIENTISTS, CELL AND MOLECULAR BIOLOGISTS.** Tenure-track faculty positions open in gross and microscopic anatomy. Research interests in neurosciences, cell and molecular biology. Rank and salary commensurate with experience. Research start-up funds available. Send curriculum vitae, statement of research interests, and the names and addresses of three references to: **Dr. James C. Story, Chairman, Department of Anatomical Sciences, Meharry Medical College, 1005 D. B. Todd Boulevard, Nashville, TN 37208,** by 17 July 1989. An Equal Opportunity/Affirmative Action Employer.

## POSITIONS OPEN

**MICROBIOLOGIST**—Senior Project Microbiologist—Merck Sharp & Dohme (MSD) has an excellent scientific opening in Process Development, Technical Services Department. The position will be responsible for providing technical service to the manufacture of biotechnology and vaccine products and be responsible for the transfer and scale up of all new processes in the manufacturing areas. The department is also responsible for the introduction of all new processing methods and techniques and the transfer of all new products. A Ph.D. in microbiology (bacteriology, virology, biochemistry) is required, as well as a minimum of 1 to 2 years of postdoctoral experience in biological or sterile pharmaceutical production or development. MSD offers an excellent compensation and benefits package plus the opportunity to work and grow with the "most admired" company in the United States. Qualified applicants should send curriculum vitae and résumé in confidence to: **Thomas V. Grady, Merck Sharp & Dohme, A Division of Merck & Co., Inc., West Point, PA 19486.** Equal Opportunity Employer M/F/H/V.

### OREGON HEALTH SCIENCES UNIVERSITY CENTER FOR RESEARCH ON OCCUPATIONAL AND ENVIRONMENTAL TOXICOLOGY NEUROTOXICOLOGICAL SCIENCES

Newly created, state-supported, multidisciplinary Center in neuroscience-rich environment seeks potential or established independent **SCIENTISTS** primarily to conduct basic research on molecular and cellular mechanisms underlying adverse actions of chemicals on the mammalian nervous system. Special interest areas in xenobiotic-receptor-gene interactions, perturbations of gene-product expression and their relationship to neurodegenerative diseases. Other areas include behavioral toxicology; analytical and synthetic chemistry; chronotoxicology; developmental neurobiology and mutagenesis; geronto-neurotoxicology; immunoneurotoxicology; neuroepidemiology; molecular neurophysiology; molecular toxicogenetics; neuroendocrine and neurosensory toxicology; toxicogenetics; and tumorigenesis. Ten scientist and staff scientist positions available (start-up 1989 to 1991) on term, tenure-track or tenure appointments equivalent to assistant, associate or full professor, depending on qualifications, experience and potential. Salaries competitive with other major universities, with 50%+ generated from funded research. Submit fully developed application by 9 June 1989 to: **Dr. P. S. Spencer, Director and Senior Scientist, Center for Research on Occupational and Environmental Toxicology, Oregon Health Sciences University, P.O. Box 8366, Portland, OR 97207-8366.** Oregon Health Sciences University is an Equal Opportunity Affirmative Action Employer.

**PHARMACOLOGIST (RESEARCH SCIENTIST):** High-level research to optimize stability and quality of products. Study bioavailability problem for new drugs based upon application of physical pharmacy concepts and pharmacokinetic principles, utilizing HPLC, x-ray diffractometer, IR, DSC, and knowledge of in vitro irritation evaluation techniques. Formulate and characterize various new drug delivery systems. Forty hours; \$48,000 per year. Advanced coursework in controlled drug delivery required. Ph.D. in pharmaceuticals. Résumé in duplicate to: **NYS Job Service, J.O. #0104093, 68 West Huron Street, Buffalo, NY 14202.**

**Ph.D. ORGANIC CHEMISTRY** for entry-level position into field of patent law. We will provide training and legal education. Washington, DC area patent law firm is now seeking candidates for career opportunity in exciting and lucrative field of patents, to join our staff. We are seeking top academic credentials, some prior teaching experience and an ability to speak well and to write clearly. Reply to: **Norman Oblon, Oblon, Spivak, McClelland, Maier and Neustadt, P.C., 1755 Jefferson Davis Highway, Suite 400, Arlington, VA 22202.**

**POSTDOCTORAL ASSOCIATE IN BEHAVIORAL NEUROSCIENCE.** Immediate opening in a research program examining the role of endogenous opioids in Pavlovian conditioning. Position must be filled by 30 June 1989. Send curriculum vitae, representative publications, and three references to: **M. S. Fanselow, Department of Psychology, University of California—Los Angeles, Los Angeles, CA 90024—1563.** Telephone: 213-206-3891. An Equal Opportunity/Affirmative Action Employer.



*Safe,  
Effective  
Drugs  
in  
Canada*



Health and Welfare  
Canada

Santé et Bien-être social  
Canada

## SENIOR DRUG EVALUATORS

If you see yourself as part of a multidisciplinary scientific community responsible for safe and effective drugs in this country, the Health Protection Branch, Drugs Directorate in Ottawa can meet your professional aspirations. Right now, we are actively seeking energetic scientists who want a new challenge in one of the following divisions:

**Infection & Immunology**  
**Endocrinology, Metabolism and Allergy**  
**Cardiovascular**  
**Central Nervous System**  
**Gastroenterology, Hematology and Oncology**  
**Biopharmaceutics and Pharmacokinetics Evaluation**

As a Senior Drug Evaluator, you will draw on your scientific expertise to assess animal data from pharmacology and toxicology studies, microbiology, human pharmacokinetic studies, and clinical trials on potential new drugs. In order to critically analyze data and formulate recommendations pertaining to the Food and Drugs Regulations, you must have a doctorate degree from a recognized university in basic medical sciences such as pharmacology, toxicology, biochemistry, virology, bacteriology, physiology, immunology or pharmacokinetics.

If you have this background, along with post-doctoral research experience in an academic or industrial environment, and a proven publication record, the Drugs Directorate offers unique and challenging opportunities in the federal safeguard of drugs. Enjoy excellent benefits and relocation program and compensation, as well as a high quality of life in the Nation's Capital. Knowledge of English is essential, and preference will be given to Canadian citizens.

Salary: Up to \$55,591.00 (under review)

Public Service Commission of Canada is an equal opportunity employer

**Canada**

For additional information, call Dr. V. Krupa at 1-800-267-1649, or forward your resume along with copies of your previously published works, quoting reference number S-89-31-5203-47JG-G35 and your area of interest, to *Joan Girling, Public Service Commission of Canada, 171 Slater Street, Ottawa, Ontario K1A 0M7.*

## Protein Chemist

Pfizer Central Research wishes to add a scientist experienced in protein purification to its Molecular Genetics Research Department. You will be involved in the microisolation of membrane transport, ion channel and receptor proteins with the objective of obtaining structural information for the purpose of cloning.

You should possess a BS or MS degree in a relevant field and have 2 to 6 years experience in an industrial or academic laboratory dedicated to microscale protein purification. Knowledge of immunochemical techniques desirable.

Pfizer offers a stimulating scientific research environment with the opportunity to interact with scientists from several disciplines. In addition, we offer a competitive compensation/benefit package along with relocation assistance to this southeastern Connecticut shoreline community. Please send a resume, a description of your research experience, and names of three references to: Mrs. Lorraine C. Corr, Personnel Associate, Pfizer Central Research, Eastern Point Road, Groton, CT 06340. An equal opportunity employer.



## KUWAIT INSTITUTE FOR SCIENTIFIC RESEARCH

Kuwait Institute for Scientific Research (KISR) is a nonprofit organization with a staff of more than one thousand employees engaged in applied research in the fields of environmental and earth sciences; water resources; food resources; engineering; petroleum, petrochemicals and materials and techno-economics.

KISR has a vacancy in the following field:

### SOIL CHEMISTRY/PEDOLOGY

● **Major Duties:**

- Developing and evaluating land reclamation practices and suggestions of strategies for arid soils.
- Evaluating of planting sites, fertilizer requirements and crop nutrition.
- Developing amelioration practices to improve soil structure by use of organic matter, chemical and synthetic amendments.
- Evaluating soil surveys and land classification.

● **Qualifications:**

Applicants should have a Ph.D. in Soil Chemistry or Pedology with 5 to 10 years of experience in land reclamation of arid areas, crops nutrition and fertilization requirement for field crops. Excellent knowledge of laboratory and field techniques for evaluation of physical and chemical properties of soils in addition to good understanding of soil surveys and irrigation systems.

KISR offers attractive tax free salaries commensurate with qualifications and experience and generous benefits that include gratuity, free furnished air-conditioned accommodation, school tuition fees for children, contribution to a savings plan, six weeks annual paid vacation, air tickets, free medical care and life insurance.

Interested applicants are requested to send their Curriculum Vitae with supporting information not later than one month from the date of this publication, to:

**Director General**  
**Kuwait Institute for Scientific Research**  
**P.O. Box 24885 Safat**  
**13109 Safat—KUWAIT.**

## Programmer / Analyst

Merck Sharp & Dohme Research Laboratories is currently offering an excellent career opportunity for an enterprising individual with a blend of scientific and computer expertise who will contribute to our dynamic scientific research environment. The successful candidate for this position will use his or her strong technical and interpersonal skills, as well as excellent verbal and written communications skills to interact with the scientific and corporate computing staffs.

The qualified candidate will possess an advanced degree in a biological, physical, or computer-related discipline, as well as experience in the development of real-time data acquisition and analysis applications in a research laboratory setting. The incumbent will facilitate computing solutions to diverse problems through the innovative use of VAX, IBM, Macintosh, and other resources. Interest in the identification and evaluation of advanced scientific computing technologies and novel approaches to their incorporation is required.

Merck & Co. is the world leader in Medical Research offering excellent Salary & Benefits programs which accompany this position at our West Point, PA research facility.

Please send your resume and salary requirements in complete confidence to:

**Ad. (B-16) Research Personnel (WP42-2)**

**Merck Sharp & Dohme**  
**Research Laboratories**

**West Point, PA 19486**

EEO/AA/VH/Employer



**Merck & Co., Inc.**



## Biology & Chemistry Research Scientists

Gilead Sciences, a pioneer in the field of genetic targeting, is designing novel compounds that selectively inhibit gene expression for use in human therapeutics. Talented, highly motivated individuals should apply.

Ph.D. Molecular and Cellular Biologists with strong nucleic acid-related research experience are sought to study the regulation of cellular and viral gene expression using compounds that interact directly with DNA and RNA. Cellular recognition, uptake and transport of exogenous compounds is also an area of concentration.

Ph.D. Organic Chemists with strong synthetic research experience are sought to join our chemistry group in developing novel heterocyclic compounds and oligonucleotide derivatives.

Gilead Sciences offers a challenging research environment with excellent salary, benefits and location in the San Francisco Bay Area. Strict confidentiality is assured.

Please send C.V. and reference information to: Jeffrey Bird, Ph.D., Gilead Sciences, Inc., 344 Lakeside Drive, Foster City, CA 94404. Please refer to this ad in your correspondence.

**GILEAD**  
S C I E N C E S

# CHIEF, LABORATORY OF MOLECULAR GENETICS

## NATIONAL INSTITUTES OF HEALTH

### PUBLIC HEALTH SERVICE DEPARTMENT OF HEALTH AND HUMAN SERVICES

The Intramural Research Program of the National Institute on Aging (NIA), Baltimore, Maryland invites nominations and applications for the position of Chief, Laboratory of Molecular Genetics. This is a Civil Service Position with a salary range of \$57,158 to \$74,303 per annum depending upon qualifications. Candidates may be eligible for Physician's Comparability Allowance up to \$20,000 per year. Alternatively, candidates may be eligible for appointment in the Commissioned Corps of the U.S. Public Health Service.

The Chief of the Laboratory of Molecular Genetics is responsible for planning, directing and conducting research programs which use molecular and genetic approaches to the study of aging and related processes; for recruiting staff and providing professional leadership for senior staff in their projects; and for originating, designing, and conducting independent and collaborative research on age and disease related alterations in the structure and regulation of genes.

Applicants must have a Doctoral degree with a record of outstanding scientific accomplishment in the field of Molecular Genetics. In addition, applicants should possess qualifications that demonstrate competence in executive level management and leadership ability.

Further information may be obtained by contacting Ms. Barbara Hughes at (301) 550-1733. An Application for Federal Employment (SF-171) with a current curriculum vitae and bibliography should be submitted to:

Personnel Office, Gerontology  
Research Center  
National Institute on Aging  
4940 Eastern Avenue  
Baltimore, Maryland 21224.



**APPLICATIONS MUST BE POSTMARKED NO  
LATER THAN MAY 31, 1989.**

All qualified candidates will receive consideration without regard to race, religion, color, sex, age, national origin, lawful political affiliation, marital status, union membership, or nondisqualifying physical or mental handicap.

U.S. Citizenship is required.

NIH IS AN EQUAL OPPORTUNITY EMPLOYER

#### ENGINEERS

EG&G Idaho, Inc., the prime operating contractor for the Department of Energy at the Idaho National Engineering Laboratory, has openings for Engineers with the following disciplines.

### PROGRAM MANAGEMENT/ PROJECT ENGINEER POSITIONS RADIATION/CIVIL/CHEMICAL/ MECHANICAL/ENVIRONMENTAL/ HEALTH PHYSICS ENGINEERS

Experience is needed in one or more of the following areas:

- EPA regulated waste cleanups
- Site Investigation/Remedial Design
- Design of Remote Handling and Segregation Systems and components for Radioactive/Hazardous Waste Handling Systems
- Air Pollution Abatement Design
- Feasibility Studies in the Remediation/Treatment of Contaminated Soils and Groundwater
- Field Engineering Oversight of Environmental Subcontractors
- Transuranic Waste
- Waste Generators
- Non-Destructive Engineering
- Toxicology
- Thermal Technology
- NRC Licensing/Waste Management

### REGULATORY COMPLIANCE/ ENVIRONMENTAL PROJECT MANAGEMENT/RISK AND SAFETY ASSESSMENT ENGINEERS

Experience is needed in one or more of the following areas:

- Environmental Auditing
- Project Planning for Site Remediation Activities
- Risk Assessment for Hazardous/Radioactive Materials/Waste Handling/Packaging and Characterization
- Environmental Regulatory Interpretation and Application (RCRA, CERCLA, NEPA, TSCA Regulations)
- Low-Level Radioactive Waste

All positions require a B.S. or M.S. Management experience in projects of \$10 million or greater and line management experience preferred. Experience with other DOE facilities is a plus but not required. Travel to off-site projects may be required for some positions.

### MANY OTHER POSITIONS AVAILABLE

The INEL is located in an outdoor person's paradise and is within two hours drive of three National Parks (Yellowstone, Teton, and Craters of the Moon). The area offers low cost, easy-access camping, hiking, fishing, hunting, white water kayak/canoe/raft and sailing. University extension courses are offered on the main building grounds. There is opportunity for involvement in the opera, the symphony, community theatre and community arts.

**TO REPLY PLEASE  
CALL COLLECT 1-208-526-0525  
MONDAY - FRIDAY BETWEEN  
8:30 AM-4:30 PM MOUNTAIN TIME**

If you prefer you may send your resume, with salary history, to **Employment Services, (TB-114)**, EG&G Idaho, Inc., P.O. Box 1625, Idaho Falls, Idaho 83415-3127. We are an Equal Opportunity Employer M/F/H/V. U.S. Citizenship required.



## POSITIONS OPEN

**OBSERVATORY SOFTWARE** (fixed-term position). A software engineer is required to work on the James Clerk Maxwell Telescope at the Joint Astronomy Centre (JAC). The telescope is a state-of-the-art 15-m dish optimised to work at submillimeter wavelengths; it is sited on the summit of Mauna Kea and is operated by the JAC on behalf of the British, Canadian and Dutch governments. The computers (all VAX/VMS) form a network and are used to control the telescope and its instruments, to acquire and reduce astronomical data, and for sundry other applications.

A strong working knowledge of FORTRAN 77 and data reduction methods is essential, a familiarity with VAX/VMS and real-time instrument control desirable, and a background in millimeter or radio astronomy advantageous. Suitable minimum qualifications would be a Master's degree in computer science, astronomy, or physics, or equivalent work experience. Before being offered employment, the successful applicant will be required to obtain medical clearance for work at altitude (4200 m). The appointment will be for a fixed term of 2 years and the salary will be commensurate with experience. *The JAC is an Equal Opportunity Employer.* Applicants should submit a full curriculum vitae and three letters of reference, all to arrive before 1 July 1989, to: Ms. M. A. Johnston, Joint Astronomy Centre, 665 Komohana Street, Hilo, HI 96720.

**POSTDOCTORAL FELLOWSHIP** available immediately (salary plus benefits total \$30,000 per year) to study the mechanistic basis of increased clearance of drugs in cystic fibrosis. Background in drug metabolism, biochemistry, pharmacology or pharmacokinetics is desirable. Experience with isolation of metabolic enzymes (e.g., P-450), development and use of cDNA probes of P-450 enzymes or study of transport and metabolism of drugs using in vitro cell culture techniques is preferred. The position offers a unique opportunity to work in a multidisciplinary environment. Send curriculum vitae and three letters of references to: Dr. J. D. Unadkat, Department of Pharmaceutics, BG-20, University of Washington, Seattle, WA 98195. Telephone: 206-545-2869. *An Equal Opportunity / Affirmative Action Employer.*

## POSITIONS OPEN

Forty hours, 9 a.m. to 5 p.m. **PH.D. PHARMACEUTICAL CHEMISTRY** (Medicinal Chemistry) and 2 years of training—postdoctoral studies. Will design, synthesize and supervise synthesis of new "soft" pharmaceuticals for topical application to eye. Optimize therapeutic value and synthesis of potential candidates for IND. The new drugs fall into four categories: soft anti-inflammatory glucocorticoids; soft-beta adrenergic blocking agents with masked pharmacophore; soft beta-adrenergic blocking agents of inactive metabolite type; soft mydriatics. In beginning soft-glucocorticoids will be emphasized. Must show proficiency in design of soft drugs (at least 3 years in field). Experience in steroid chemistry. Strong knowledge of analytical techniques and drug screening tests in animal models. \$35,000 per year. Job is in Alachua. Résumés to: **Job Service of Florida, 1307 North Monroe Street, Tallahassee, FL 32303. JO# FL-0087199.**

**POSTDOCTORAL FELLOWSHIP** available immediately to study host defense mechanisms which function in invasive bacterial disease. Specific projects include: activation of NK and T-cells by bacteria and in vivo production of IFN by bacteria-infected cells. Immunology and/or molecular biology experience helpful. Submit curriculum vitae and references to: G. Klimpel/D. Niesel, Department of Microbiology, University of Texas Medical Branch, Galveston, TX 77550.

*UTMB is an Equal Opportunity M/F/H/V Affirmative Action Employer. UTMB hires only individuals authorized to work in the United States.*

## POSTDOCTORAL FELLOWSHIP IMMUNOLOGY

Fellowships in cellular/molecular immunology are available at the University of Colorado School of Medicine, Denver. T-cell biology is stressed. Applicants should have experience in cellular and/or molecular immunology, and should be citizens of the U.S. or otherwise eligible for a USPHS training grant. Submit curriculum vitae and names of three references to: Drs. J. W. Moorhead or H. N. Claman, Box B-164, University of Colorado Medical School, Denver, CO 80262. *An Equal Opportunity/Affirmative Action Employer.*

## POSITIONS OPEN

**POSTDOCTORAL FELLOW**—University of North Carolina at Chapel Hill. Protein Chemistry and Enzymology of Blood Coagulation. Completion of advanced degree (Ph.D., M.D. and/or D.D.S.) required. Prefer background in protein chemistry, site-specific mutagenesis, PCR reaction, enzyme kinetics, receptor characterization, or protein solution conformational analysis. Send curriculum vitae and letter of recommendation to: **Dr. Roger Lundblad, Dental Research Center, CB#7455, School of Dentistry, University of North Carolina at Chapel Hill, Chapel Hill, NC 27599-7455. Equal Opportunity Employer.**

Position available for a **POSTDOCTORAL FELLOW** (M.D., Ph.D.) interested in experimental carcinogenesis, and having experience with molecular biology. Please submit curriculum vitae and three letters of reference to: **Ms. A. Roman-Koller, Research Administrator, University of Pittsburgh, Department of Pathology, School of Medicine, 776 Scaife Hall, Pittsburgh, PA 15261. The University of Pittsburgh is an Equal Opportunity/Affirmative Action Employer.**

## POSTDOCTORAL FELLOWSHIPS DEPARTMENT OF BIOCHEMISTRY UNIVERSITY OF WASHINGTON

Two postdoctoral positions are available to study the regulation of expression of collagen and thrombospondin genes. Research will focus on (i) protein-DNA interactions and the isolation of transacting factors; (ii) modulation of gene expression by growth factors and cytokines; (iii) role of thrombospondin in regulation of vascular smooth muscle cell growth; (iv) targeted gene disruption by homologous recombination. Experience in eukaryotic molecular biology and/or protein chemistry/cell biology is desirable. Send curriculum vitae, a statement of research interests, and three letters of reference to:

**Dr. Paul Bornstein  
Department of Biochemistry, SJ-70  
University of Washington  
Seattle, WA 98195**

## Associate Senior Investigator/ Senior Investigator

Smith Kline and French Laboratories, a leader in the pharmaceutical industry, is seeking Associate Senior Investigator/Senior Investigator level scientists for our Biological Process Sciences Department. The successful candidate will manage and carry out large scale purification process development of recombinant proteins.

Qualified applicants will possess:

- Ph.D. in Chemical, Biochemical, or Biological Sciences with 3 or more years of relevant experience in large scale purification of biologically active proteins.
- Experience in design and scale up of purification processes for recombinant proteins derived from microbial fermentation or cell culture technologies.
- Thorough knowledge of protein chemistry including experience in protein folding techniques.
- Experience in analytical and preparative HPLC desired.

We offer an excellent compensation, benefits and relocation package, as well as opportunities for personal and professional growth. For confidential consideration, please forward your resume with background and experience to: Ms. Barbara J. Schwartz, Employment Administrator, S0104, Smith Kline & French Laboratories, P.O. Box 1539, King of Prussia, PA 19406-0939. We are an Equal Opportunity Employer, M/F/H/V.

**SK&F**  
A SmithKline Beckman Company

## Molecular Biologists/Virologists

Wyeth-Ayerst, a recognized world leader in the production of a wide range of highly advanced pharmaceuticals, has an opening for a research assistant in its Microbiology and Biotechnology Division.

We are currently seeking a scientist to prepare recombinant viral vectors. To qualify, you must have a strong background in molecular biology and virology. Experience with most areas of recombinant DNA technology including construction of recombinant viral vehicles, DNA sequencing, Northern and Southern hybridization analysis is desirable. A BS/MS and 3+ years of relevant experience are essential.

In return, we offer a challenging progressive environment coupled with a highly competitive salary and comprehensive benefits. For confidential consideration, forward your resume with salary requirements to: **Recruitment Manager, Position #29, Wyeth-Ayerst Laboratories, P.O. Box 8299, Philadelphia, PA 19101. Equal Opportunity Employer, M/F/H/V responses encouraged.**

**WYETH  
AYERST**



IMMUNEX CORPORATION, a Seattle-based biotechnology company at the forefront of research and development in immune regulation, has a number of positions open as a result of an expansion in our research activities. We are recruiting:

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## STAFF SCIENTISTS AND POSTDOCTORAL FELLOWS

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with experience in the following areas:

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### Mammalian Cell Fermentation

Applicants are needed to contribute to the mammalian cell fermentation research program. The position requires a background in mammalian cellular physiology, biochemical engineering or fermentation. Familiarity with a variety of culturing methods, cell culture scale-up, and downstream processing is desirable.

### Process Development/ Biochemical Engineers

Staff Scientists are required to work on purification scale-up and characterization of recombinant proteins expressed in microbial and mammalian cell hosts.

### Experimental Hematology

Researchers are needed for development of *in vitro* and *in vivo* models of hematopoiesis. Particular emphasis will be placed on the establishment of assays having the capacity to detect novel hematopoietic growth factors.

### Proteolytic Enzymes

A scientist is needed to purify and characterize therapeutically important mammalian and microbial proteases in conjunction with a team providing recombinant proteases and protein engineering for structure to function studies. Preference will be given to candidates with experience in the design of protease substrates and inhibitors coupled with a strong background in determining enzyme kinetic and thermodynamic constants.

### Immunology

The Dept. of Immunology is recruiting scientists with expertise in the following areas: 1. Autoimmunity. Must have extensive background and working model(s) for autoimmune diseases; and, 2. Immunologist with extensive expertise in monocyte/macrophage biology. Working familiarity with human cells is preferred but not essential.

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Staff Scientist candidates should hold a PhD degree and possess significant postdoctoral experience demonstrating independent research skill and creativity and will have demonstrated an ability to work in a collaborative environment. Successful candidates for postdoctoral fellowship positions should have completed a PhD degree and no more than two years' postdoctoral training.

Immunex Corporation offers excellent opportunity for career development as well as competitive salaries and an excellent benefits package. For consideration, please submit CV., names of three references, and a list of publications to: **Immunex Corporation, Human Resources Director, 51 University Street, Seattle, WA 98101.** Immunex is an equal opportunity employer m/f/h.

# IMMUNEX

## POSITIONS OPEN

**TWO POSTDOCTORAL FELLOWSHIP POSITIONS** are available immediately for Ph.D.'s or M.D.'s interested in investigating the function of growth factor receptors in normal and malignant cells, using genetic, biochemical, and immunologic approaches. The laboratory is especially interested in EGF and related molecules. Skills in molecular biology will be particularly valuable. Salary based on level of experience. Send curriculum vitae with names and addresses of three references by 30 May 1989 to: **John Mendelsohn, Laboratory of Receptor Biology, Memorial Sloan-Kettering Cancer Center, 1275 York Avenue, New York, NY 10021.**

**POSTDOCTORAL POSITION** in plant physiology and biochemistry to study physiological, biochemical, and genetic regulation of the synthesis of mixed-linked  $\beta$ -glucans in oat endosperm cell walls. Experience in isolation and assay of membrane-bound enzymes and/or carbohydrate chemistry is desirable. Salary: \$28,852. Send curriculum vitae and names of three references to: **Dr. David M. Peterson, Agricultural Research Service, 501 North Walnut Street, Madison, WI 53705.**

**POSTDOCTORAL POSITION** available immediately to study the molecular mechanism of genetic deletion in bacteriophage T7. Experience in microbial genetics and recombinant DNA techniques highly desirable. Send curriculum vitae and the names and addresses of three references to: **Dr. Warren Masker, Department of Biochemistry, Temple University School of Medicine, 3420 North Broad Street, Philadelphia, PA 19140. An Equal Opportunity Employer.**

**POSTDOCTORAL POSITION** available immediately for research on the neurobiology of Alzheimer's disease, Parkinson's disease, and aging. Three-year appointment. Experience or interest in neurobiology, immunocytochemistry, neurotrophic factors and molecular biology desired. Send curriculum vitae, brief statement of research interests and names of three references to: **E. J. Mufson, Ph.D., Institute for Biogerontology Research, P.O. Box 1278, Sun City, AZ 85372.**

**POSTDOCTORAL POSITION** available 1 August 1989 to study binding of compounds to plasma membranes as part of an investigation of transmembrane signalling in marine fouling diatoms. Experience in membrane biology required. Initial salary \$19,000 to \$21,000. One-year appointment, renewable for another year. Send curriculum vitae and the names of three referees to: **K. E. Cooksey, Department of Microbiology, Montana State University, Bozeman, MT 59717. Telephone: 406-994-6136. MSU is an Affirmative Action/Equal Opportunity Employer. Screening begins 26 May 1989 and continues until hire is made.**

**POSTDOCTORAL POSITION.** Position available to study the metabolism of chemical carcinogens by cytochrome P-450. Opportunities are available to study the purification of different forms of cytochrome P-450, to study their regulation by immunochemical techniques, and to study their role in the metabolism of xenobiotics and steroid hormones. The position will be available 15 June 1989, and will pay \$21,000 per annum. Send curriculum vitae to: **Andrew Parkinson, Ph.D., Department of Pharmacology, Toxicology and Therapeutics, University of Kansas Medical Center, Kansas City, KS 66103. Telephone: 913-588-7512. Affirmative Action/Equal Opportunity Employer.**

**POSTDOCTORAL POSITION** available at the University of Texas beginning September 1989, through an NIMH training grant that focuses on the neurobiological bases of species-typical behavior. We are especially interested in individuals whose intended research integrates physiological, ecological, or evolutionary interests with behavioral studies. Training faculty in the Zoology and Psychology Departments include: **E. Bigler, F. H. Bronson, J. J. Bull, D. Crews, M. Domjan, M. J. Ryan, D. D. Thiessen, T. Schallert, and W. Wilczynski.** Application deadline is 1 June 1989. Applicants should send curriculum vitae, list of references, and statement of research interests indicating prospective faculty sponsor to: **D. Crews, Department of Zoology, University of Texas, Austin, TX 78712.**

## POSITIONS OPEN

**POSTDOCTORAL POSITION.** Available immediately to study B cell development and Ig gene expression in autoimmune prone mice. Experience in cellular and molecular immunology desirable. Send curriculum vitae and arrange to have four letters of reference sent to: **Dr. July Teale, Department of Microbiology, University of Texas Health Science Center, 7703 Floyd Curl Drive, San Antonio, TX 78284-7758. The UTHSCSA is an Affirmative/Equal Opportunity Employer.**

### POSTDOCTORAL POSITION THE UNIVERSITY OF TEXAS M. D. ANDERSON CANCER CENTER HOUSTON, TEXAS

A postdoctoral position is available 1 September 1989, for a laboratory studying gene expression during sea urchin embryogenesis. Current projects include: analysis of transcription factors required for cell-type-specific expression; structure and function of embryonic calcium binding proteins; characterization of a novel protein associated with the ciliary membrane; and the molecular events of gastrulation.

Stipends are available for up to 4 years. Please send curriculum vitae, a description of relevant research experience, and the names of three references to:

**William Klein  
Department of Biochemistry and  
Molecular Biology, Box 117  
The University of Texas  
M. D. Anderson Cancer Center  
1515 Holcombe Boulevard  
Houston, TX 77030**

*An Equal Employment/Affirmative Action Employer.*

**POSTDOCTORAL POSITION** available to investigate DNA, RNA, collagen spectroscopy, laser emission patterns which selectively target these macromolecules, and the biochemical mechanisms underlying laser modulation of cell function during wound healing and ablation of diseased tissue. Studies conducted at biophysical, tissue culture, and in vivo levels using tunable dye and free electron lasers. Send curriculum vitae and reprints to: **Dr. Robert Ossoff, Otolaryngology, MCN-S6441, Vanderbilt Medical Center, Nashville, TN 37232.**

**POSTDOCTORAL POSITION**—Plant molecular biology and crop improvement. Expertise in molecular biology and biochemistry needed to study plant regulatory elements and their interaction with trans-acting factors. Send curriculum vitae, statement of research interests and letters of reference to: **Dr. Gynheung An, Institute of Biological Chemistry, Washington State University, Pullman, WA 99164-6340. An Equal Opportunity/Affirmative Action Employer.**

**POSTDOCTORAL POSITION IN BIOCHEMICAL PHARMACOLOGY** for recent Ph.D. interested in the biochemical modulation of anticancer drug activity. Research in the use of nucleoside transport inhibitors to increase the selectivity of antimetabolites against human tumors growing in culture or as xenografts in mice. [*J. Biol. Chem.* 263, 19419 (1989)] Salary \$22,000 to \$25,000. Send curriculum vitae and names of four referees to: **Judith A. Belt, Ph.D., Department of Biochemical Pharmacology, St. Jude Children's Research Hospital, 332 North Lauderdale, P.O. Box 318, Memphis, TN 38101.**

*An Equal Opportunity/Affirmative Action Employer.*

### POSTDOCTORAL POSITION IN MOLECULAR NEUROBIOLOGY

An NIH-funded position is available to study the assembly of nicotinic acetylcholine receptors in *Xenopus* oocytes following injection of subunit-specific, in vitro-transcribed, mRNAs [see *PNAS* 85, 8717-8721 (1982)]. The project will focus on the role of individual N-linked glycosylation sites in the assembly, targeting, and function of receptors through the use of site-directed mutagenesis. Experience in biochemistry or molecular biology is desirable, but not essential. Please send curriculum vitae and the names of three references to: **Dr. Michael M. White, Department of Pharmacology, University of Pennsylvania School of Medicine, Philadelphia, PA 19104.**

## POSITIONS OPEN

**POSTDOCTORAL POSITION** available immediately to study enzymatic mechanisms and the regulation of kinetoplast DNA minicircle replication [See: *D. S. Ray, Plasmid* 17, 177-190 (1987); *Melendy et al., Cell* 55, 1083-1088 (1988)]. Research program includes the identification and analysis of the proteins and genes involved in the replication of minicircle DNA, the investigation of the cell cycle regulation of minicircle replication and the structure and mechanism of segregation of kinetoplast DNA networks. Applications should include curriculum vitae, names and addresses of three references and pertinent publications. Submit to: **Dr. Dan S. Ray, Molecular Biology Institute, University of California, Los Angeles, CA 90024. The University of California is an Equal Opportunity/Affirmative Action Employer.**

### POSTDOCTORAL POSITION IN MOLECULAR NEUROBIOLOGY

An NIH-funded position is available as part of an interdisciplinary Program Project to study the molecular biology of angiotensin receptors using pharmacology and recombinant DNA technology. The project will focus initially on obtaining cDNA clones for various subtypes of the receptor, and then subsequently on the control of receptor gene expression. Experience in biochemistry or molecular biology is desirable. Please send curriculum vitae and the names of three references to: **Drs. Michael M. White and Steven J. Fluharty, Department of Pharmacology, University of Pennsylvania School of Medicine, Philadelphia, PA 19104.**

**POSTDOCTORAL POSITION IN NEUROSCIENCE** available immediately with a group studying the expression of transmitter receptors during synaptogenesis. The applicant should have a Ph.D. and experience in molecular biology. Send curriculum vitae and names of two references to: **Andrej Rotter, Ph.D., Department of Pharmacology, The Ohio State University, 1645 Neil Avenue, Columbus, OH 43210. Affirmative Action/Equal Opportunity Employer.**

### POSTDOCTORAL POSITION IN PARIS

for research on regulation of expression of glucose transporter gene in cultured adipocytes and models of obesity. Experience with molecular biology techniques desired. Available: June 1989 for 1 year (extension possible). Salary 11,000 to 14,000 FF per month (net earning). Apply with curriculum vitae to: **Dr. Marcelle Lavau, INSERM U.177, 15 rue de l'Ecole de Médecine, 75006 Paris, France.**

**POSTDOCTORAL POSITION/NEUROPHARMACOLOGY.** NIH-funded position available immediately to study pyrethroid insecticide modulation of GABA<sub>A</sub> receptor mechanisms. Experience with quantitative receptor autoradiography and/or primary cell culture methods desirable. Salary consistent with NIH guidelines. Send curriculum vitae and arrange three letters of recommendation to be sent by 15 June 1989, to: **T. F. Murray, Ph.D., College of Pharmacy, Oregon State University, Corvallis, OR 97331-3507.**

*Oregon State University is an Equal Opportunity/Affirmative Action Employer and complies with Section 504 of the Rehabilitation Act of 1973. Oregon State University has a policy of being responsive to the needs of dual-career couples.*

**POSTDOCTORAL POSITION.** Available in the fall of 1989 to study the crystallization kinetics of peptides and proteins and the segregation of additives. Background in biophysics, physical biochemistry and familiarity with the characterization of crystal properties is desirable. Position available for 2 to 3 years. Please send curriculum vitae and three letters of reference to: **Dr. Nair Rodriguez, College of Pharmacy, The University of Michigan, Ann Arbor, MI 48109-1065. Affirmative Action/Equal Opportunity Employer.**

**POSTDOCTORAL POSITIONS** available immediately to work on the molecular biology and immunology of the parasites that cause the major tropical diseases. Send résumé and three letters of reference to: **Dr. John E. Donelson, Department of Biochemistry, University of Iowa, Iowa City, IA 52242. The University of Iowa is an Equal Opportunity/Affirmative Action Employer.**

## Executive Director

### Commission on Behavioral and Social Sciences and Education

The National Research Council (NRC), the principal operating arm of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine, a nationally prominent non-profit, non-government institution located in Washington, D.C., invites applicants for the position of Executive Director of the Commission on Behavioral and Social Sciences and Education. The Commission is a major source of expertise and analysis of issues and problems arising in the fields. A staff of approximately 50 professionals supports the work of the committees and panels of the Commission.

The Executive Director manages the Commission as one of eight major program units of the NRC. His or her responsibilities include: program initiation; administration and review; development of funding and budgets; and recruitment and supervision of staff.

Applicants should have the following qualifications: Ph.D. or equivalent in one of the behavioral or social sciences and at least 15 years of experience in research, research administration, or the application of research to public policy; familiarity with U.S. Government sponsorship of research in the social sciences and education and the Government's need for related advice and studies; and demonstrated staff and financial management capability.



Applicants should send résumé to:  
**Executive Officer**  
**National Research Council**  
2101 Constitution Avenue, N.W.,  
Washington, D.C. 20418.

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## Postdoctoral Researchers

Genentech, Inc., a leader in the field of biotechnology, has added a dimension to our existing postdoctoral training program. This new program, administered by Dr. David Botstein, features opportunities for research and training across the whole spectrum of Research and Development. A number of positions is currently available in this new program.

Genentech is committed to maintaining a standard of excellence that encourages creativity and provides personal and professional growth. Many postdoctoral alumni have gone on to academic positions at major research universities, or have gone on to research positions in the biotechnology industry.

We expect Genentech Postdoctoral Fellows to conduct independent research in the areas of our scientific interests, publish in the leading scientific journals, attend and present their work at scientific conferences, and maintain close ties with the academic community.

Genentech offers an attractive salary and benefits package coupled with the opportunity to make a significant contribution to our organization. For consideration, please send your resume to: Genentech, Inc., Attn: Yvonne Davino, Human Resources Dept. DB, 460 Point San Bruno Blvd., South San Francisco, CA 94080. We actively support Affirmative Action and Equal Opportunity. Women and minorities are encouraged to apply.

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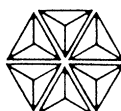
## Metabolism and Pharmacokinetics

The Bristol-Myers Pharmaceutical Research and Development Division has career opportunities in its Metabolism/Pharmacokinetics Group located in Syracuse, New York. This Group plays a major role in drug development and worldwide drug registration by developing pharmacokinetic, metabolic and biopharmaceutical information from pre-clinical and clinical trials of candidate drugs targeted for treatment of cancer, infectious diseases, cardiovascular diseases, and central nervous system disorders.

### RESEARCH SCIENTISTS/PhDs

To design and implement studies to determine the pharmacokinetic and metabolic behavior of candidate drugs in animals and humans. Must have ability to lead and motivate a professional staff. Qualifications include 0-3 years post doctoral experience in drug metabolism and pharmacokinetics, identifying/quantifying drugs and their metabolites in biological fluids. PhD in Pharmaceutical Sciences, Pharmacology, Biochemistry or related field required. Computer literacy is essential.

We offer a competitive compensation package and a comprehensive benefit program which includes relocation assistance to a superb upstate NYC living area. Interested candidates should submit a resume indicating area of interest, salary history and requirement, to:  
EMPLOYMENT MANAGER.



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**RESEARCH AND**  
**DEVELOPMENT DIVISION**

P.O. Box 4755, Syracuse, New York 13221-4755

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## RESEARCH POSITIONS

SIBIA is an established biotechnology company involved in a wide spectrum of innovative research programs. SIBIA, with a staff comprised of leading scientific members, provides an exceptional scientific research environment in which to work, near the ocean in La Jolla. Applications are requested for the following positions:

### Ph.D. MICROBIOLOGY

Excellent position available for a Ph.D. with training and abilities in general microbiology, particularly of anaerobes; should also have abilities in microbial physiology and related analytical biochemistry. Work will include research in microbial ecology of fresh fish and salt water systems. Candidate should also have interest in broad areas of microbiology.

### Ph.D. MOLECULAR BIOLOGY / RETROVIROLOGY

Position involves new tools to study the epidemiology of HIV-1 infection and the viral genes responsible for cis and trans regulatory function. Experience in the growth of HIV-1 or animal retrovirus nucleic acid hybridization and cDNA cloning. At least a 1-year postdoctoral position preferred.

### Ph.D. BIO-ORGANIC CHEMISTRY

Ph.D. in Chemistry with 1-2 years postdoctoral training. Experience in synthetic organic chemistry, peptide chemistry, and enzymology. Responsibilities will include the design and synthesis of peptide analogs directed toward development of new pharmaceuticals.

We offer a comprehensive benefits package and competitive salaries. For confidential consideration, please submit your curriculum vitae, a statement of research interests and goals, and the names of three professional references to: SIBIA, Dept. 3, 505 Coast Boulevard South, La Jolla, CA 92037.

SIBIA

The Salk Institute  
Biotechnology/Industrial Associates, Inc.

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## POSITIONS OPEN

**POSTDOCTORAL POSITION—REGULATION OF DIGESTIVE ENZYME SYNTHESIS.** Position available immediately to study the effects of alcohol consumption on the mechanisms that control the synthesis and secretion of pancreatic digestive enzymes. The laboratory is well equipped and well funded and has a team of researchers with expertise in the areas of biochemistry, biophysics, physiology, and pathology. Prior experience in the area of molecular biology is desirable. Send curriculum vitae and names of three references to: **Dr. B. C. Ponnappa, 271 Jefferson Alumni Hall, Thomas Jefferson University, Philadelphia, PA 19107.** *Equal Opportunity Employer.*

**POSTDOCTORAL POSITIONS** available for recent Ph.D.'s to participate in an active research program on the structure, regulation and expression of DNA repair genes in human cells. Current efforts focus on the transcriptional expression of DNA repair genes and the intracellular localization of DNA repair enzymes in relation to DNA damage and repair. Submit curriculum vitae and the names of three references to: **Dr. Michael A. Sirover, Fels Institute for Cancer Research and Molecular Biology, Temple University School of Medicine, 3420 North Broad Street, Philadelphia, PA 19140.** *An Equal Opportunity/Affirmative Action Employer.*

**POSTDOCTORAL POSITIONS** available immediately in human immunology. Research interests include: immunoregulation in human renal and hepatic transplantation; structure-function relationship of non-MHC antigens of human kidneys and endothelial cells; and biochemical and molecular characterization of lymphoid antigens and receptors. Experience in cellular immunology and/or molecular biology is desirable. Send résumé, a brief statement of research interests, and names of references to: **Dr. T. Mohanakumar, Washington University Medical Center, Departments of Surgery and Pathology, Box 8109, St. Louis, MO 63110.**

## POSTDOCTORAL POSITIONS BEHAVIORAL NEUROSCIENCE

Two positions are available as of 1 July 1989 to study the functional neuroanatomy, neurochemistry and cellular basis of brain reinforcement mechanisms. A multidisciplinary approach to the understanding of the nature of and interactions between drugs of abuse, rewarding brain stimulation and natural reinforcers is emphasized. Applicants are sought with backgrounds in neuropharmacology, neurophysiology and/or physiologic psychology. The Medical College of Wisconsin is experiencing rapid expansion in the neurosciences and provides excellent research facilities and opportunities for interaction between basic science and clinical faculty. Send curriculum vitae, three letters of recommendation and a statement of research interests to: **Dr. Elliot A. Stein, Department of Psychiatry, Medical College of Wisconsin, 9455 Watertown Plank Road, Milwaukee, WI 53226.** *Affirmative Action/Equal Opportunity Employer M/F/H.*

**POSTDOCTORAL POSITIONS: MICROBIAL ECOLOGY.** Apply immunological methods to examine nitrogenase and toxins in aquatic cyanobacteria. **RIVER ECOLOGY.** Examine attached algal nutrient deficiencies and major nutrient transformations in a large river. Salaries \$22,000/12 months, chances of additional funding good. Send statement of interest, résumé, and two letters of reference to: **Dr. J. Priscu, Department of Biology, Montana State University, Bozeman, MT 59717.** *Affirmative Action Employer.*

**TWO POSTDOCTORAL POSITIONS IN PROTEIN CRYSTALLOGRAPHY AND ENGINEERING.** One position is for a macromolecular crystallographer to work on cytochrome P-450 and related systems. The second is for a biochemist/biochemist interested in working with molecular biologists and crystallographers on heme enzyme protein engineering. Contact: **Dr. T. L. Poulos, University of Maryland's Center for Advanced Research in Biotechnology, 9600 Gudelsky Drive, Rockville, MD 20850.**

## POSITIONS OPEN

**POSTDOCTORAL POSITIONS** currently available to study the biochemistry and physiology of the 70-kD class of heat-shock proteins. This class of proteins includes the brain uncoating ATPase which dissociates clathrin from coated vesicles during endocytosis. The focus of the laboratory is on the characterization of the enzymatic properties of the 70-kD heat-shock proteins, in particular, the properties of the uncoating ATPase which we are presently cloning. Additional information may be obtained from: **Dr. Lois Greene on 301-496-1228.** Please send curriculum vitae and three letters of recommendation to: **Ms. Queen Covington, NIH, Building 31, Room 5A32, 9000 Rockville Pike, Bethesda, MD 20892;** or call on: **301-496-6477.** *NIH is an Equal Opportunity Employer.*

**TWO POSTDOCTORAL POSITIONS** available in the Artificial Organ/Biomaterial Program at Brown University to study transplantation of encapsulated neurotransmitter secreting cells, nerve regeneration through synthetic guidance channels or tissue-material interactions in bioresorbable vascular grafts. Experience with neurobiology techniques, tissue-material interactions, or cell biology desired. Stimulating multidisciplinary academic environment within a graduate program with extensive laboratory facilities. Please send curriculum vitae and a list of three references to: **Dr. Patrick Aebischer or Dr. Pierre M. Galletti, Artificial Organ Laboratory, Box G, Providence, RI 02912.** Telephone: **401-863-3262.** The deadline for receipt of application materials is 19 May 1989. *Brown University is an Equal Opportunity/Affirmative Action Employer.*

**POSTDOCTORAL RESEARCH ASSOCIATE:** Position available immediately to join a team investigating bovine immunodeficiency-like virus infection in cattle. Relevant experience in recombinant DNA, immunology, or pathology desirable. This NIH-funded project provides a unique opportunity for research contribution in a relatively unexplored animal model of AIDS. Send curriculum vitae and three references to: **James A. Roth, D.V.M., Ph.D., Department of Veterinary Microbiology, Iowa State University, Ames, IA 50011.**

**POSTDOCTORAL RESEARCH ASSOCIATE—Mechanism of HIV Cytotoxicity.** Position available to participate in studies on mechanism of HIV-mediated cytopathicity and mechanisms of viral persistence in AIDS [Stevenson *et al.*, *Cell* 53, 483-496 (1988)]. Experience in molecular biology is desirable. Curriculum vitae and three letters of recommendation to: **Mario Stevenson, Ph.D., Pathology and Microbiology, University of Nebraska Medical Center, 42nd and Dewey Avenue, Omaha, NE 68105** by 1 August 1989. *An Affirmative Action/Equal Opportunity Employer.*

**POSTDOCTORAL/RESEARCH ASSOCIATE** position available to study RNA Processing in animal cells and viruses. Background either in biochemistry, microbiology or molecular biology needed. Experience in recombinant DNA technology desirable. Salary negotiable. Send résumé with two names for references to: **Dr. Mary Edmonds, Department of Biological Sciences, University of Pittsburgh, Pittsburgh, PA 15260.** *Equal Opportunity/Affirmative Action Employer.*

## POSTDOCTORAL RESEARCH ASSOCIATE IN IMMUNOLOGY

A position is available beginning 1 October 1989 for 2 to 3 years to study murine B lymphocyte differentiation, structure and function of differentiation antigens, or autoimmunity. Please send curriculum vitae before 1 June 1989 to: **Dr. Hidetaka Yakura, Department of Microbiology, Tokyo Metropolitan Institute for Neurosciences, 2-6 Musashidai, Fuchu, Tokyo 183, Japan.**

## POSTDOCTORAL RESEARCH ASSOCIATES

Positions are available for candidates with experience in smooth muscle physiology, biochemistry, cell and molecular biology to work on eicosanoids regulation of human myometrial functions. Some experience in eicosanoids research would be helpful. Address inquiries to: **Dr. Ch. V. Rao, Department of Ob/Gyn, 438 MDR Building, University of Louisville, Louisville, KY 40292.**

## POSITIONS OPEN

## POSTDOCTORAL RESEARCH ASSOCIATE POPULATION ECOLOGY/ CONSERVATION BIOLOGY

Two-year postdoctoral position available to conduct research on population dynamics and population viability of the endangered red-cockaded woodpecker. The investigator will analyze long-term data of woodpecker fecundity, survivorship, and genetic variation to develop population viability assessments involving modeling population persistence in relation to demographic, environmental, and genetic variability. The ideal candidate will have demonstrated research capability in population modeling and the skills and inclination to communicate effectively with faculty and students in diverse departments as well as conservation managers. Starting salary is \$28,852 and applicants must be available no later than 1 October 1989. Applications will be accepted until 1 July 1989. *USDA Forest Service is an Equal Opportunity Employer. Women and minorities are encouraged to apply.* Send curriculum vitae and the names of three references to: **M. R. Lennartz, USDA Forest Service, Department of Forestry, Clemson University, Clemson, SC 29634-1003.**

## POSTDOCTORAL SCIENTIST— MOLECULAR NEUROBIOLOGY

The Center for Molecular and Behavioral Neuroscience at Rutgers, The State University of New Jersey, in Newark, and American Cyanamid's Research team located at Ramapo College, Mahwah, New Jersey, and the Department of Biological Sciences of Ramapo College seek a recent Ph.D. in molecular biology to clone and express neuro-receptors. Candidates with formal training in receptor mechanisms, cDNA cloning and expression vectors will be given preference. This unique position requires interfacing with corporate and academic scientists in a multidisciplinary Life Sciences research laboratory. Research will be performed at both the Ramapo College and Rutgers sites with input from the three principal institutions. Salary is commensurate with prior experience. Forward your curriculum vitae with names and addresses of three references to: **Rutgers/Cyanamid/Ramapo Committee, Center for Molecular and Behavioral Neuroscience, 195 University Avenue, Newark, NJ 07102.** *Affirmative Action/Equal Opportunity Employer.*

The Department of Chemistry, Yale University, invites applications for a tenured position at the level of **PROFESSOR** in the area of organic chemistry, especially as it relates with other areas of chemistry such as theory, materials science, and biochemistry. We are conducting a parallel search for those interested specifically in synthetic organic chemistry. An outstanding, established teacher-scholar is sought whose research interests will complement those of the current staff. The position is to be occupied in the academic year 1989 to 1990.

Applicants should submit curriculum vitae, and a list of publications to: **Professor Peter B. Moore, Chairman, Department of Chemistry, Yale University, 225 Prospect Street, P.O. Box 6666, New Haven, CT 06511-8118** before June 1989. *Yale University is an Equal Opportunity/Affirmative Action Employer.*

**PROFESSOR AND HEAD,** Department of Animal Sciences, University of Illinois at Urbana-Champaign, available 21 August 1989. Qualifications: Ph.D. in a discipline of the animal sciences; provide leadership for 51 faculty in various internationally recognized, extramurally-funded programs in animal, dairy and poultry sciences. Salary negotiable. Send a letter of application, résumé, and names/addresses of five references before 15 June 1989 to: **Dr. R. E. Ford, Chairman, Search Committee, N-519 Turner Hall, 1102 South Goodwin Avenue, Urbana, IL 61801.** Telephone: **217-333-3170.** *Affirmative Action/Equal Opportunity Employer.*

**RESEARCH ASSOCIATE:** Three positions are available to (i) synthesize and characterize water-displacing and ice-phobic polymers, (ii) prepare and characterize advanced protein-based graft polymers and (iii) prepare and characterize electrically conducting polymers. Salary commensurate with experience, support available for up to 3 years. Send résumé, three letters of reference to: **Dr. Semih Erhan, Director, Center for Protein Research, Albert Einstein Medical Center, York and Tabor Roads, Philadelphia, PA 19141.**





**ROCHE**

## **Postdoctoral Fellowships in Molecular Biology / Mammalian Development**

Positions are available in the Department of Dermatology and Oncology for postdoctoral fellows to study the effects of retinoids on mammalian embryonic development using molecular biological approaches. Experience in one or more of the following areas is desirable: embryology, cell biology, or molecular biology.

The positions will be initially for one year, with extensions foreseen for an additional year.

Interested individuals are invited to send a copy of their c.v., including a list of publications, and letters from three referees to the Personnel Department, quoting reference Science 73/89/WA.

F. Hoffmann-La Roche & Co. Limited Company,  
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## **ASSOCIATE RESEARCH SCIENTIST**

### **Cellular Biochemistry/ Molecular Biology**

Bristol-Myers' world headquarters for pharmaceutical research and development in Wallingford, Connecticut is a state-of-the-art facility created for the encouragement of professional achievement and interdisciplinary cooperation.

An excellent opportunity exists for an individual with an MS/BS in biochemistry, cell biology, molecular biology or related area with 2 to 5 years experience in molecular biology, biochemical, immunological and tissue culture techniques; including some/all of the following: chromatography, protein electrophoresis, fluorometry, ELISA and RIA. Position involves the study of peptide and protein growth factors, their receptors and signal transduction mechanisms in both tumor cells and lymphocytes.

Bristol-Myers offers sustained growth, highly competitive salaries, extensive benefits and career support. Our location is convenient to Connecticut cultural centers, New York and New England. To apply, please send resume to: **BRISTOL-MYERS COMPANY, Pharmaceutical Research & Development Division, Attn: MH307, P.O. Box 5101, 5 Research Parkway, Wallingford, CT 06492-7661. An Equal Opportunity Employer M/F/H/V.**



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## **RESEARCH SCIENTIST ANALYTICAL BIOCHEMISTRY**

**Amgen**, an innovative leader in the development of protein and peptide pharmaceuticals, has an immediate opportunity for a Ph.D. level Analytical Biochemist to contribute to on-going methods development programs for the separation and analysis of proteins.

Candidates for this position must have a Ph.D. in Analytical Chemistry, Biochemistry or a related discipline with 1-5 years' experience in the development and evaluation of HPLC separation techniques for proteins. Additional responsibilities will include the design, synthesis and evaluation of chemical bonded silica based phases for HPLC protein separations.

**Amgen** offers an excellent compensation and benefits package as well as a stimulating and challenging research environment. Qualified applicants should send a complete c.v., in confidence, to:

**AMGEN, INC.**  
Recruitment, Dept. #395  
1900 Oak Terrace Lane  
Thousand Oaks  
CA 91320

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Employer

## **Manager Risk Assessment**

Envirosphere Company, the rapidly growing environmental consulting division of **EBASCO SERVICES INCORPORATED**, currently has a senior level position available for a Manager, Risk Assessment, at its Lyndhurst, NJ Headquarters.

The ideal candidate will have a Ph.D. in Chemical, Health, or Biological sciences coupled with strong experience in determining the fate, transport, and effects of chemicals in the environment. Experience in a consulting firm, business development, and management of interdisciplinary technical groups are preferable qualities.

For prompt consideration, please forward resume, including salary requirements, to: Kevin McDonald, **EBASCO SERVICES INCORPORATED**, 160 Chubb Avenue, Lyndhurst, NJ 07071. An equal opportunity employer m/f/h/v.

An ENSERCH Engineering and Construction Company

## POSITIONS OPEN

### PROTEIN AND NUCLEIC ACID BIOCHEMIST HOWARD HUGHES MEDICAL INSTITUTE AT THE MASSACHUSETTS GENERAL HOSPITAL

A unique and exciting opportunity is open for an appropriately qualified biochemist to operate a Microchemical Facility equipped with state-of-the-art instrumentation. Functions of the facility include protein microsequencing, peptide and nucleic acid synthesis and characterizations. The studies involve the design of protein analogs of important hormone ligands and components of nuclear transcription factors. In addition to supervision of the facility, opportunities exist for independent and/or collaborative research on the structural and functional aspects of bioactive proteins. Prerequisites are a M.S. or Ph.D. degree in biochemistry. Top salary and extensive benefits are available. Send résumé to: **Joel F. Habener, M.D., Howard Hughes Medical Institute, Wellman 3, Massachusetts General Hospital, Boston, MA 02114.**

**RESEARCH ASSOCIATE** with graduate degree or experienced **RESEARCH ASSISTANT** with B.S. or A.B. and knowledge of cell culture techniques, blotting and other molecular biology procedures, and/or protein chemistry. Ongoing research program involves mechanisms of promotion of biosynthesis of inhibitors of hemostatic enzymes: including specific mRNA production by human cells, analysis of certain plasma proteins, using functional and analytical techniques including coagulation and enzymatic assays, and gel electrophoresis. Salary commensurate with qualifications; immediate opening. **Children's Hospital Research Foundation (CHRF), Elland and Bethesda Avenues, Cincinnati, OH 45229 (Dr. V. H. Donaldson).** Telephone: 513-559-4244. CHRF is an Equal Opportunity Employer.

### AUBURN UNIVERSITY

**RESEARCH ASSOCIATE POSITION IN ELECTRON MICROSCOPY.** A person trained in a biological area will be responsible for routine maintenance of a transmission and scanning electron microscope and ancillary equipment. The candidate should be broadly trained in electron microscopy, and experienced in: tissue preparation and sectioning, EDAX, freeze-fracture and DNA spreading. The individual will interact with faculty and graduate students. Please submit curriculum vitae, transcripts, recent micrographs, and three letters of reference to: **Professor Joe H. Cherry, Department of Botany and Microbiology, Auburn University, AL 36849-5407.** The position is available 1 August 1989 and applications will be taken to 30 June 1989, or until suitable candidate is found. *Affirmative Action/Equal Opportunity Employer, applications encouraged from minorities and women.*

### RESEARCH ASSOCIATE—RECLAMATION.

Two-year position beginning June 1989. Responsible for contract research projects involving reclamation of marginal soils. M.S. in soil genesis/soil chemistry or related field required, with experience in land reclamation desirable. Send curriculum vitae and names of three references to: **Dr. W. L. Daniels, Department of Agronomy, Virginia Polytechnic Institute and State University, Blacksburg, VA 24061,** by 24 May 1989. *Equal Opportunity Employer.*

### RESEARCH ASSOCIATES AND PHD'S IN MARINE SCIENCES

Several positions on: production and export of phytoplankton to (a) larval and adult scallops and (b) cod larvae (with **L. Legendre**); transport/feeding/survival of (c) scallop larvae (with **J. J. Dodson**) and (d) cod larvae (with **L. Fortier**); (e) aquaculture of scallops in open waters (with **J. H. Himmelman**); (f) development of clonal antibody for identification of scallop larvae (with **J. J. Dodson**); (g) small-scale hydrodynamics of larval scallop settlement (with **E. Bourget**). Research associates: Ph.D. preferably with postdoctoral experience (except (g): research engineer). Laval University is French-speaking, but research may be conducted in English. Send curriculum vitae, representative reprints, names, addresses, and telephone numbers of three referees, and specify a firm date of availability, to: **GIROQ, Département de biologie, Université Laval, Québec, Québec, Canada, G1K 7P4.**

## POSITIONS OPEN

### RESEARCH ASSOCIATE— ELECTRON MICROSCOPIST

Immediate opening for a Research Associate-Electron microscopist position. TEM, SEM, STEM; Freeze fracture/etch; IEM in a multi-user research facility. Standard post-experimentation sample processing and data generation; routine maintenance of instrumentation (H-60Q-2, RCA EMU-4A); personnel training. M.S. or B.S. with experience is required. Send résumés to: **Dr. I. V. Brown, Atlanta University, Department of Biology, 223 J. P. Brawley Drive, S.W., Atlanta, GA 30314.** *Atlanta University is an Equal Opportunity Employer.*

### RESEARCH GROUP LEADER IN MOLECULAR BIOLOGY/VIROLOGY

Our team is primarily engaged in research on experimental antiviral chemotherapy, concentrating on evaluation of efficacy and mode of action and cellular kinetics of new antiretroviral drugs. The laboratory supports ongoing and future clinical drug evaluation trials (HIV cultures, development of PCR) and collaborates with other research groups at the University of Zürich and the Federal Institute of Technology (ETH).

The ideal candidate (Ph.D. required) is expected to act as group leader and should have demonstrated experience in the performance and management of basic research projects. Knowledge of the German language is not an essential, but helpful prerequisite.

The position is available from July 1989. Please send curriculum vitae with names and addresses of three references to: **Ruedi Lüthy, M.D. Chief, Division of Infectious Diseases, Department of Medicine, University Hospital, CH-8091 Zurich, Switzerland.**

### RESEARCH/POSTDOCTORAL ASSOCIATE.

Position available to study the regulation of gene expression. Projects involve cDNA cloning as well as protein purification. Ph.D. or equivalent degree required. Send curriculum vitae with salary requirement to: **Dr. Eunduck Kay, Doheny Eye Institute/University of Southern California Department of Ophthalmology, 1355 San Pablo Street, Los Angeles, CA 90033.** *Equal Opportunity Employer.*

### SCIENTIST/ASSOCIATE

A full-time research, nontenure-track, faculty position of scientist/associate is available to work in a group studying the molecular biology of mutagenesis and replication of damaged DNA. Current projects include the cloning and molecular analysis of yeast genes concerned with mutagenesis, a study of the yeast REV 3 DNA polymerase, and experiments with *E. coli* and yeast using vectors that carry a single, defined, and uniquely located mutagenic photoproduct. Candidates should have a Ph.D. degree and postdoctoral experience in molecular biology. Send curriculum vitae and names of three references to:

**Dr. C. W. Lawrence  
Department of Biophysics  
University of Rochester Medical Center  
Rochester, NY 14642  
Telephone: 716-275-2948**

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

### VERTEBRATE BIOLOGIST— ASSISTANT PROFESSOR

A tenure-track position at the assistant professor level is available in the Biology Department at Benedictine College, a small, liberal arts college located in Atchison, Kansas. A Ph.D. is required. Teaching duties include: team-teaching a majors and a non-majors freshman biology course and teaching one upper division course per semester in comparative vertebrate anatomy, animal behavior, or ecology. The successful candidate is also expected to supervise undergraduate students in original research projects and to obtain outside research support. Please send curriculum vitae, statement of research and teaching interests and the names of four references no later than 19 May 1989 to:

**Dr. Daniel E. Bowen, Chair  
Biology Department  
Benedictine College  
N-20  
Atchison, KS 66002**

## POSITIONS OPEN

**ONE SENIOR RESEARCH SCIENTIST AND TWO POSTDOCTORAL POSITIONS** are available immediately for 10 years to study the structure and function; regulation of gene expression of serotonin receptors or monoamine oxidases. Outstanding candidates with experience in molecular biology are encouraged to apply. Send résumé and names of three references to: **Jean C. Shih, Ph.D., University of Southern California, Biological Sciences Division, John Stauffer Pharmaceutical Sciences Center, 1985 Zonal Avenue, Los Angeles, CA 90033.**

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

The Smithsonian Tropical Research Institute, located in Panama, has an opening for a **TECHNICIAN** to work in a laboratory engaged in studying the evolution of proteins and DNA of marine organisms. The position will become available in the beginning of July 1989. Please send curriculum vitae and names of three references to: **Dr. H. A. Lessios, Smithsonian Tropical Research Institute, APO Miami 34002.** *Equal Opportunity Employer.*

### VISION SCIENTIST

A basic research position in vision science, with joint appointments in the R. S. Dow Neurological Sciences Institute and Department of Ophthalmology of Good Samaritan Hospital and Medical Center is available for a Ph.D. or M.D. with research interests at the cellular or sub-cellular level. Generous start-up funds and space are committed to this position. Level of appointment dependent upon prior research accomplishments. Postdoctoral research experience required. Opportunity exists for interaction with the 16 basic neuroscience research laboratories (four dedicated to vision research) that are affiliated with the R. S. Dow Neurological Sciences Institute, and with clinicians in the Department of Ophthalmology. Send curriculum vitae and names of three references by 31 June 1989 to: **M. W. Kaplan, Ph.D., Chairman, Vision Scientist Search Committee, R. S. Dow Neurological Sciences Institute, Good Samaritan Hospital and Medical Center, 1120 N.W. 20th Avenue, Portland, OR 97209-1595.** *An Equal Opportunity Employer.*

## REQUEST FOR PROPOSALS

**PRE-PROPOSALS**—Deadline 1 August 1989. International Foundation for Ethical Research (IFER) has grants available for research into alternatives to the use of live animals in research, testing, and teaching. Projects must take into account the three R's: Refinement, Reduction, and Replacement plus a fourth R: Responsibility. For information and format write: **IFER, 79 West Monroe, Suite 514, Chicago, IL 60603, or call: 312-419-6990.**

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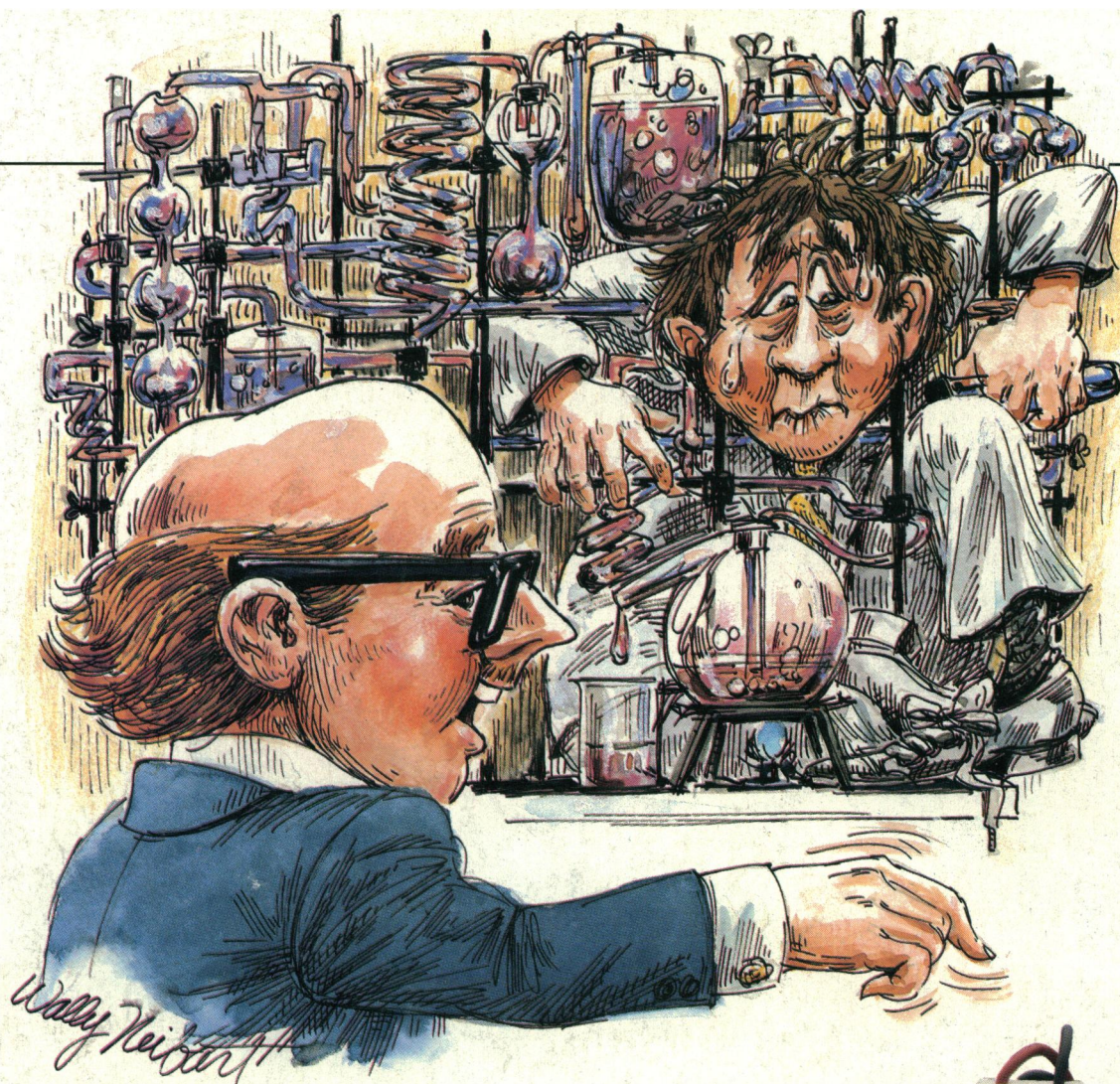
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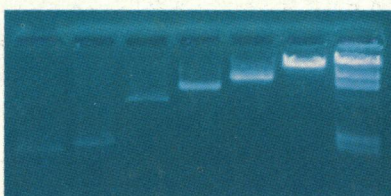
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