

## Products & Materials

### Replacement Parts for HPLC Pumps

A line of completely compatible replacement parts for Waters and Beckman high-performance liquid chromatography (HPLC) pumps are now available. Check valves, seals, and pistons manufactured specifically for the pumps are available at cost savings of 20 to 30% over the manufacturers' replacement parts. The Nest Group. Circle 566.

### Nucleic Acid Purification System

GENEPURE 341 is a higher performance version of an earlier nucleic acid purification system model. The new system costs less than its predecessor yet delivers higher throughput and a choice of conventional phenol-chloroform or fast nonorganic methods for genomic DNA purification. GENEPURE automates the purification of genomic DNA or RNA from sources as diverse as whole blood, plants, leukocytes, tissue cell culture, and viruses. Flexible programming and a choice of chemistries allow the researcher to customize instrument cycles depending on sample type and end use. For example, the nonorganic fast cycle takes 1.5 hours to isolate polymerase chain reaction-quality genomic DNA from relatively clean white blood cell fractions, nuclei preps, and cultured cells. The conventional phenol-chloroform method can be used for more complex starting samples, such as whole blood. Applied Biosystems. Circle 565.

### Ultrasonic Cleaners

A line of ultrasonic cleaners and accessories for laboratory tools and instruments chemically and mechanically lift off contaminants with alternating high- and low-pressure waves. The capacities of the cleaners

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

ers are 0.53, 1.06, 1.9, 3.2, and 10.4 liters. The three larger units feature timers and are available with heaters. Each model features a 20-gauge stainless steel tanks, housing, and cover with handle. Fisher Scientific. Circle 571.

### High-Purity Water Station

The WaterPro Work Station is designed for applications requiring ion-free, bacteria-free, and organic-free water. Models are also available with an ultrafilter to deliver pyrogen-free water. All filters and membranes are housed in a compact cabinet with epoxy-coated steel front and sides. The front door lifts off for easy access to internal components. A feedwater line, drain line, and electrical outlet are the only connections required to be operational. Available as under-counter or free-standing units, WaterPro Work Stations will fit where counter or wall space is scarce. Two types of water are delivered at a rate of up to 1.6 liters per minute. Laboratory-grade water comes from a gooseneck faucet. Type I reagent-grade water comes from a dispensing gun in a heated "holster" to protect against bacterial contamination. Labconco Corp. Circle 560.

### Motion Analyzer

The Kodak EktaPro EM (electronic memory) is a high-speed image processor with a solid-state memory. The processor can continuously store up to 1200 images in DRAM (buffer) memory. It is compatible with the Kodak EktaPro 1000 imager, the Kodak EktaPro high-gain imager, and the Kodak EktaPro intensified imager. Kodak's high-speed motion analysis systems are designed to record events that occur too fast for the human eye to follow, so they can be reviewed in slow motion or one frame at a time. Eastman Kodak. Circle 559.

### Four-Lane Animal Exerciser

Model Exer-4 is an exerciser designed for four animals at a time. Its speed is electronically controlled from 0 to 2 m/s. Elevation can be adjusted in steps. The exerciser has a single flat running belt over which four transparent Plexiglas compartments are suspended to confine and separate the animals. At the beginning of the belt's exerciser are four electrical stimulus grids. An air puff option is available as an alternative stimulus. Columbus Instruments. Circle 548.

### Microbial Control for Pure Water Systems

The gar-DI-on, for use in pure water systems, is a two-channel ultraviolet sterilizer that brackets the purification media and prevents microbial growth on carbon, resins, and membranes. Controlling the micro-



bial population in a system's components eliminates the problems caused by microorganisms and their by-products, such as ribonuclease, endotoxins, and particles, in purified water. Eliminating this biofilm buildup increases the capacity of the ion-exchange resins. Epco Technologies. Circle 550.

### Literature

*Advanced HPLC Instrumentation* is a colorful brochure that describes a line of advanced microprocessor-controlled pumps, low- and high-pressure gradient systems, two new robotic autosamplers, a complete range of detectors, chromatography integrators, and personal computer software for data handling and system control. Hitachi Instruments. Circle 435.

*High Resolution Chromatography Products* is a catalog that lists new sample preparation products, plus hundreds of columns, accessories, and standards for integrated sample analysis via gas chromatography and high-performance liquid chromatography. J&W Scientific. Circle 437.

*Biological and Cultural Tests for Control of Plant Diseases "B&C Tests," Volume 5*, is a new book featuring research by 95 plant pathologists. APS Press. Circle 438.

*Immunovations* is a newsletter designed to keep the immunologist aware of advances in the field. The publication highlights proceedings of recent scientific meetings, discusses current research applications and procedures, and features descriptions of T Cell Sciences' latest products. T Cell Sciences. Circle 439.

*Catch it . . .* is a four-page guide featuring a line of digital oscilloscopes and arbitrary function generators. LeCroy. Circle 444.

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Reviews: MacUser, Feb 1989. MacWorld, Feb 1989.

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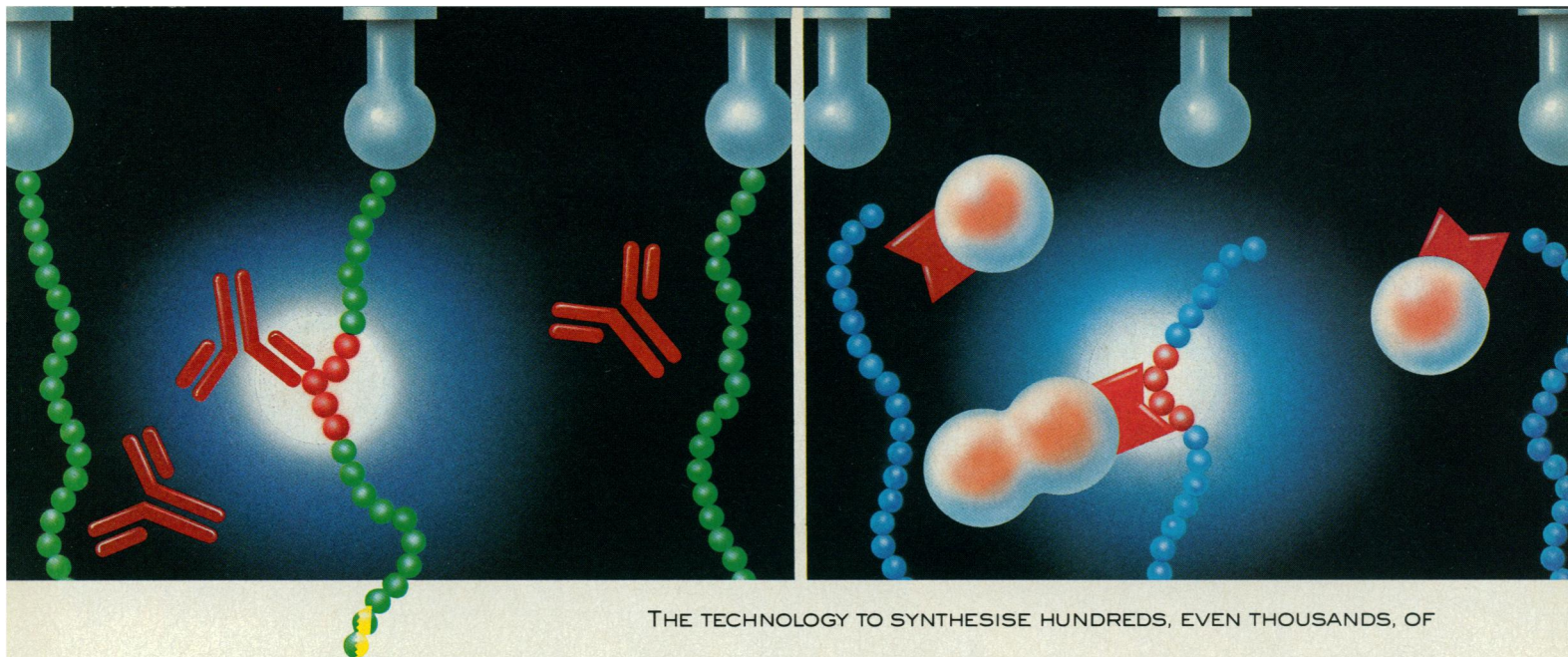
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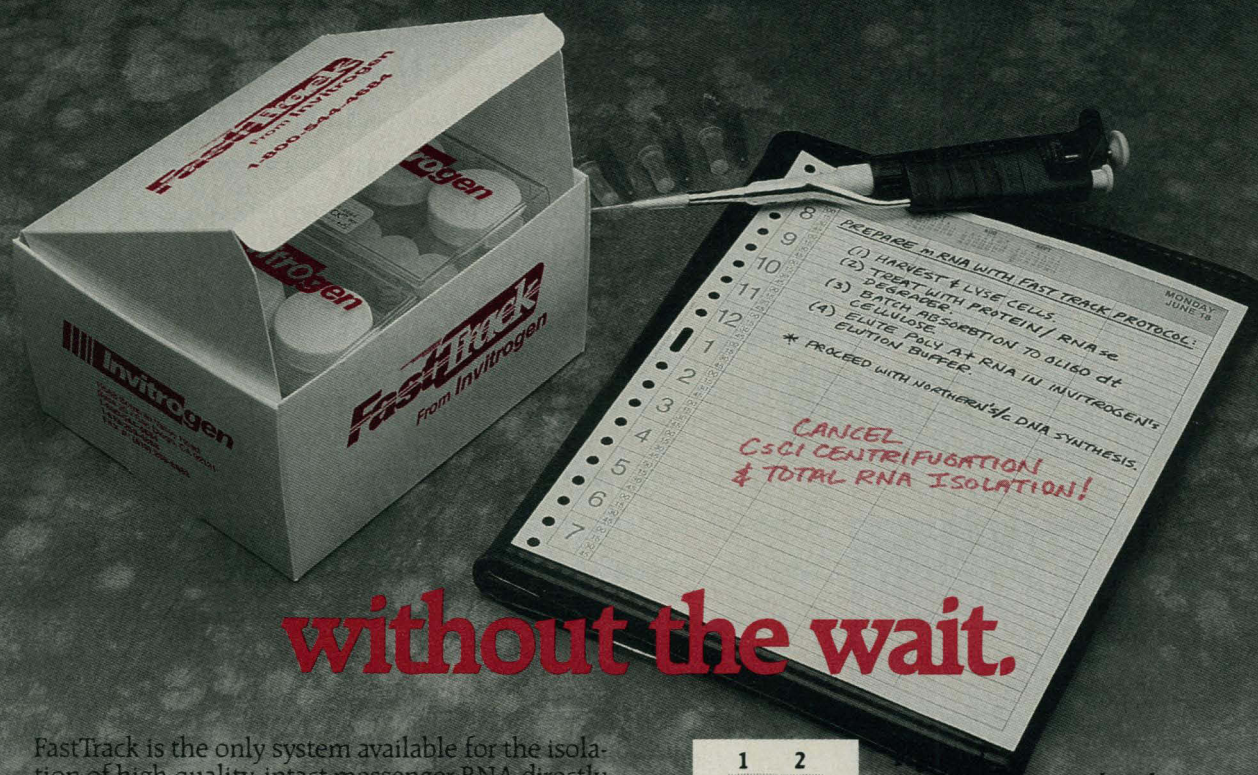


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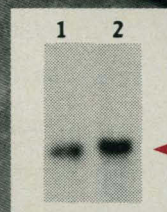
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**RATE:** \$41 per line, \$410 minimum, per week. One line equals 52 characters and spaces; centered headings equal 32 characters and spaces per line. No charge for use of blind box number. No agency commission for ads less than 40 lines. To **ESTIMATE** ad cost, structure ad copy on a 52-character line; include any desired heading on 32-character lines. Each line of heading, one line of white space between heading and body of ad, and all partial lines (including centered reply information, if desired) are counted as full lines. Multiply total number of lines x \$41 = approximate cost of ad, per week. (This is an approximate cost ONLY. Allow for variation between estimated lines and actual typeset lines and resulting final cost. Purchase orders must allow for some degree of flexibility and/or adjustment. **SCIENCE** cannot provide proofs of typeset ads.)

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**PREPAYMENT DISCOUNT:** A 3% cash discount is granted to all prepaid line ads. Prepayment in U.S. dollars by checks drawn on U.S. banks is required for all foreign ads.

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**SITUATIONS WANTED ADS:** As a service to AAAS members in good standing, **SCIENCE** offers free placement of Situations Wanted ads for individuals seeking full-time or part-time employment. A blind box may be used. Ads must be submitted in writing with text of 20 words or less, not including address or box number, and are limited to two insertions per member in each calendar year. Please enclose **SCIENCE** mailing label including AAAS membership number when submitting ad.

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Address ad copy or requests for information to:

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For rates, deadlines, and information about fractional display ads (1/6 page and larger) and all Marketplace listings of available products and services, contact:

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## RESPONSES TO EMPLOYMENT ADS

Applicants should read Positions Open ads carefully in order to submit all required material when responding, and should especially check for any stated deadline for receipt of applications. **SCIENCE** encourages applicants for positions to investigate employment laws, non-discrimination policies, visa requirements, and cultural differences in the country advertising for employees.

To reply to a blind box ad, address correspondence to:

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## POSITIONS OPEN

### ASSISTANT PROFESSOR

The Department of Biology, Utah State University (USU), Logan, Utah, is seeking a tenure-track assistant professor with research specialty in plant pathology. Research involving current technologies on fungal pathogens relevant to agriculture in Utah is required. The position involves 50% research and 50% teaching responsibilities (three courses per year) that include mycology and introduction to plant pathology. Excellence in teaching and research is expected. Please send curriculum vitae, three letters of reference, and a statement of research goals to: **Dr. Anne Anderson, Department of Biology, Utah State University, Logan, UT 84322-5305.** Review of the applications will begin 1 October 1990, and continue until the position is filled.

USU is an Affirmative Action/Equal Opportunity Employer.

### UNIVERSITY OF CALIFORNIA LOS ANGELES (UCLA) ORGANIC FACULTY POSITION

The Department of Chemistry and Biochemistry of the University of California at Los Angeles will make a faculty appointment in organic chemistry at the **ASSISTANT PROFESSOR** level. Outstanding applicants with interests in any area of organic chemistry will be considered. Candidates must give evidence of potential distinction in scholarship and teaching and must show exceptional promise of a creative and active career as a research scientist. A complete application should include curriculum vitae, a description of proposed research not exceeding four pages, and letters of recommendation from at least three professional references. *The University of California is an Equal Opportunity/Affirmative Action Employer and encourages applications from women and minority candidates.* Applications should be completed as soon as possible, but no later than 1 October 1990, and directed to: **Chairman, Organic Search Committee, Department of Chemistry, University of California, Los Angeles, CA 90024-1569. FAX: 213-206-4038.**

### DEPARTMENT OF ANATOMY AND NEUROBIOLOGY COLLEGE OF MEDICINE THE UNIVERSITY OF TENNESSEE (UT) MEMPHIS

**ASSISTANT PROFESSOR.** Tenure-track position is available. Rank and salary will be commensurate with qualifications. Candidate must participate in teaching anatomical courses, including human gross anatomy, and must show strong evidence of research achievement. The department is the center of a rapidly expanding, multi-disciplinary neuroscience program. Candidate must be pursuing research programs in neuroscience, preferably molecular neurobiology, neurochemistry, or neurogenetics. Please submit by 15 September 1990 curriculum vitae, statement of research interests, and names of three individuals who can be contacted for letters of reference to: **S. T. Kitai, Chairman, Department of Anatomy and Neurobiology, College of Medicine, The University of Tennessee, Memphis, 875 Monroe Avenue, Memphis, TN 38163.**

UT Memphis is an Equal Opportunity/Affirmative Action/Section IX/Title 504 Employer.

### ASSISTANT PROFESSOR IN PLANT DEVELOPMENT AT UNIVERSITY OF ILLINOIS, CHICAGO

Applications are invited for a tenure-track position available beginning fall of 1991 at the assistant professor level in the Department of Biological Sciences. Candidates with expertise in any aspect of plant development in either higher or lower plants will be considered. Preference will be given to candidates with one or more years of postdoctoral experience. The successful applicant will be expected to initiate a strong research program in plant development and to contribute to the departmental instructional offerings. Please send curriculum vitae, a statement of research goals, and the names and addresses of three referees to:

**Plant Development Search Committee**  
c/o Dr. Sidney B. Simpson, Jr., Head  
Department of Biological Sciences (M/C 066)  
The University of Illinois at Chicago  
Box 4348  
Chicago, IL 60680

Applications will be accepted until 15 October 1990. *The University of Illinois at Chicago is an Affirmative Action/Equal Opportunity Employer.*

## POSITIONS OPEN

### ASSISTANT/ASSOCIATE PROFESSOR

The Department of Physiology and Biophysics, University of Health Sciences/The Chicago Medical School (UHS/CMS), invites applications for tenure-track assistant or associate professor positions. Candidates must have a Ph.D. or M.D. degree and an established research program. Departmental research interests include: neuroscience and cellular, molecular, and membrane physiology. UHS/CMS is a 75-year-old private medical school located in new facilities in an elegant suburb north of Chicago. The administration is committed to excellence in science. Outstanding modern laboratories are available and teaching responsibilities are moderate. Recruitment will continue until suitable candidates are identified. Please send a description of research interests, curriculum vitae, and the names of three references to: **Professor Richard Hawkins, Chairman, Physiology and Biophysics, UHS/CMS, 3333 Green Bay Road, North Chicago, IL 60064.**

### ASSISTANT/ASSOCIATE PROFESSORS PLANT-MICROBE INTERACTIONS

The Department of Plant Pathology and Microbiology at Texas A&M University seeks two new faculty with active research programs in molecular approaches to plant protection. Research oriented toward plant-microbe interactions and/or fungal molecular biology is particularly desirable, but candidates with other interests will be considered. Successful applicants will be expected to participate in teaching at graduate or undergraduate levels and to establish vigorous research programs funded by extramural sources. Postdoctoral experience or demonstration of independent research capability is required. Appointments are possible as early as 1 January 1991. Apply by sending curriculum vitae, statement of professional goals and research interests, and three letters of reference by 1 October 1990 to: **Dr. Clint Magill, Chair of Search Committee, Department of Plant Pathology and Microbiology, Texas A&M University, College Station, TX 77843.**

The School of Natural Resources, The University of Michigan, is seeking to fill a full-time, 9-month, tenure-track position at a level of **ASSISTANT OR ASSOCIATE PROFESSOR** of international natural resource and environmental policy. The primary focus is directed toward international renewable natural resource and environmental policy issues, institutions, and laws. Applicants should have a doctorate in natural resource policy, public policy, or political science or a law degree with a demonstrated research interest and ability in non-U.S. natural resource and environmental policy problems and their global implications. The specific problem and application areas should include conservation of land and water resources, but also may include issues of global warming, acid rain, biological diversity protection, hazardous substances, and equity issues associated with sustainable development. International experience is desirable.

Applicants should submit curriculum vitae, list of publications, transcripts of college work, and at least three letters of reference evaluating teaching and research skills. All materials should be sent as soon as possible to: **Dr. James E. Crowfoot, Dean, School of Natural Resources, 3512 Dana Building, The University of Michigan, Ann Arbor, MI 48109-1115.** Applications will be accepted until the position is filled.

*The University of Michigan is a nondiscriminatory Affirmative Action Employer.*

### BIostatistician/EPIDEMIOLOGIST

The Sanders-Brown Center on Aging and the Department of Statistics at the University of Kentucky invites applications for a tenure-track faculty appointment at the **ASSISTANT PROFESSOR** level from biostatisticians and/or epidemiologists with research interest in Alzheimer's disease. The appointee will be expected to develop his/her own research program, be willing to participate in multidisciplinary research, and participate in the teaching program of the Department of Statistics. An excellent start-up package is available. The Sanders-Brown Center is one of the NIA-funded Alzheimer's disease research centers and has a separate 40,000-square-foot building with excellent research facilities. A letter of interest, recent curriculum vitae, and names of three references should be submitted to: **William R. Markesbery, M.D., or David R. Weksstein, Ph.D., Sanders-Brown Center on Aging, University of Kentucky, Lexington, KY 40536. Telephone: 606-233-6040. The University of Kentucky is an Equal Opportunity Employer.**

## POSITIONS OPEN

### ASSISTANT PROFESSOR IN PLANT MOLECULAR BIOLOGY AT UNIVERSITY OF ILLINOIS, CHICAGO

Applications are invited for a tenure-track position available beginning fall of 1991 at the assistant professor level in the Department of Biological Sciences. Candidates should have one or more years of postdoctoral experience, will be expected to develop a strong research program in plant molecular biology, and must be willing to contribute to the departmental coursework offerings. The successful applicant will join an active group of plant and molecular biologists and will have access to a wide variety of modern facilities with the department and the university. Please send curriculum vitae, a statement of research goals, and the names and addresses of three referees to:

Plant Molecular Biology Search Committee  
c/o Dr. Sidney B. Simpson, Jr., Head  
Department of Biological Sciences (M/C 066)  
The University of Illinois at Chicago  
Box 4348  
Chicago, IL 60680

Applications will be accepted until 15 October 1990.

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### HARVARD UNIVERSITY ASSISTANT PROFESSOR CELLULAR AND DEVELOPMENTAL BIOLOGY (CDB)

The Department of Cellular and Developmental Biology intends to make an appointment at the assistant professor level effective September 1992. Our department covers a broad range of topics in cellular biology, developmental biology, neurobiology, and molecular genetics. We are seeking outstanding candidates in any of these fields. We are particularly interested in making an appointment in the areas of plant molecular biology, developmental genetics, and protein sorting. However, we will consider exceptional applicants in other fields as well. We strongly encourage applications from women and minority groups. Applications should include curriculum vitae, reprints of publications, and a statement of present and future research plans. Complete applications and three letters of recommendation, solicited by the applicant, should be received no later than 1 October 1990 by: CDB Search Committee, Cellular and Developmental Biology, Harvard University, 16 Divinity Avenue, Cambridge, MA 02138. Telephone: 617-495-2327. Harvard University is an Affirmative Action/Equal Opportunity Employer.

### DIRECTOR OF PROGRAM IN IMMUNOBIOLOGY NORTHWESTERN UNIVERSITY

Qualified candidates are sought for the new position of director of the immunobiology program at Northwestern University Medical School. The immunobiology program is a newly developed interdepartmental effort designed to enhance research and training in immunobiology within Northwestern University as a whole with emphasis at the Medical School. With resources provided by both the Medical School and university administrations, the new director of immunobiology will be expected to provide leadership in this effort, including the recruitment of new faculty. Administrative duties will be minimal and compatible with continuation of an active research program. To be considered for this position, a candidate must be recognized as a leading contributor in the area of immunobiology and must present plans for the further development of his/her own research program. The academic appointment at Northwestern University will most likely be in the Department of Microbiology-Immunology, although this is negotiable. Rank and tenure status will depend upon the experience and background of the appointee. Initiation of the appointment could be at any time during the 1990-91 academic year. In order to ensure full consideration, applications consisting of curriculum vitae, summary of research interests, and the names of three references should be received by 15 October 1990. Applications should be addressed to: Immunobiology Program Search Committee Chairman, Department of Microbiology-Immunology, Northwestern University Medical School, 303 East Chicago Avenue, Chicago, IL 60611. Northwestern University is an Affirmative Action/Equal Opportunity Employer. Hiring is contingent upon eligibility to work in the United States.

## POSITIONS OPEN

**PROFESSOR AND HEAD.** To serve as the administrative and academic program leader of the Department of Poultry Science at the University Park Campus of Pennsylvania State University. Qualifications include: (i) the Ph.D. or equivalent academic degree in poultry science or a closely related field; (ii) experience or in-depth knowledge of the land-grant university system; (iii) a significant period of academic experience in poultry science; and (iv) evidence of administrative and program leadership in the area of poultry extension, including the ability to develop and actively participate in a specific extension program. Availability: 1 January 1991. Applications accepted until 1 October 1990 or until a suitable applicant has been selected. Salary will be commensurate with qualifications and experience. Send application to: Dr. Robert F. Wideman, Jr., Associate Professor of Poultry Science, Chairman, Search Committee, 206A Henning Building, The Pennsylvania State University, University Park, PA 16802. Affirmative Action/Equal Opportunity Employer. Women and minorities are encouraged to apply.

### UNIVERSITY OF CAMBRIDGE ARTHUR BALFOUR PROFESSORSHIP OF GENETICS

Applications invited for the above chair tenable from 1 October 1991.

Present pensionable stipend: £32,408.

Further information from: The Secretary General of the Faculties, General Board Office, The Old Schools, Cambridge, CB2 1TT, England, to whom applications (ten copies), marked "Confidential," should be sent with names of two referees by 14 September 1990.

The University follows an Equal Opportunities Policy.

### JET PROPULSION LABORATORY/NASA VISITING SENIOR SCIENTIST

**EARTH SCIENCE AND APPLICATIONS DIVISION.** Atmospheric chemistry. The Jet Propulsion Laboratory invites applications to its Visiting Senior Scientist Program in the discipline of atmospheric chemistry, specifically the areas of global modeling of transport and chemistry of the stratosphere-troposphere and the analysis of corresponding observational data.

An opening exists for a visiting senior scientist with a strong background in atmospheric chemistry to work with the Biogeochemistry and Geophysics Branch within the Earth Science and Applications Division at NASA Headquarters in Washington, D.C. This new program merges the former Upper Atmosphere Theory and Data Analysis Program with the global modeling components of the Tropospheric Chemistry Program. The individual selected will be expected to represent the interests of the research community with particular emphasis on (i) the global modeling of chemistry and transport of trace gases within the stratosphere-troposphere and (ii) analysis of global datasets relevant to the chemistry and composition of the atmosphere.

Prospective candidates must hold a Ph.D. (or have equivalent training and experience) in atmospheric sciences, chemistry, geophysics, or a closely related field. Appointees are encouraged to maintain their research base while at NASA. Monthly 2-day visits to the appointee's home institution are encouraged and supported. Financing of travel to scientific meetings and publications is also available.

Tenured faculty members are the preferred choice with a desired start in 1991. Appointees must be U.S. citizens or permanent residents and are expected to return to their home institution following their NASA assignment. Frequent domestic/foreign travel and residence in the Washington, D.C., area will be required. For more information about the scope of the program and position responsibilities, contact Dr. Robert E. Murphy at NASA Headquarters, 202-453-1720.

Please provide curriculum vitae, bibliography, and the names of four references to Department T-89:

Dr. Harry Ashkenas, 183-900  
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## POSITIONS OPEN

**CHAIR, DEPARTMENT OF PHYSIOLOGY.** A search is being opened for the chairman of the Department of Physiology at State University of New York (SUNY) Health Science Center at Syracuse, a strong department with a commitment to excellence in teaching and with an outstanding international reputation in research. The new chairman is expected to continue that tradition and to enhance that commitment. Candidates must meet the academic requirements for appointment to the rank of professor (M.D. or Ph.D.) and have a distinguished history of relevant scholarly and research accomplishments. Applications from women and minorities are encouraged. Curriculum vitae of interested candidates should be sent to: Richard L. Cross, Ph.D., Department of Biochemistry and Molecular Biology, SUNY Health Science Center, 750 East Adams Street, Syracuse, NY 13210. Telephone: 315-464-5127. Review of curriculum vitae will begin 1 November 1990 and continue until the position is filled.

Affirmative Action/Equal Opportunity Employer.

**CHAIR OF PHYSIOLOGY.** Applications and nominations for the position of professor and chair of the Department of Physiology at The University of Texas Health Science Center at San Antonio (UTHSCSA) are invited. The department has 19 full-time faculty with diverse research interests including cellular, cardiovascular, respiratory, and neurophysiology, and the metabolic aspects of aging. The department has a well-supported graduate program and has instructional responsibilities in the graduate, medical, dental, and nursing schools. Candidates should have an active research program in a defined area of contemporary physiology ranging from the molecular to the intact animal. Individuals should possess an internationally recognized record of research with experience in teaching and administration. Interested persons should send a letter of application, curriculum vitae, a brief statement of research interests, and names of three references. The committee will begin reviewing applications by 1 October 1990. Address applications, inquiries, and/or nominations to: David S. Papermaster, M.D., Physiology Chair Search Committee, Department of Pathology, The University of Texas Health Science Center at San Antonio, 7703 Floyd Curl Drive, San Antonio, TX 78284-7750. UTHSCSA is an Equal Opportunity/Affirmative Action Employer.

**DIRECTOR, ANALYTICAL SEPARATION LABORATORY—ASSISTANT/ASSOCIATE RESEARCHER.** Applicants should have Ph.D. or equivalent training and/or experience in theory, operation, and maintenance of HPLC systems. The Core service laboratory performs analyses of a wide range of compounds in biological materials including proteins, peptides, steroids, catecholamines, nucleotides, lipids, and complex sugars in collaboration with 10 to 12 investigators in the Reproductive Endocrinology Center, University of California, San Francisco (UCSF). Primary responsibility is to train fellows and oversee use of the equipment. Ability to troubleshoot and maintain equipment and to develop new methods is essential. Experience in protein isolation and characterization by gel electrophoresis, Western blotting, etc., also is highly desirable. Send curriculum vitae and names of three references to: Dr. Pentti K. Siiteri, Department of Obstetrics/Gynecology, University of California, San Francisco, CA 94143-0556. UCSF is an Equal Opportunity/Affirmative Action Employer. Women and minorities are encouraged to apply.

**DIRECTOR, TROPICAL FRUIT AND VEGETABLE RESEARCH LABORATORY.** Agricultural Research Service (ARS), U.S. Department of Agriculture (USDA), Honolulu, Hawaii. Salary range: \$59,216 to \$76,982, commensurate with experience, plus 22.5% cost-of-living allowance. Requires Ph.D.-level knowledge of entomology research. Prefer working knowledge of tephritid fruit flies; skill in directing and coordinating long-range, multidisciplinary research; knowledge of control/eradication programs; knowledge of research administration/resource management/budget planning; also skill in meeting and dealing effectively with diverse groups of people. Closing date for application is 28 September 1990. Request announcement and application materials from: Ms. Rita Millard, telephone: 301-344-3138, USDA, ARS, Personnel, Greenbelt, Maryland. Contact: Dr. William G. Chace, Jr., telephone: 415-559-6060, Pacific West Area Director, Albany, California, for technical information relative to position. An Equal Opportunity Employer.

# Bristol-Myers Squibb Pharmaceutical Research Institute

Bristol-Myers Squibb Pharmaceutical Research Institute is continuing to expand our efforts in basic biomedical research. New research laboratories are currently under construction at our research headquarters in Princeton, New Jersey. More than at any time in the past, our commitment to basic biomedical research, both at the Institute and through our academic research alliances, has never been stronger. We are currently seeking candidates for the following positions:

## Research Investigator

### Virology

Participate in this research program elucidating mechanisms of viral gene regulation. The program focuses on the herpes virus group with the aim of identifying novel antiviral targets. Ph.D. required in addition to proven expertise in molecular biology/virology, cell culture, and protein biochemistry. **Dept. #128A**

## Research Associates

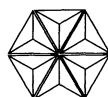
### Monoclonal Antibody Research

This candidate will assume a lead role in our monoclonal antibody laboratory which serves as one of the core groups in our Biotechnology section. We require a BS or MS and 3-5 years relevant experience that includes strong background in monoclonal antibody production and antibody based assays. **Dept. #128B**

### Molecular Biology

Establish an in situ hybridization core unit to interact with ongoing basic research on molecular characterizations of oncogenes utilizing in situ hybridization, preparation of tissue sections and probes. Requires a BS or MS and a minimum of 1 year related research experience. **Dept. #128C**

For consideration, please forward your resume (including dept. code #) to: **Bristol-Myers Squibb Pharmaceutical Research Institute, P.O. Box 4000, Princeton, NJ 08543-4000.** An equal opportunity employer.



**Bristol-Myers Squibb Company**

# Environmental Openings

Battelle, Pacific Northwest Laboratory, one of the first companies committed to improving the environment, is finding real-life solutions to real-life problems. To help us continue, we need the following dedicated professionals:

## Ecological Resources & Assessment

### Technical Group Leader

This position requires a PhD in Plant Physiology, Environmental Chemistry, Ecology, or related area, and 5-7 years experience directing and working with interdisciplinary research teams, providing technical leadership to peers and junior scientists, writing research proposals and scientific journal articles, and meeting schedules and budgets. Knowledge of radionuclide and contaminant movement, measurement, and environmental effects is desirable. Excellent interpersonal skills are essential.

### Sr. Wetlands Ecologist

Research will include effects of Global Climate Change on freshwater wetlands/riparian zones, development of guidelines for wetlands construction, impacts of humans' activities on wetland functional values, and identify energy linkages between terrestrial and aquatic habitats.

This position requires a PhD in Ecology, Limnology, Oceanography, or related area, as well as 8-10 years research experience in one or more of the areas described above. Successful applicant will hire additional staff as necessary, and provide technical leadership to a multi-disciplinary team.

## Terrestrial Sciences

### Research Scientist—Microbiology

Research will include determination of subsurface microbial distribution and function, microbial physiology and metabolism with emphasis on aerobic and anaerobic mechanisms of organic contaminant degradation and molecular approaches to strain improvement.

This position requires a PhD in Microbiology with an interest in basic and/or applied research as described above. Previous experience at the Post Doctoral level desirable.

### Technical Group Leader—Microbiology

This position requires a PhD in Microbiology or related field with 8-10 years experience. Must have a sound scientific background as measured by peer reviewed publications or patent history and a demonstrated ability to manage complex interdisciplinary programs. Previous management experience preferred.

### Technical Group Leader— Ecological Modeling

This position will develop and lead a multi-disciplinary team to model large-scale ecological processes. A research background emphasizing biosphere linkages, remote sensing, GIS model development, and/or the development of knowledge-based system models is desirable. This position requires a PhD in Ecology or a related field, with 10+ years experience.

To pursue these career opportunities, send/FAX vitae, college transcripts, and the names of three references to: **Battelle, Pacific Northwest Laboratories, Dept. RZ5, P.O. Box 1406, Richland, WA 99352. FAX (509) 376-9099.** Equal Opportunity Employer. U.S. Citizenship required.



**Battelle**

Pacific Northwest Laboratories

# Study Director

## Microbial Threats to Health

The Institute of Medicine/National Academy of Sciences is seeking a study director for a study on Microbial Threats To Health. Responsibilities include planning study program; designing research methods; overseeing data collection and analysis; writing, editing and synthesizing report and background material; assisting in the selection of an expert scientific committee to provide direction for the study; and acting as liaison between public officials, sponsors and related organizations. Ph.D., M.D., or equivalent in area related to program activity required, and 4 or more years experience related to microbial biology, vaccine biology, infectious diseases, or the biology of pathogenic organisms and vectors. Policy-making experience is highly desirable. Requires excellent organizational skills and written and oral communication skills. Must have demonstrated research, technical, and/or policy analysis capability. Proficiency in staff supervision, budget management, and ability to work effectively with committees also required. The Academy offers a competitive salary and an exceptional benefits package. Please send resume in confidence to:



INSTITUTE OF MEDICINE, IOM 2133-325-REB, 2101 Constitution Avenue, N.W., Washington, D.C. 20418. EOE.

## NEUROBIOLOGIST

The Laboratory of Neurophysiology, National Institute of Mental Health (NIMH) Intramural Research Program, will have a Staff Fellowship available from August, 1990. Located at the NIH Animal Center near Poolesville, Maryland, the laboratory conducts research in the area of behavioral neurophysiology, with special emphasis on the motor areas of the cerebral cortex in nonhuman primates. The Fellow will be able to develop an independent research project or join ongoing research, as appropriate. Applicants must have a Ph.D., M.D., or equivalent. Stipends vary from \$24,000 to \$41,700, depending on postdoctoral experience, and the position is renewable, subject to administrative approval, for up to seven years. To apply, send CV and letter of research interests to:

**Dr. Steven P. Wise, Chief**  
**Laboratory of Neurophysiology**  
**P. O. Box 289**  
**Poolesville, MD 20837**

NIMH is an Equal Opportunity Employer

## POSITIONS OPEN

**ADDITION RESEARCH CENTER  
NATIONAL INSTITUTE ON DRUG ABUSE  
ALCOHOL, DRUG ABUSE AND  
MENTAL HEALTH ADMINISTRATION  
NIDA/ADAMHA  
U.S. PUBLIC HEALTH SERVICE  
CLINICAL NEUROENDOCRINOLOGY  
LABORATORY CHIEF**

Applications for the immediately available position of Chief, Neuroendocrinology/Immunology Laboratory, are encouraged. The laboratory chief plans, conducts, and supervises basic and clinical research on the involvement of the endocrine and immune systems in drug abuse and dependence. Candidates must have an M.D. or Ph.D. degree and more than 5 years of relevant research and supervisory experience. The salary range is \$59,000 to \$78,000. Send curriculum vitae and three letters of recommendation to: **Jack E. Henningfield, Ph.D., Chief, Clinical Pharmacology Branch, NIDA Addiction Research Center, P.O. Box 5180, Baltimore, MD 21224.**

*U.S. citizenship is required.  
NIDA is an Equal Opportunity Employer.  
ADAMHA is smoke free and drug free.*

**UNIVERSITY OF CALIFORNIA,  
LOS ANGELES (UCLA)  
NEUROSCIENCE  
DIRECTOR, UCLA JERRY LEWIS  
NEUROMUSCULAR RESEARCH CENTER**

The UCLA School of Medicine is recruiting a new director for its Jerry Lewis Neuromuscular Research Center. The individual is expected to bring leadership in new areas of science fundamental to understanding broad aspects of nerve and muscle and the disease processes that affect them. Programs focused in molecular biology, immunology, or genetics with particular strengths relevant to understanding clinical neuromuscular diseases would be particularly attractive. The director will assume responsibility for the Jerry Lewis Center, an organized research unit on the UCLA campus reporting directly to the dean's office, with the members having appointments in one or more School of Medicine departments. This individual will be expected to promote the development of basic and clinical research programs and facilitate teaching and training in neuromuscular biology and disease. Interested applicants should forward current curriculum vitae to: **Robert C. Collins, M.D., Chair, Search Committee, UCLA School of Medicine, Reed Neurological Research Center, 710 Westwood Plaza, Los Angeles, CA 90024-1769. UCLA is an Equal Opportunity/Affirmative Action Employer.**

**DIRECTOR  
OF PEDIATRIC ENDOCRINOLOGY**

The University of Minnesota, Department of Pediatrics, is seeking a director of the Division of Endocrinology. This is a senior position and has high priority in the Department of Pediatrics. The candidate should have leadership, clinical and research experiences necessary to direct an Endocrinology and Metabolism Program in a strong academically oriented department.

Qualifications: Candidate must have an M.D. degree. This position will be a tenured **ASSOCIATE OR FULL PROFESSOR** with the rank to be commensurate with years of experience and accomplishments. Candidate must have an active ongoing research program which has attracted national funding. Rank of associate professor requires professional distinction in research and writing and demonstrated effectiveness in teaching and advising. Rank of professor requires national reputation in research and evidence of leadership in candidate's professional field. Candidate must be approved by the Promotions Committee of the Department of Pediatrics and the Medical School.

Last date for receipt of application is 30 November 1990.

Applications and nominations (include names and addresses of three referees) should be sent to:

**Jack H. Oppenheimer, M.D., FACP**  
**Chair, Search Committee for**  
**Head of Pediatric Endocrinology**  
**University of Minnesota Medical School**  
**Box 91, UMHC**  
**515 Delaware Street, S.E.**  
**Minneapolis, MN 55455**

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

# Postdoctoral Researchers Receptor Biology

Genentech, Inc., a leader in the field of biotechnology, currently has excellent opportunities for Postdoctoral Researchers in our Immunobiology and Molecular Biology department.

A position is available to study the molecular and cellular biology of the lectin cell adhesion molecules (LEC-CAMS) including the homing receptor, ELAM, and gmp 140/PADGEM. The candidate should have knowledge of techniques in cell and molecular biology. A background in cell adhesion and/or immunology is preferred. References of interest include: Lasky et al., Cell 56: 1045-1055 (1989); Bowen et al., J. Cell Biol., 109: 421-427 (1989); Bowen et al., J. Cell Biol., 110: 147-153 (1990); and Watson et al., J. Cell Biol., 110: 2221-2229 (1990). Dept. LL.

We also have a position to study the mechanism of transmembrane signalling in relation to the structure and function of the growth hormone receptor. A strong background in cell biology or molecular

biology is preferred. References of interest include: Leung et al., Nature 330: 537-543 (1987); Spencer et al., J. Biol. Chem., 263: 7862-7867 (1988); and Godowski et al., Proc. Natl. Acad. Sci., 86: 8083-8087 (1989). Dept. WW.

Our extensive benefits package includes fully paid dental/medical/vision coverage for you and your dependents, child care facilities, free health club membership and an employee stock purchase plan. Send your resume, indicating appropriate department, to: Yvonne Davino, Genentech, Inc., 460 Point San Bruno Blvd., South San Francisco, CA 94060. We promote and actively support affirmative action and equal employment opportunity. Women and minorities are encouraged to apply.

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## POSITIONS OPEN

### NUTRITIONAL SCIENCES DIRECTOR OF DIVISION UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Applicants for the position of director, Division of Nutritional Sciences, are being sought. The division has 48 faculty members from 11 departments and 6 colleges and offers M.S. and Ph.D. training in nutritional sciences. The candidate will be expected to provide leadership to the program, to facilitate interdisciplinary research, and to maintain an active research program. Applicants should send a letter of application, résumé, and names and addresses of five references by 15 September 1990 to: William L. George, Chair of the Search Committee for the Director of Nutritional Sciences, University of Illinois, 451 Bevier Hall, 905 South Goodwin, Urbana, IL 61801.

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

### HEAD DEPARTMENT OF FOREST RESOURCES

Provides: leadership in recruitment and development of faculty and staff; direction for instruction, research, and extension; and budget development and administration. Qualifications include: an earned doctorate; a record of scholarship in forest resources commensurate with the rank of full professor; a sense of the broad spectrum of values society attaches to forest resources, and the processes by which these values are translated into policy; discriminating judgment in the quality of contemporary forest science; and the ability to administer programs in teaching, research, and extension. Send cover letter, curriculum vitae, and names of four references by 9 November 1990 to: Professor James N. Long, Department of Forest Resources, College of Natural Resources, Utah State University (USU), Logan, UT 84322-5215. Telephone: 801-750-2455. Position open until filled.

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

### VASCULAR BIOLOGIST, CARDIOLOGIST

Harvard's Department of Medicine at the Brigham and Women's Hospital is seeking a cardiologist with a strong interest and record of accomplishment in vascular biology to head the Section of Vascular Medicine in the Cardiovascular Division. Approximately 4000 square feet of new laboratory space is available. Candidate should have experience in obtaining independent, peer-reviewed research support; ability to direct a clinical vascular consultation service; and be eligible for appointment as an ASSOCIATE PROFESSOR of medicine at Harvard Medical School.

Please send curriculum vitae to: Dr. Eugene Braunwald, Brigham and Women's Hospital, 75 Francis Street, Boston, MA 02115.

*Harvard University and Brigham and Women's Hospital are Affirmative Action Employers. Women and members of under-represented minorities are encouraged to apply.*

**COORDINATOR OF EXTERNAL RELATIONS.** The Center for Compound Semiconductor Microelectronics of The University of Illinois at Urbana-Champaign seeks a person to support publication, reporting, public information, and special programs efforts. Requires bachelor's degree, 5 years of experience, and excellent communications skills; computer experience preferred. Salary commensurate with qualifications; regular, full-time position. Close date: 4 September 1990. Start date: 1 October 1990. Send application to: James Renshaw, Micro Lab, 208 North Wright Street, Room 127, Urbana, IL 61801. Telephone: 217-333-3097. *An Affirmative Action/Equal Opportunity Employer.*

### FACULTY POSITION IN BIOLOGY

The Division of Life Sciences, The University of Texas at San Antonio, invites applications for a tenure-track ASSISTANT PROFESSOR in biology. Candidates must show demonstrated research productivity and substantial ability and interest in teaching anatomy, physiology, and endocrinology at the undergraduate and graduate levels. A Ph.D. is required and postdoctoral experience desired. Submit curriculum vitae, names of at least three professional references, and representative publications to: Director, Division of Life Sciences, The University of Texas at San Antonio, San Antonio, TX 78285-0662. Closing date to receive applications is 1 September 1990. *The University of Texas is an Affirmative Action/Equal Opportunity Employer.*

10 AUGUST 1990

## UNIVERSITY OF QUEENSLAND DEPARTMENT OF BOTANY

The Department is the leading provider in Queensland, and one of the leading providers in Australia, of undergraduate and postgraduate education in plant biology. Its goal is to address regionally and nationally important issues, in particular the conservation, management and, where appropriate, rehabilitation of valuable ecosystems through an understanding of processes in plants and the dynamics of vegetation and evolutionary change. To this end, it will appoint two new staff, the Chair of Botany and a Lecturer (tenurable) in Marine Botany. It is planned to relocate the Department in 1993 into a refurbished building within the biology precinct.

### CHAIR OF BOTANY

The appointee will be a distinguished experimentalist in the areas of ecology and evolution of tropical and sub-tropical terrestrial plants and plant communities, who will provide academic leadership to the Department as a whole, and enhance the strengths of the different areas of teaching and research activity.

A particular responsibility will be to provide leadership to the ecology and physiology group, which currently includes 5 academic staff, and is concerned primarily with the understanding of processes within tropical and subtropical forests as a basis for their conservation and management. A major research project of the group is located in a southern Queensland rainforest, and joint research programmes link the Department with several states and federal agencies, with the Institute of Rainforest Studies in Cairns, and with overseas researchers. The position also allows exciting opportunities for the development of collaborative research programmes within the University under the auspices of a Centre for Conservation Biology which will provide a focus for the research of whole-organism biologists.

The appointee will be expected to assume the Headship of the Department for a period of 5 years in the first instance. (A salary leading for Headship applies).

**Salary:** \$A67,812 per annum

**Reference No.:** 33590.

**Closing date:** 30 August, 1990

Applicants should forward an original plus three copies of application and resume to **The Director, Personnel Services, The University of Queensland, Q.4072.**

### LECTURER IN BOTANY (TENURABLE)

The successful applicant will have an established record and an active research interest in marine botany, preferably in sub-tropical or tropical areas. The appointee will be expected to teach in botany, with particular responsibility for undergraduate subjects and postgraduate supervision in marine botany, to conduct research in marine botany, and to contribute to the scholarly activities of the Department. Outstanding opportunities exist for collaborative teaching in the School of Marine Science within the University, and for research at Heron Island on the Great Barrier Reef, in coastal southern Queensland, and in experimental marine and freshwater aquaculture facilities in Brisbane and nearby.

**Salary:** \$A33,163-\$43,096 per annum

**Reference No.:** 33690.

**Closing date:** 30 August, 1990

Applicants should forward an original plus seven copies of application and resume to **The Director, Personnel Services, The University of Queensland, Q.4072.**

Further information on present teaching responsibilities and research activities of the Department may be obtained from Dr. D. Doley, Department of Botany, The University of Queensland, Q.4072, Telephone 07 377 2727, Facsimile 07 870 3854.

*Equal Opportunity in Employment is University Policy*

## VIROLOGIST

The Upjohn Company's Infectious Diseases Research group is seeking a virologist to join our virology group. The virology program currently involves a vaccine for respiratory syncytial virus and several approaches to HIV antivirals. The new virologist will have an important role in one or more of these projects, as well as in defining future directions for the growing virology program.

Qualifications include a PhD in an appropriate discipline, postdoctoral experience, with a significant record of accomplishment in the field of virology. Particular research areas would include (1) molecular biology of retroviruses and/or (2) evaluation of antivirals in animal models. Strong candidates in any field of virology are encouraged to apply for the position. Since a senior level appointment is a possibility for this position, applications from established investigators are particularly welcome.

Upjohn offers a competitive compensation and benefits package in addition to a stimulating, multi-disciplinary research environment at our modern laboratories in Kalamazoo, Michigan. In 1989, Upjohn committed over \$400 million to research and development and is currently increasing its main research facility by 50%. Qualified and interested applicants are invited to forward their cv/resume to: THE UPJOHN COMPANY, CORPORATE RECRUITING, KALAMAZOO, MI 49001-0199. Refer to position number 6000-HA in your cover letter. An Equal Opportunity Employer M/f.

*Our Commitment to Scientific Excellence Continues.....*

**Upjohn**

## POSITIONS OPEN

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

The Screwworm Research Laboratory, ARS, at Tuxtla Gutiérrez, Chiapas, Mexico, is seeking an ecologist to work as a member of a team of ecologists in developing population models to describe the population dynamics of the screwworm in tropical and subtropical environments. The ecologist will be stationed at San José, Costa Rica, with duties to include quantifying biological/ecological data and developing population dynamics models. Ph.D. required with knowledge of insect ecology, statistics, and mathematical modeling; skills in computer usage and programming. Other qualifications: knowledge of insect behavior and genetics, ability to communicate with management of action agencies of government, ability to speak and understand Spanish. Position is a 3-year term appointment with salary of \$29,891 (GS-11) or \$35,825 (GS-12) with additional quarters allowance at foreign location. *Applicants must be U.S. citizens.* For further program information, contact: C. J. Whitten (Tuxtla, Mexico), 011-52-961-33550, or D. Taylor (Fargo, North Dakota), 701-235-1265. Applicants must contact Carol Gramlich at 301-344-1508 for application procedures and required forms. Applications in response to the advertisement should be marked 400-9-0019 (S-0-0012) and must be postmarked by 4 September 1990. Send complete applications to: Carol Gramlich, USDA, ARS, PD, POB, Southern Section, 6305 Ivy Lane, Room 341A, Greenbelt, MD 20770-1435. *ARS is an Equal Opportunity Employer. Women and minorities are encouraged to apply.*



Agricultural Research Service  
United States Department of Agriculture

### ENGINEER, ASSOCIATE DEVELOPMENT.

To develop a user-friendly diagnostic expert system to aid the operation of hazardous waste incinerators, implement an expert system shell, perform field tests of the developed computer system, present the research work at professional conferences, write journal papers, and prepare research proposals and progress reports for funding agencies. Entry level position. Requirements: Ph.D. degree in mechanical, chemical, or knowledge engineering with a strong background in artificial intelligence (AI)/expert systems, hazardous waste incineration, probabilistic risk assessment and reliability engineering, process control theory, and engineering. Demonstrated expertise in developing a Bayesian network-based diagnostic expert system for hazardous waste incinerators. Proficiency in AI programming in both LISP and C. Extensive experience with expert system shells: PC Plus, KEE, and Nexpert. Job location/interview: Los Angeles, California. Salary: \$39,504 per year. Send this advertisement and résumé to: Job #DB16857, P.O. Box 9560, Sacramento, CA 95823-0560, no later than 25 August 1990.

### EPIDEMIOLOGIST CENTERS FOR DISEASE CONTROL (CDC) ATLANTA

The Radiation Studies Branch, Division of Environmental Hazards and Health Effects (EHHE), Center for Environmental Health and Injury Control, has a vacancy for an epidemiologist to conduct epidemiologic studies related to possible health effects of populations exposed to ionizing radiation. EHHE has approximately 50 professional, technical, and support personnel responsible for a variety of challenging environmental public health programs. Although not required for consideration, a Ph.D., M.D., Sc.D., or Dr.P.H. degree with a strong background in epidemiology, biostatistics, and environmental health; four or more years experience in related environmental health work; and a relevant publication record in peer-reviewed journals are desirable. Specifically, experience in epidemiologic studies involving ionizing radiation would be a strong attribute for qualified applicants. The approximate salary range is from \$42,000 to \$67,000, depending on qualifications and experience.

Interested persons should send curriculum vitae to: James M. Smith, Ph.D., Chief, Radiation Studies Branch, Centers for Disease Control, Mail Stop F-28, 1600 Clifton Road, N.E., Atlanta, GA 30333.

*CDC is an Equal Opportunity Employer and provides a smoke-free environment.*

## POSITIONS OPEN

**ELECTRICAL DESIGN ENGINEER, POWER SYSTEMS.** Will design and develop a new power supply system to be used in personal computers and modern electronic instruments. Will use theories of electronic circuits and electromagnetic fields as well as nonlinear equations to design a DC-to-DC power supply to be used in a lap-top computer assuring that the supply system is more efficient and less bulky than current sources. Requires M.S. degree in physics; education to include completion of one course in each of the following: digital control, digital signal processing, advanced control theory, and power electronics. Education to include completion of a master's thesis in signal processing and power. Hours: 10:00 a.m. to 6:00 p.m., 40 hours per week at \$16.50 per hour salary. Please send résumé to: Illinois Department of Employment Security, 401 South State Street-3 South, Chicago, IL 60605, Attention: Joan Sykstus, Reference #1641-S. *An employer-paid ad.*

### FACULTY POSITION IN GASTROINTESTINAL RESEARCH INVESTIGATOR IN THE BASIC OR CLINICAL SCIENCES

A faculty position is available for a basic or clinical investigator in the gastroenteric sciences in a large academic Department of Gastroenterology. Applicants should possess M.D. or Ph.D. degree and have evidence of an independent program of research with extramural, peer-reviewed funding. Those with clinical training in gastroenterology can develop within this large department flexible ways whereby these skills can be maintained and utilized. Faculty ranking is also flexible, commensurate with the successful applicant's experience and academic standing.

The field of study is not restricted. Current faculty have interests in basic and applied research in liver function and disease, pancreatic function and disease, gastrointestinal peptides, gastrointestinal motility, epidemiology of digestive diseases and the functional bowel diseases. Outstanding support services are available and the opportunities for collaborative research are excellent. Applicants would be expected to have, or to establish, credentials in the national arena of academic gastroenterology.

Please forward applications including curriculum vitae, bibliography, a summary of research interests and the names of three references to:

Sidney F. Phillips, M.D.  
Gastroenterology Unit  
Mayo Clinic  
Rochester, MN 55905

*An Equal Opportunity/Affirmative Action Employer.*

**MOLECULAR BIOLOGIST/ENDOCRINOLOGIST.** Several full-time research positions to investigate molecular mechanisms of hormone action and aging. Experience and/or interest in gene cloning, cell culture, and protein-DNA interactions are required. Salary competitive. Send curriculum vitae and names of three references to: Arun K. Roy, Ph.D., Professor and Head, Division of Molecular Genetics, Department of Obstetrics and Gynecology, The University of Texas Health Science Center at San Antonio, San Antonio, TX 78284-7836.

**NEUROLOGIST/CLINICAL NEUROPHYSIOLOGIST/EPILEPTOLOGIST.** Direct EEG Department and Comprehensive Epilepsy Program at university-affiliated private hospital. Major interest in research and the surgical treatment of epilepsy. Board-certified in neurology and electroencephalography (ABQEEG). Previous experience essential, including EEG and video monitoring and electrocorticography. Send curriculum vitae and a simple statement of interest to: Robert M. Herndon, M.D., Department of Neurology, Good Samaritan Hospital and Medical Center, 1015 N.W. 22nd Avenue, Portland, OR 97210. *Good Samaritan Hospital and Medical Center is an Equal Opportunity/Affirmative Action Employer.*

**PHYSIOLOGIST/PHARMACOLOGIST.** Needed to establish Division of Research in Department of Emergency Medicine. Require Ph.D. and research interest relevant to emergency medicine. Send curriculum vitae to: Robert Schneider, M.D., Department of Emergency Medicine, Carolina Medical Center, P.O. Box 32861, Charlotte, NC 28232.

## POSITIONS OPEN

### HUMAN GENETICS

Annually, 300,000 unique specimens are available for genetic marker analysis through the New York State Newborn Screening Program. Two **RESEARCH SCIENTIST** positions are currently available: (i) research associate (population studies) and (ii) assistant director (inherited metabolic diseases). Requirements: Ph.D. with strong background in applied molecular biology. Start date: September 1990. Send curriculum vitae and three references to: Chief, Laboratory of Human Genetics, New York State Department of Health, Wadsworth Center for Laboratories and Research, P.O. Box 509, Albany, NY 12220-0509.

### CENTERS FOR DISEASE CONTROL (CDC) CENTER FOR INFECTIOUS DISEASES DIVISION OF IMMUNOLOGIC, ONCOLOGIC, AND HEMATOLOGIC DISEASES MEDICAL OFFICER (PATHOLOGIST)

A position is available to study molecular pathologic mechanisms for laboratory and epidemiologic investigations of leukemias, tumors, and other abnormal cell growth. Emphasis is on detection of infectious agents as possible etiologic agents in neoplasia. Experience is necessary in studies related to myeloperoxidase gene expression and monoclonal antibody production to myeloperoxidase. The position is with Bruce Evatt, M.D., Director, Division of Immunologic, Oncologic, and Hematologic Diseases. Minimum qualifications include a medical degree or equivalent, experience in anatomic pathology, experience in molecular research in myeloperoxidase gene expression, and experience in the conduct of independent and collaborative investigations. The position may be filled either in the competitive civil service or in the Public Health Service Commissioned Corps. The salary range is \$50,342 to \$76,982. Candidate should send curriculum vitae and the names and addresses of three references by 15 October 1990 to:

Mr. William V. Nelson  
Personnel Management Office, Building 1  
Room 1058, MS D01  
Centers for Disease Control  
1600 Clifton Road, N.E.  
Atlanta, GA 30333

*CDC is an Equal Opportunity Employer and provides a smoke-free work environment.*

### MOLECULAR BIOLOGIST DIVISION OF ONCOLOGY DEPARTMENT OF MEDICINE EVANSTON HOSPITAL NORTHWESTERN UNIVERSITY MEDICAL SCHOOL

Applications are invited for an individual with primary appointment in the Division of Medical Oncology within the Department of Medicine at Evanston Hospital, a major affiliate of Northwestern University Medical School. Applicants should have a Ph.D. and postdoctoral training in molecular biology relating to the study of malignant diseases. We are seeking an individual who will develop an independent basic molecular biology research program in oncology, collaborate with other members of the oncology division, and the Northwestern University Cancer Center on projects investigating human malignancy, and participate in medical student and graduate teaching programs. Candidate will be eligible for a university faculty appointment. Initial laboratory support is available.

Applicants should send curriculum vitae, a brief description of previous and future research and teaching interests, reprints of significant published work or reprints of manuscripts in press, and names of at least three individuals familiar with the candidate's research to: J. Khandekar, M.D., Head, Division of Medical Oncology, Evanston Hospital, 2650 Ridge Avenue, Evanston, IL 60201.

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**PERSONNEL PLACEMENT ADS** in our line classified columns can be boxed for higher visibility. Call **SCIENCE** at 202-326-6555 for details.



the

## STOCKHOLM ENVIRONMENT INSTITUTE (SEI)

International Institute for Environmental Technology and Management

### Appointment of Director

(based in Stockholm) Applications are invited for the above post on an international basis (non-Swedish citizens) from persons with a secure international research reputation and a wide range of contacts in the programme areas of the Institute detailed below. Sensitivity to environment-development issues in industrialized and developing countries worldwide, preparedness to travel widely in order to develop further the Institute's existing international R&D and information networks and complete fluency in both spoken and written English are all essential requirements. Experience in managing an international, research-based operation in the public or private sector, is also necessary. An appointment will be made for up to four years in the first instance, with the option of a further four years, by mutual agreement. Salary arrangements are negotiable, based on UN criteria.

### The Institute:

The SEI, established in 1989 following a Swedish Government initiative, is an independent Foundation governed by a Board of fifteen members drawn from developing and industrialized countries worldwide. Substantial core-funding to the SEI Foundation from the Swedish Government for the current phase of operations (up to 30 June 1993) is expected to continue beyond 1993. Additionally, the Institute currently has further funding from a range of external sources.

The Institute's primary objective is to carry out authoritative, policy-orientated studies and research on the assessment and development of technologies in relation to environmental management, and its methods and strategies for promoting sustainable development. It has already established a secure international reputation in these fields.

### The Programme:

The Board had set guidelines for a rolling-programme of action with the following priority themes: (1) Agro-biotechnological biosafety; (2) Climatic change assessment; (3) Energy futures; (4) Economics, ethics and environmental value. Supporting measures for these priorities include: a) integrated pollutant management strategies; b) water demand/supply management; c) sustainable rural-development; d) dissemination of environmental management capacity.

The Institute has good working linkages with similar institutes abroad and with intergovernmental agencies. The SEI already plays a significant role in supporting the secretariat of the UN Conference on Environment and Development (UNCED) during the current preparatory phase, for the Conference in Brazil (June 1992).

The above programme is carried out by a worldwide network of about 70 full-time, part-time, and affiliated field staff and consultants, who collaborate with cognate institutions worldwide and are linked to the SEI Centres in Boston (USA) and York (UK) and with the Headquarters, located centrally in Stockholm. It has been initiated by the present Director (Professor Gordon Goodman) who was responsible for the start-up of the Institute and who retires at the end of 1990.

Applications should be sent not later than 10 September 1990 to the Chairman of the SEI Board, Professor Gunnar Brodin, Chancellor of the Swedish Universities, P.O. Box 45501, 104 30 Stockholm, telephone +46-8-728 3600 or Kai Olsson, PA Consulting Group, Box 7813, 103 96 Stockholm, telephone +46-8-24 90 20, from whom further information may be obtained.

### ALCOHOL, DRUG ABUSE, AND MENTAL HEALTH ADMINISTRATION U.S. PUBLIC HEALTH SERVICE

### SCIENCE EDUCATION DIRECTOR

The Alcohol, Drug Abuse, and Mental Health Administration (ADAMHA) has an immediate opening for a senior staff specialist who will serve as the Agency spokesperson and coordinator for a national program to enhance public understanding of biomedical and behavioral research relating to mental and addictive disorders and to stimulate greater interest in science careers among young people. Develops and implements ADAMHA program plans in this area, collaborating with other PHS, national, and local groups and offices, to promote a wide range of public information, curriculum development, and enrichment activities focusing on science education.

This position will be filled at the GS-14/15 level, with an annual salary range of \$50,342 to \$78,200. Physicians may be eligible for an additional Physician's Comparability Allowance of \$8,000-\$20,000 annually. The position may also be filled through appointment in the PHS Commissioned Corps. Desirable qualifications include: Experience directing a national or regional program of science education (including, e.g., those for schools, museums, or media presentation) for elementary and/or high school students; or extensive experience in science teaching at the precollege level plus experience in development of national strategies for science education; and master's or higher level degree in a biomedical or behavioral science related to ADAMHA's missions, or a master's or higher degree in education plus experience participating in research related to ADAMHA's mission.

This position is located in Rockville, Maryland and offers full Federal benefits. Relocation expenses may also be paid. U.S. Citizenship is required. Send Application for Federal Employment (SF-171)/resumes to: Ms. Mary Jane Meyers, ADAMHA Personnel Office, Rm. 15C-12, 5600 Fishers Lane, Rockville, MD 20857 (Telephone: (301) 443-5407). Applications must be postmarked by August 24, 1990.

ADAMHA IS AN EQUAL OPPORTUNITY EMPLOYER

## Assistant Professor

Applications are invited for the position of Assistant Professor in the Department of Physiology and Biophysics. The successful candidate will be expected, during one semester per year, to participate equally in the team teaching of Medical Physiology to first-year medical students. In addition, the candidate will be expected to contribute actively to one of the following research programs: 1. Molecular and cell biology of fungal (*Neurospora crassa*) insulin-insulin receptor systems (Dr. J. Lenard). Current projects include cloning of *N. crassa* insulin gene(s), genetics and biochemistry of insulin-insulin receptor system, insulin-dependent phosphorylation. 2. Molecular and cellular basis of autosomal dominant polycystic kidney disease (Dr. P. Wilson). Current projects include analysis of gene expression and protein changes associated with polarized cell sorting mechanism and growth factor signaling pathways. It is anticipated that this appointment will lead to the development of an independent research program by the candidate. Applicants should have a strong background in molecular and/or cell biology and a desire to teach Physiology.

Reply to: John Lenard, Ph.D., University of Medicine & Dentistry of New Jersey-Robert Wood Johnson Medical School, Department of Physiology & Biophysics, 675 Hoes Lane, Piscataway, NJ 08854-5635. The UMDNJ is an Affirmative Action/Equal Employment Opportunity Employer, m/f/h/v, and a member of the University Health System of New Jersey.

**UMD**  
NEW JERSEY

## Chair of Geology and Mineralogy

Applications are invited for the **Chair of Geology and Mineralogy** from geoscientists of high academic standing with substantial research achievements. The appointee will be strongly committed to education in geology at all levels; have considerable teaching and administrative experience, and a demonstrated capacity for collaboration with industry and the attraction of external funds.

It is expected that the appointee will assume significant administrative responsibilities, including the Department Headship for at least the first five years of appointment.

In addition to the advertised chair, the Department has 14 full-time teaching staff positions, including the **Dorothy Hill Chair of Palaeontology and Stratigraphy**, and 21 research and support staff. The Department has excellent research facilities for a range of disciplines including petrology, elemental and stable isotopic geochemistry, palaeontology, sedimentology, and geophysics; a museum and a first-class library. The W H Bryan Mining Research Unit, housed within Geology and Mineralogy, is a recent joint venture with the Department of Mining and Metallurgical Engineering.

The Department offers 3 and 4-year (Honours) courses leading to the BSc degree in Geology, 4-year courses leading to Bachelor Applied Science (Geophysics) and Bachelor of Applied Science (Geology) and coursework leading to Master of Scientific Studies. There are currently 41 postgraduate students of whom 21 are PhD or research MSc candidates.

The salary for a Professor is A\$67,812 per annum  
Ref. No: 23990.

Closing Date: 30 September 1990.

Further information is available from the Head of Department Dr G R Orme on (07) 377 3910.

The University requires an original plus three copies of application and resume to be forwarded to the Director, Personnel Services, The University of Queensland, Old., 4072.

## Staff Positions in Immunology

### and Cell Biology

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Tenure-track positions preferably at the assistant professor level are available in the Division of Immunology of the Department of Pathology and in the Department of Cell Biology at New York University School of Medicine.

We are most interested in applicants with research programs in the cell biology and immunology of antigen presentation, intercompartmental traffic of proteins in cells, intracellular vesicular transport, T-cell and thymic functions, and tolerance mechanisms. However, we will consider outstanding applicants in other areas of immunology. Successful candidates will receive several years of research support to develop an independent line of investigation.

Applicants should send curriculum vitae, a short statement of research interests, and names of references to Victor Nussenzweig, M.D., Division of Immunology, Department of Pathology, NYU Medical Center, 550 First Avenue, New York, NY 10016.

## POSITIONS OPEN

### POSTDOCTORAL POSITION

Position available for an individual with a Ph.D. and experience in molecular biology. The successful applicant will be engaged in research on the biochemical and molecular mechanisms by which angiotensin peptides and other hormonal and pharmacological stimuli mediate cardiac muscle cell growth. There will also be the opportunity to engage in research defining the role of a localized intracardiac renin-angiotensin system in mediating cardiac muscle cell growth, with an emphasis on the regulation of the precursor genes for this system. Competitive salary and fringe benefits are available. Please send curriculum vitae and three names or letters of reference to: **Dr. Kenneth M. Baker, Weis Center for Research, Geisinger Clinic, Danville, PA 17822. Equal Opportunity Employer.**

**POSTDOCTORAL POSITIONS IN CELL ADHESION.** Available in a laboratory studying cell-cell and cell-substrate adhesion molecules (particularly N-CAM, cytostatin (tenascin), and cytostatin-binding proteoglycan) in terms of their structure-function relationships, their interactions with other proteins including their cell-surface receptors, and their roles in cell migration, cell division, and differentiation during heart development and in human autoimmune diseases. Experience in protein chemistry, molecular biology, or the study of embryonic heart development would be a plus. Send curriculum vitae and the names of three references to: **Dr. Stanley Hoffman, Department of Medicine, Division of Rheumatology and Immunology, Medical University of South Carolina, 171 Ashley Avenue, Charleston, SC 29425-2229.**

**POSTDOCTORAL POSITION.** Available for Ph.D. in lipoprotein metabolism and atherosclerosis in nonhuman primates under the supervision of Dr. Rampratap S. Kushwaha, scientist. Applicant should be experienced with methods in protein biochemistry and metabolism. Annual salary ranges upward from \$21,694, with consideration for prior relevant postdoctoral experience. Position is available for 2 years with opportunities for further extension or conversion to a staff position. Please send curriculum vitae, a description of research interests, and names and telephone numbers of three references, including major professor, to: **Personnel Director (6), Southwest Foundation for Biomedical Research, P.O. Box 28147, San Antonio, TX 78228-0147. Equal Opportunity Employer, M/F.**

### POSTDOCTORAL POSITION

Available immediately for research on the molecular mechanisms involved in the diabetes-related defects in regulation of hepatic and cardiac glycogen metabolism. A Ph.D. in biochemistry or one of the medically related sciences is required, and some experience using the techniques of molecular biology is desirable. Opportunity to learn and use the techniques of primary cell culture, enzymology, molecular biology, and protein chemistry in studying hormonal control of metabolic pathways. Send curriculum vitae and names of three references to: **Dr. Thomas B. Miller, Jr., Department of Biochemistry and Molecular Biology, University of Massachusetts Medical School, 55 Lake Avenue North, Worcester, MA 01655. UMMC is an Equal Opportunity/Affirmative Action Employer.**

**POSTDOCTORAL POSITION IN NEUROBIOLOGY.** An NIH-funded postdoctoral position is available to study neurotransmitter receptors and ion channels using biophysical or molecular methods. The position will focus on one of two projects that involve nicotinic acetylcholine receptors (AChRs) on chick ciliary ganglion neurons. The aim of the first project is to uncover the mechanism by which cyclic AMP regulates AChR function on the neurons [PNAS **84**, 8155-8159 (1987)]. The second project will involve characterization of mRNA transcripts for AChR subunits in the neurons, expression of AChRs in *Xenopus* oocytes, and identification of mechanisms underlying changes in AChR properties that occur during embryonic development [Dev. Biol. **135**, 326-339 (1989)]. Applicants should send curriculum vitae and the names and telephone numbers of three references to: **Dr. Joseph F. Margiotta, Box 1218, Department of Physiology and Biophysics and Fishberg Research Center for Neurobiology, The Mount Sinai School of Medicine, One Gustave L. Levy Place, New York, NY 10029-6574. An Equal Opportunity Employer.**

## POSITIONS OPEN

**POSTDOCTORAL POSITION.** Position available to study the molecular basis for regulation of vesicular transport of protein through the exocytic pathway of eukaryotic cells. Experience in recombinant DNA methodology, eukaryotic gene expression, and use of viral vectors. Send curriculum vitae and names of three references to: **Dr. W. E. Balch, Department of Molecular Biology, IMM 11, Research Institute of Scripps Clinic, 10666 North Torrey Pines Road, La Jolla, CA 92037.**

**POSTDOCTORAL POSITION.** Available immediately to study novel mechanisms of action of antitumor quinones. Individual with experience in tissue culture, clonogenic assays, protein purification, and study of DNA damage/repair preferred. Send curriculum vitae and three names or letters of reference by 24 August 1990 to: **Dr. D. Ross, School of Pharmacy, Campus Box 297, University of Colorado, Boulder, CO 80309-0297.**

**POSTDOCTORAL POSITION.** To study biosynthesis and translocation of dolichol-linked oligosaccharides in mammalian cells using genetic and biochemical approaches. See *J. Biol. Chem.* **263**, 19796; **264**, 1584; **265**, 2296; and in press August to September. Send curriculum vitae and names and telephone numbers of three references to: **Mark A. Lehrman, Department of Pharmacology, University of Texas Southwestern Medical Center, 5323 Harry Hines Boulevard, Dallas, TX 75235. Equal Opportunity University.**

**ADVANCED POSTDOCTORAL POSITION.** Available beginning October 1990 at the University of California, San Francisco (UCSF), for at least 1 year to study gene regulation of beta-adrenergic receptors, Ph.D. in molecular biology and experience in recombinant DNA techniques necessary. Chance to work independently. Send curriculum vitae and names of three references to: **Dr. Joel S. Karliner, Cardiology Section (111C), VA Medical Center, 4150 Clement Street, San Francisco, CA 94121. UCSF is an Equal Opportunity/Affirmative Action Employer.**

**POSTDOCTORAL POSITIONS.** Postdoctoral traineeship positions are available in the areas of molecular biology and genetics, gene mapping, cell biology, biochemistry, and carcinogenesis. Active programs include oncogenes, genes in growth control, DNA repair mechanisms, receptors, and cellular transduction systems. Send curriculum vitae, a short statement on training interests, if known, and three letters of recommendation to: **Dr. Gerald Litwack, Deputy Director, Fels Institute for Cancer Research and Molecular Biology, Temple University School of Medicine, 3420 North Broad Street, Philadelphia, PA 19140. Applicant must be U.S. citizen or permanent resident. An Equal Opportunity Employer.**

**POSTDOCTORAL POSITION, BIOCHEMISTRY AND MOLECULAR BIOLOGY OF PROTEINS.** Funded position to study structure-function relationships in tropomyosin and troponin C using site-directed mutagenesis. Experience in protein biochemistry and/or recombinant DNA is desirable. Send curriculum vitae, research interests, and the names of three references to: **Dr. Sarah Hitchcock-DeGregori, Department of Neuroscience and Cell Biology, University of Medicine and Dentistry of New Jersey (UMDNJ), Robert Wood Johnson Medical School, 675 Hoes Lane, Piscataway, NJ 08854-5635. The UMDNJ is an Affirmative Action/Equal Employment Opportunity Employer, M/F/H/V, and a member of the University Health System of New Jersey.**

**POSTDOCTORAL POSITIONS.** Two positions available immediately to study mechanisms of olfaction. The project involves biochemical and electrophysiological analysis of receptor-ligand binding of olfactory cells, towards understanding mechanisms of detection and discrimination of chemical mixtures. Background in biochemistry/pharmacology (receptor binding) or in electrophysiology is preferred. Salary: \$20,000. Send curriculum vitae by 24 August 1990 to: **Dr. Charles Derby, Department of Biology, Program in Neurobiology and Behavior, P.O. Box 4010, Atlanta, GA 30302-4010. Georgia State University, a unit of the University System of Georgia, is an Equal Opportunity Educational Institution and an Equal Opportunity/Affirmative Action Employer. (60145.)**



# **CELL CULTURE TECHNICAL SERVICE SUPERVISOR**

Life Technologies, Inc., has an immediate opening for a Technical Service Supervisor for its Grand Island site. The individual will be responsible for the Cell Culture Technical Service organization in order to respond to technical inquiries, build a computerized data base, respond to product performance complaints, and interface with all disciplines within the customer base and the Company. Responsibilities will also include Cell Culture editorship of FOCUS, seminars, workshops, scientific articles and participation in the company's Training Center Programs.

The successful candidate will have a Ph.D. in Life Sciences with expertise in cell culture, 3-4 years postdoctoral experience, strong written and verbal communication skills, knowledge of computer databases, and management and teaching experience.

We offer an opportunity to join the leader in this growing industry, a competitive salary commensurate with education and experience, a comprehensive flexible benefits package, and an atmosphere that fosters career opportunities.

To join the leader, forward your resume with references to:

Debra Pike  
Human Resources Manager  
Life Technologies, Inc.  
P.O. Box 68  
Grand Island, NY 14072  
EOE M/F/V/H

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## **NATIONAL INSTITUTE of MENTAL HEALTH PUBLIC HEALTH SERVICE DEPARTMENT OF HEALTH AND HUMAN SERVICES**

### **DEPUTY DIRECTOR DIVISION OF INTRAMURAL RESEARCH**

The National Institute of Mental Health (NIMH), one of three scientific Institutes of the Alcohol, Drug Abuse, and Mental Health Administration (ADAMHA), is seeking nominations and applications for the position of Deputy Director, Division of Intramural Research Programs (DIRP). The Division is the largest scientific research center in the world focused on mental health, mental illness, and behavioral and brain research. Its diverse research programs are conducted by over 750 employees, including over 200 doctoral-level scientists, in 21 different laboratories and clinical branches.

Responsibilities of the Deputy Director, DIRP, includes serving as full Deputy to the Institute's Scientific Director, with full delegation of authority to act for the Scientific Director in both scientific and administrative matters related to the overall operation of the Institute's intramural research program; advising and consulting with the Scientific Director and with the Laboratory and Branch Chiefs on policy issues that have impact throughout the Division; allocating and controlling the Division's human, financial, and space resources in the Director's name; devising methods to attract and retain world-class leaders in the field of mental health research; and providing advice, counsel, and direction to the Laboratory and Branch Chiefs, and to

their subordinates, on the development and implementation of program plans.

Minimum qualifications requirements include a degree of Doctor of Medicine, Doctor of Philosophy, Doctor of Osteopathy, or a bachelor's or higher degree in an academic field related to the health sciences, and progressively responsible experience in developing, administering, and evaluating biomedical research programs.

The person selected for this position will receive a career appointment to the Senior Executive Service with an annual income of \$79,200 (plus up to \$20,000 per annum allowance for physicians only). The proposed income range to be effective January 1991, pending issuance of an Executive Order, is \$84,000 to \$97,000 (plus up to \$20,000 allowance for physicians only). Senior Executive Service members are also eligible for performance awards of 5 to 20 percent of base salary.

Additional information about the position and qualifications requirements may be obtained by contacting Mr. Joseph W. Whitaker at (301) 496-5337. An SF-171, Application for Federal Employment, accompanied by a current curriculum vitae and bibliography, and the names and addresses of three references, should be submitted to:

**Mr. Whitaker  
NIMH-IRP Personnel Office  
Building 10, Room 4C101  
National Institutes of Health  
9000 Rockville Pike  
Bethesda, Maryland 20892**

Complete application packages, including the SF-171, must be postmarked by the closing date, August 31, 1990. Resumes are not acceptable for entrance into the Senior Executive Service. *Applications will be accepted from all qualified Federal employees, and from individuals with SES reinstatement eligibility ONLY.*

Applications from women and minority group members are solicited.

The Alcohol, Drug Abuse, and Mental Health Administration  
is an Equal Opportunity Employer

## VICE PRESIDENT, UNIVERSITY AND INDUSTRY PROGRAMS

Oak Ridge Associated Universities is recruiting for a **Vice President, University and Industry Programs**. ORAU, a non-profit corporation and a medium-sized multi-program Department of Energy laboratory of nearly 600 employees, is operated by a consortium of 55 universities. ORAU conducts diverse education, research, and training programs principally for the U.S. Department of Energy.

The individual appointed will be responsible for developing and managing corporate-sponsored communication, collaborative, and consortial activities in service to our membership. Current consortial programs include University Isotope Separator at Oak Ridge (UNISOR); Marmoset Research Center at Oak Ridge (MARCOR); and Southern Association for High Energy Physics (SAHEP). Among other activities, the incumbent will be responsible for program planning; assisting in the ORAU strategic planning process; seeking opportunities for research cooperation through collaborative alliances among member universities, private industry, and government; informing the membership about faculty and student educational opportunities; developing, coordinating, and conducting workshops and conferences for member universities; and serving as an advocate of university programs at ORAU.

**REQUIREMENTS:** Ph.D. in science, engineering or field relevant to ORAU interests, with at least ten years progressively responsible experience in research administration, program development, or academic administration. Must be knowledgeable of university, industry and government research, skilled in long range planning, and possess excellent oral and written communication and interpersonal skills. Budgeting and managerial experience required.

Applications should include a letter of application, a vita, and names and addresses of at least three references. Nominations and applications will be accepted until the position is filled.

Address correspondence to:



Jon M. Veigel, President  
Oak Ridge Associated Universities  
P.O. Box 117  
Oak Ridge, Tennessee 37831-0117

EOE/AA



## The University of Sydney

AUSTRALIA

## LECTURER DEPARTMENT OF ANATOMY

Reference No. 26/02

Applications are invited from suitably qualified individuals for appointment to a lectureship in the Department of Anatomy. The appointment will be tenurable (usually with a three year probationary period) and is available from First Semester, 1991. Applicants should have a Ph.D. or equivalent in a related discipline. Experience in the teaching of topographical anatomy and of neuroanatomy is highly desirable. Applicants should have an established and continuing research programme in a related area. Qualifications in medicine or dentistry would be an advantage.

Further information from Professor Jonathan Stone, (+612) 692 2496 or Fax +612 552 2026.

**Salary:** \$A33,163-\$A43,036 per annum, plus clinical loading of up to \$A12,058 per annum or a dental loading of up to \$A6,037, where applicable.

**Closing:** 17 August, 1990.

**METHOD OF APPLICATION:** Applications, quoting reference no., including curriculum vitae, list of publications and the names, addresses and FAX numbers of three referees, to the Registrar, Staff Office, University of Sydney, NSW 2006 Australia. FAX +612 692 4316.

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57/991

## POSTDOCTORAL FELLOW

### Transcription Regulation

We are seeking an individual with a Ph.D. degree or equivalent in Molecular Biology or Biochemistry to participate in research on regulation of gene transcription with particular emphasis on the family mammalian glucose transporter genes. A strong background in the study of cis and trans regulatory elements is desirable.

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 **Human Resources Manager, Merck & Co., P.O. Box 2000, MAF 32, Rahway, New Jersey 07065.**

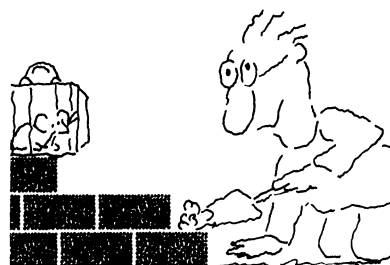
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Merck & Co., Inc.

Research Scientist, Drug Metabolism Dept., New London, CT - Determine biotransformation & pharmacokinetics of experimental drugs in animals & humans. Use various *in vitro* techniques to investigate metabolism of drugs & effects of drugs on drug-metabolizing enzymes. Involves use of a number of bioanalytical techniques, including HPLC, GC, & spectroscopy, determination of drug levels by spectrophotometric, fluorimetric & radiometric analysis, determination of enzyme activities using specific substrates, measuring enzyme levels by spectrophotometric & electrophoretic techniques including Western immunoblotting. Dosing of laboratory animals by multiple routes including minor surgical procedures for cannulation & preparation of tissue fractions for enzyme analysis & protein binding. Report to multidisciplinary investigational team comprising biologists, chemists & clinicians, on aspect of drug metabolism which will favor discovery of new drugs. Ph.D. in Biochemistry/Pharmacology req'd. Min. 4 1/2 yrs. of exp. in the job offered or 4 1/2 yrs. of exp. as Post-Doctoral Fellow, drug metabolism research. Must have graduate specialization in drug metabolism. Must know various techniques used in quantitating metabolism of drugs and levels of enzymes, including *in vitro* techniques. 40 hrs/wk., \$25.48/hr. Send resume to: Job Service Technical Unit CT Dept. of Labor, 200 Folly Brook Blvd., Whettersfield, CT 06109 J.O. #3072901.

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# Pulmonary Research



Pfizer Inc is an international leader in the research and development of health care products. The Department of Immunology and Infectious Diseases of the Central Research Division is committed to innovative research leading to the discovery of novel therapeutics for the treatment of pulmonary diseases. Our approach to drug discovery encourages individual creativity as an important element in guiding a team effort toward a therapeutic target. This philosophy results in an environment that is challenging to the individual while enhancing group productivity. Scientific growth and development are stimulated by frequent interactions with prominent scientists in academia and medicine as well as with members of the research community within Pfizer.

Our current interests encompass the pharmacologic manipulation of monocyte-macrophage/lymphocyte/eosinophil interactions in models of airway inflammation/hyperreactivity. You should have a PhD and postdoctoral training in pharmacology, physiology, biochemistry, or immunology. Prior research on problems associated with pulmonary or allergic disease mechanisms is highly desirable. Previous industrial research experience is welcome but not essential.

We offer a stimulating research environment and an excellent opportunity for professional recognition and advancement. In addition, we provide a competitive salary/benefits package and an opportunity to live in an attractive Connecticut shore community. Qualified applicants should submit their resume and references in confidence to: Dr. Jerry K. Larson, Assistant Director, Employee Resources, Pfizer Inc, Central Research Division, Eastern Point Road, Groton, Connecticut 06340. An equal opportunity employer.

## MARIE ELISE WHITNEY SNYDER MEMORIAL FELLOWSHIP WOMEN'S SCHOLAR AWARD IN MOLECULAR BIOLOGY

The Allegheny Singer Research Institute and The Medical College of Pennsylvania invite applications for the Marie Elise Whitney Snyder Memorial Fellowship to support a women's scholar award in molecular biology. This award is intended to encourage the investigation of the basic molecular aspects of human disease by young women scientists, and offers the opportunity to initiate independent research at Allegheny Singer Research Institute. Awards of up to \$50,000 a year for up to three years are made to individuals with either an M.D. or Ph.D. degree with extensive postdoctoral training or research experience in molecular biology. The awardee will have the opportunity to design and conduct research in a fully equipped laboratory as a staff scientist at Allegheny Singer Research Institute with an accompanying faculty appointment at the appropriate rank at The Medical College of Pennsylvania. The awardee will be selected by a panel of nationally recognized scientists for the award which will begin July 1, 1991.

Eligible applicants will have an M.D., Ph.D. or equivalent degree with a minimum of three years of postdoctoral or research experience and be not more than 7 years beyond degree prior to the initiation of the award. The research will be conducted at the Allegheny Singer Research Institute and the award may be used for salary or other support. Major items of equipment will be provided by the Institute.

Interested candidates should apply by October 1, 1990 by submitting a curriculum vitae, a description of future research plans and long term career goals, and the names of three references to Dr. Leonard L. Ross, Dean, The Medical College of Pennsylvania, 3300 Henry Avenue, Philadelphia, PA 19129. The reference letters should be sent directly to Dr. Ross. Selection of the awardee will be made by December 15, 1990.



The Medical College of Pennsylvania



ALLEGHENY-SINGER  
RESEARCH INSTITUTE

## CELLULAR NEUROPHYSIOLOGIST

A tenure-track or permanent position is available for a senior scientist in the Intramural Research Program of the National Institute of Mental Health. U.S. citizens and non-citizens are encouraged to apply. The incumbent should work in the general area of cellular electrophysiology using patch clamp or voltage clamp techniques to study ion channels, receptors and/or second messenger systems. The use of molecular biological techniques to express receptors and/or channels of electrophysiological studies is desirable. The salary will be commensurate with the successful applicant's experience (range of \$42,600 to \$78,200 per year). The person selected may be eligible for a Physician's Comparability Allowance which would increase the above figures as much as \$20,000.

The person chosen for this position will be responsible for the scientific and administrative management of a unit or section, and will be expected to develop an internationally recognized research program. Candidates should have an M.D. and/or Ph.D. degree and at least five years of postdoctoral experience. They should have made significant contributions to our understanding of ion channels, receptors, or second messenger systems.

Interested individuals should submit a C.V. and bibliography, a one-page outline of research interests, and names and telephone numbers of three references to:

**Steven M. Paul, M.D.**  
**Director of Intramural Research**  
**National Institute of**  
**Mental Health**  
**Building 10, Room 4N-224**  
**9000 Rockville Pike**  
**Bethesda, Maryland 20892**  
**(301) 496-3501**

NIMH is an Equal Opportunity Employer

## POSITIONS OPEN

**POSTDOCTORAL POSITION IN MOLECULAR BIOLOGY.** NIH training grant-supported position available 1 September 1990 to study the molecular biology of complement proteins. Experience in cloning, sequencing, mammalian expression desirable but not essential. Please send curriculum vitae to: **Dr. Carl-Wilhelm Vogel, Department of Biochemistry and Molecular Biology, Georgetown University, 3900 Reservoir Road, N.W., Washington, D.C. 20007.** *Equal Opportunity/Affirmative Action Employer.*

**POSTDOCTORAL ASSOCIATE.** Position available now for research focused on molecular events in skin epithelial and fibroblast differentiation and interactions. Background in molecular/cell biology required. Familiarity with in situ hybridization, mRNA analysis, and recombinant cDNA techniques desirable. Send curriculum vitae and three letters of reference to: **Dr. Alice Ma/Dr. Allan L. Lorincz, Section of Dermatology, Department of Medicine, The University of Chicago, 5841 South Maryland Avenue, Box 409, Chicago, IL 60637.**

**POSTDOCTORAL POSITION, MOLECULAR ENDOCRINOLOGY.** An NIH-funded program on autocrine regulation of parathyroid secretion by chromogranin peptides. Research utilizes cell biology, protein chemistry, and molecular biology. Exceptional research environment in a major medical/dental health science center. Faculty appointment possible for qualified candidate. Send résumé and three references to: **Dr. David V. Cohn, Chair, Department of Oral Health, School of Dentistry, University of Louisville, Louisville, KY 40292.** Telephone: 502-588-7507. *Affirmative Action/Equal Opportunity Employer.*

### POSTDOCTORAL POSITION MOLECULAR RETROVIROLOGY

Funding is available for a recent Ph.D. to study the regulation of FeLV expression, with particular emphasis on the mechanism of FeLV-induced T cell killing. Interested persons should send their curriculum vitae and the names and the telephone numbers of references to: **Julie Overbaugh, Department of Microbiology, SC-42, University of Washington, Seattle, WA 98195.** *An Equal Opportunity/Affirmative Action Employer.*

**POSTDOCTORAL TRAINEESHIP.** Available immediately in an NIH-funded training program in gastroenterology at the University of Pennsylvania. The position is in a laboratory with research focus on nerve/smooth muscle control mechanisms. Current studies involve the application of physiologic, pharmacologic, and molecular biology techniques in the study of the control and function of neuropeptide receptors and ion channels in the gut. Send curriculum vitae, a brief statement of current and future research interests, and the names and addresses of three references to: **Ann Ouyang, M.D., University of Pennsylvania School of Medicine, Gastrointestinal Section, 600 Clinical Research Building, 422 Curie Boulevard, Philadelphia, PA 19104-6144.** *Affirmative Action/Equal Opportunity Employer.*

**POSTDOCTORAL POSITIONS AVAILABLE.** The Department of Dermatology, University of Michigan, has openings for the study of growth regulation in human skin. Areas of interest include: receptor tyrosine kinases, growth factor gene regulation, retinoid and steroid receptors, and dermal-epidermal interactions. Ph.D.'s should have experience in molecular and/or cellular biology. M.D.'s desiring molecular biology training are welcome to apply. Send curriculum vitae and two letters of reference to: **James T. Elder, M.D., Ph.D., University of Michigan, C560 MSRB II Box 0672, Ann Arbor, MI 48109-0672.**

*An Equal Opportunity/Affirmative Action Employer.*

### POSTDOCTORAL POSITION ANIMAL MOLECULAR BIOLOGY

Available 1 October 1990. Identify molecular markers in mitochondrial DNA from dairy cattle and relate differences to phenotypic traits. Previous training in molecular biology is preferred. Applicants for this multidisciplinary position should send curriculum vitae, statement of research experience, and names of three references to: **Dr. Donald C. Beitz, Departments of Animal Science/Biochemistry-Biophysics, Iowa State University, Ames, IA 50011.** *Affirmative Action/Equal Opportunity Employer.*

## POSITIONS OPEN

### POSTDOCTORAL POSITION

Biochemist/molecular biologist wanted to study the relation of sphingolipids to myeloid/macrophage development. The project involves identification of novel sphingolipids and characterization of enzymes involved in their metabolism. Salary: \$30,000. Send curriculum vitae and addresses of two references to: **Dr. Richard Kolesnick, Memorial Sloan-Kettering Cancer Center, 1275 York Avenue, New York, NY 10021.**

### DANA-FARBER CANCER INSTITUTE HARVARD MEDICAL SCHOOL

A **POSTDOCTORAL POSITION** is available immediately for a project involving the erythropoietin receptor and signal transduction. Experience in cell culture and molecular biology is advantageous, but highly motivated individuals with a background in related areas are encouraged to apply. Send curriculum vitae and the names of three references to: **Dr. Alan D'Andrea, Dana-Farber Cancer Institute, 44 Binney Street, Boston, MA 02115.** Telephone: 617-732-3537.

### POSTDOCTORAL FELLOW

A position is available immediately to participate in studies on biological, pharmacological, and biochemical aspects of antifertility agents with emphasis on steroids and other related compounds. Applicants must have a Ph.D. or an M.D. degree. Experience in laboratory animal surgical techniques and hands-on experience in RIA and RRA are desired. Send curriculum vitae and the names and addresses of three references to: **Dr. C. C. Chang, Center for Biomedical Research, The Population Council, 1230 York Avenue, New York, NY 10021.**

### POSTDOCTORAL FELLOW POSITIONS LIPOPROTEIN METABOLISM BETH ISRAEL HOSPITAL AND HARVARD MEDICAL SCHOOL

Postdoctoral fellow positions available in the area of regulation or tissue-specific gene expression in the intestine. Candidates should have a Ph.D. degree and experience in RNA quantitation, nuclear run-on assays, gel-shift assays, radioimmunoassays, and cell culture techniques. Applications, including curriculum vitae, bibliography, two letters of reference, and names of two additional references, should be sent to:

**Dr. Robert Glickman**  
**Department of Medicine**  
**Beth Israel Hospital**  
**330 Brookline Avenue**  
**Boston, MA 02215**

**FELLOWSHIP IN IMMUNOLOGY.** Immunology program at a New England university health center. Two-year fellowship concentrating on basic research in immunology and molecular biology of vascular and inflammation animal and eye models. Choice of ten collaborating faculty laboratory areas available. Third-year option open. Research interests include plasminogen activator synthesis, vascular endothelial metabolism, integrin-receptor interactions, and diabetes. Position available 1990. Second position early 1991. Send curriculum vitae to: **James O'Rourke, M.D., Co-Director Vision-Immunology Center, Department of Pathology, University of Connecticut Health Center, Farmington, CT 06032.** *University of Connecticut is an Affirmative Action/Equal Opportunity Employer.*

### RESEARCH ASSOCIATE

Research associate position available starting August 1990 at Bascom Palmer Eye Institute, Department of Ophthalmology, University of Miami School of Medicine, Miami, Florida, to study molecular aspects of human genetic ocular diseases. Recombinant DNA techniques are primarily used to study retinitis pigmentosa, gyrate atrophy, and retinoblastoma. Applicant should have Ph.D./M.D. Experience in molecular biology preferred but not required. Send curriculum vitae and names, addresses, and telephone numbers of three references to: **Dr. George Inana, Associate Professor, Department of Ophthalmology, University of Miami School of Medicine, P.O. Box 016880, Miami, FL 33101.** *The University of Miami is an Equal Opportunity/Affirmative Action Employer.*



# Grow In A Field That Encourages Growth

## Plant Molecular Biology Research BS or MS Scientist

DowElanco is a leader in the field of research-based agricultural products. We're currently seeking a BS or MS level Scientist for our Agricultural Biotechnology Laboratory. Joining an interdisciplinary team of biologists, biochemists and molecular biologists, you'll research problems involving gene transfer and expression in plant cells and whole plants.

Candidates should have 1-3 years experience in plant molecular biology and a strong background in biochemistry and cell biology. Relevant knowledge of DNA analysis, enzyme assays, and plant genetic transformation is preferred.

You will begin with us in Midland, Michigan and will relocate to a new state-of-the-art research facility in Indianapolis which is scheduled to be completed in the fourth quarter of 1992.

We offer a competitive salary and benefits package in an interactive goal-oriented environment. Please send your resume to: Technical Recruiting, Department DE-1, DowElanco, 1801 Building, Midland, MI 48674. An Equal Opportunity Employer M/F/H/V.



**DowElanco**

## CHEMIST (MOLECULAR DYNAMICS) GM-861-13 potential 14 or 14

The Air Force Office of Scientific Research located at Bolling Air Force Base in Washington DC invites applications from qualified US citizens with a background in molecular dynamics research. An earned PhD is desired. The successful applicant will plan, advocate and manage the Air Force basic research program in spectroscopy, chemical kinetics, collisional energy transfer, chemiluminescence, and laser chemistry. A broad knowledge of US and foreign research in these areas is desired. The position is competitive civil service GM-13/14 or 14 with a salary range at GM-13 from \$42,601 to \$55,381 or at GM-14 from \$50,342 to \$65,444 per annum. No prior Government service is required. Applications will be screened by the Civilian Personnel Office.

### Send applications (SF 171) to:

Civilian Personnel Office  
1776 ABW/MSCA  
Ann. No. 90-314  
Andrews AFB MD 20331-5964

*Equal Opportunity Employer*  
Applications must be received by: 15 September 1990

## 1991 COMPETITION



## MERCK - AFCR FOUNDATION MD-PhD POSTDOCTORAL FELLOWSHIPS

### FIVE FELLOWSHIPS AVAILABLE

The Merck Sharp & Dohme Research Laboratories, through its Academic Development Program, and the American Federation for Clinical Research Foundation announce the first competition for the MERCK-AFCR Foundation MD-PhD Postdoctoral Fellowships to support the further training of MD-PhD scientists.

### FELLOWSHIP TERMS

- The candidate must have completed an MD-PhD educational program and be accepted into a postdoctoral training program.
- Fellowships are intended for independent research in the basic biomedical sciences, including the fields of biological chemistry, cellular, molecular, and structural biology, genetics, microbiology, immunology, pharmacology, physiology, and pathology.
- First-year support consists of a \$40,000 stipend and \$3,000 allowance for travel, journal subscriptions, and society memberships. In addition the university will receive a \$7,000 grant for supplies related to the funded research. Indirect costs will not be allowed.
- The Fellowship is renewable for an additional two years.
- The Fellow should devote 80% of his/her time to research. Each Fellow will spend up to three days in the Merck Research Laboratories during his/her tenure as award recipient and present research results. Travel support will also be provided for the Fellow's mentor. The Fellow will also be expected to attend a Regional or National AFCR meeting each year and submit an abstract.
- Applicants should be citizens of the U.S. or Canada or permanent residents of the United States.

### FELLOWSHIP APPLICATION TERMS

The applicant should submit originals and 8 copies of the following to the AFCR's address below:

- A curriculum vitae and a one-page abstract of the proposed research;
- A proposal of 8 to 10 pages, including background and references;
- A statement of the applicant's career goals;
- Two letters of recommendation;
- Two reprints of published papers representative of the applicant's research; and
- A letter from the mentor describing how the proposed research will contribute to the development of the applicant as a creative scientist. The letter should state the name of the institution, the department, and its chairperson.

### IMPORTANT DATES

The deadline for receipt of applications is October 1, 1990. Letters to Fellowship recipients will be mailed by January 1, 1991. The Fellowship will begin the following July 1st unless otherwise agreed.

### SEND APPLICATIONS AND INQUIRIES TO:

MERCK-AFCR Foundation Postdoctoral Fellowships  
Ms. Jean Haddock, Executive Director  
6900 Grove Road  
Thorofare, NJ 08086  
Tele: (609) 848-7072; Fax: (609) 853-5991

## RESEARCH SCIENTISTS AND ASSOCIATE PHARMACOLOGY

**Amgen**, an innovative leader in the development of human therapeutic products through application of biotechnology, has immediate opportunities in our Pharmacology group.

### RESEARCH SCIENTISTS Dept. #548

Candidates must have a Ph.D. in Pharmacology or related discipline and a minimum of two years' post-doctoral experience in the absorption, distribution and metabolism of drugs (preferably polypeptides and proteins). Previous experience in computerized pharmacokinetic modeling programs and knowledge of protein and peptide separation techniques are essential. Previous industrial experience is highly desirable.

### RESEARCH ASSOCIATE Dept. #547

Responsibilities include analysis of putative differentiation factors in the growth of human tumor cells *in vitro* and *in vivo* as well as participation in ongoing pharmacology research projects.

Applicants must have a BS or MS in Pharmacology or a related discipline as well as experience with *in vivo* and *in vitro* cell culture assay systems including growth and maintenance of epithelial or mesenchymal cells. Experience in immuno-histochemistry and PC-based data analysis systems is highly desirable.

**Amgen** offers a competitive salary and benefits package as well as a stimulating and challenging research environment on the leading edge of biopharmaceutical development. Our location, about an hour drive northwest of Los Angeles, offers the best in Southern California living in an attractive community with excellent air quality and free of traffic congestion. Qualified candidates should send a resume, in confidence, to:

**AMGEN, INC.**  
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# AMGEN

## Senior Research Pharmacologist

### Dermatology Research

Hoechst-Roussel Pharmaceuticals Inc., a subsidiary of Fortune 100 Hoechst Celanese, has an immediate opportunity for a research professional to join its Dermatology Pre-clinical Research Laboratory.

As a strong team player, the ideal candidate will conduct innovative biochemical research directed to the discovery of drugs for the treatment of inflammatory and hyperproliferative skin diseases.

Heavy background in assay development and chromatographic (HPLC), enzymatic, receptor binding, tissue culture and radio-isotopic techniques is essential. Experience with inflammatory mediator/elcosanoid or cytokine research or leukocyte biology is a decided asset. And familiarity with *in vivo* models of acute and chronic inflammation or cutaneous hyperproliferation is a plus.

PhD required in cell biology, biochemistry, immunology, pharmacology or related field plus 1-2 years experience in an academic or industrial environment. Excellent interpersonal/speech and writing skills a must.

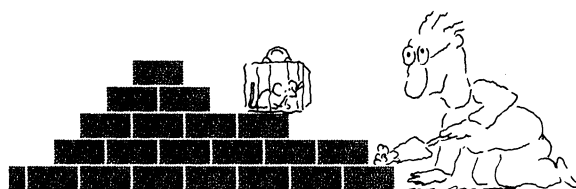
We offer a competitive salary, and an excellent flexible benefits package, including a 401K plan, and growth potential. For consideration, please send a resume with current earnings to: Jim Hamilton, Manager, Employment Dept 3139, Hoechst-Roussel Pharmaceuticals Inc., Route 202-206, P.O. Box 2500, Somerville, NJ 08876-1258. We are an equal opportunity employer M/F/H/V.

## Hoechst-Roussel Pharmaceuticals Inc.

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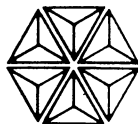


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The Bristol-Myers Squibb Company Pharmaceutical Research Institute has an excellent career opportunity for a Drug Regulatory Affairs Professional at its Syracuse, NY location. Reporting to the Associate Director of Regulatory Affairs, the selected candidate will be responsible for providing broad, highly skilled technical expertise in the areas of chemistry, pharmacy, manufacturing and controls for a broad spectrum of products including synthetic and biological-derived compounds. Will also handle worldwide regulatory affairs submissions for both clinical and marketing applications related to the above areas.

To qualify, you will need a Bachelor's degree in Life or Physical Sciences, preferably with background in the development, manufacture and quality control of drug substance and dosage forms, and strong scientific skills. Knowledge of regulatory affairs, domestic and international, a plus.

We offer a competitive compensation package and a comprehensive benefits program which includes relocation assistance to a superb upstate NY living area. Interested candidates should submit a resume with salary requirement, in confidence, to: EMPLOYMENT MANAGER.

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## Ph.D. NEUROSCIENTISTS

Hoechst-Roussel Pharmaceuticals Inc., a fast-growing subsidiary of Fortune 100 Hoechst Celanese and world leader in Neuroscience Research, has immediate opportunities for Ph.D. scientists to make vital contributions to their Biological Research Group.

Candidates must have a Ph.D. in the appropriate discipline and 1-3 years post-doctoral experience. They must have strong interpersonal, verbal and written communication skills and be able to adapt to a multidisciplinary project-team environment focused on CNS drug development.

### **BIOCHEMIST/NEUROCHEMIST**

This position is involved in the study of neuropeptide receptor function and regulation and requires a Ph.D. in Biochemistry with expertise in both protein biochemistry and enzymology.

### **NEUROPHARMACOLOGIST/ NEUROCHEMIST**

This position involves the evaluation of neurotransmitter release and uptake, using both *in vivo* and *in vitro* methods. Essential for this position is a background in molecular pharmacology utilizing neurochemical techniques such as RIA, HPLC-ED, *in vitro* release.

## POST-DOCTORAL POSITIONS

We also have the following 1-year post-doctoral opportunities with a renewable 1-year option.

### **BIOCHEMIST/NEUROCHEMIST**

Research will involve the enzymatic processing of prohormones in CNS and requires expertise in protein biochemistry, and enzymology. A Ph.D. in Biochemistry, with cell biology and pharmacology training is required.

### **NEUROPHARMACOLOGIST**

Research will explore new treatment therapies for schizophrenia and personality disorders with a focus on serotonin mechanisms in the CNS utilizing *in vivo* brain microdialysis and HPLC. A Ph.D. in Biochemistry, Pharmacology or a related discipline with related research experience is required.

If you would like to become part of our talented, highly-motivated neuroscience research team, please send your resume, with salary requirements to: Jim Hamilton, Mgr. Employment, Section 3602, Hoechst-Roussel Pharmaceuticals Inc., Route 202 & 206 North, Somerville, NJ 08876-1258. An Affirmative Action Employer M/F/H/V.

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## POSITIONS OPEN

### COLLAGEN MOLECULAR GENETICS

A **POSTDOCTORAL FELLOWSHIP** is available to study the molecular genetics of connective tissue disorders. The position is in the Collagen Molecular Genetics Laboratory at the Cedars-Sinai Medical Genetics Birth Defects Center. The major area of interest within the laboratory is the origin, structure, mechanism, and developmental timing of mutations in collagen genes.

Cedars-Sinai is a University of California, Los Angeles (UCLA)-affiliated research and teaching hospital and fellows may participate in the UCLA intercampus training program in medical genetics. The Medical Genetics Birth Defects Center has 14 faculty with research interests in many areas including skeletal dysplasias and the molecular basis of disorders of bone and connective tissue, chromosome mapping, molecular hematology and oncology, molecular cytogenetics, prenatal diagnosis, immunogenetics, population genetics, genetics of common diseases, and clinical genetics. Interested applicants should submit their curriculum vitae and the names of three references to:

**Dr. Daniel H. Cohn**  
Medical Genetics Birth Defects Center  
Steven Spielberg Building, 3rd Floor  
Cedars-Sinai Medical Center  
8700 Beverly Boulevard  
Los Angeles, CA 90048

**POSTDOCTORAL RESEARCH FELLOW-SHIP.** Position is available on or before 30 June 1991 to study mechanisms of hormone signal transduction. Experience in molecular techniques is required and will be applied to receptor cloning and expression. Send curriculum vitae and two letters of reference to: **Dr. Ian Taylor**, P.O. Box 3913, Duke University Medical Center, Durham, NC 27710. Telephone: 919-684-5066. *Duke University is an American Association Equal Opportunity Employer.*

**POSTDOCTORAL RESEARCH.** At the National Center for Toxicological Research (NCTR). Research efforts at NCTR, an FDA laboratory in central Arkansas, focus on testing the assumptions used in assessing risks posed by toxic chemicals emphasizing studies in biomarkers, modulators of toxicity, and extrapolation/risk assessment. Postdoctoral stipends begin at \$31,750 per year. U.S. citizenship or PRA status required. Contact: **Postgraduate Research Program at NCTR, Science/Engineering Education Division, Oak Ridge Associated Universities**, P.O. Box 117, Oak Ridge, TN 37831-0117. Telephone: 615-576-3190.

### UNIVERSITY OF PENNSYLVANIA POSTDOCTORAL RESEARCH ASSOCIATE

In human mucosal immunology available immediately to study gastrointestinal immunoregulation and alteration in inflammatory bowel disease (Crohn's disease, ulcerative colitis). Strong background in immunology and biochemistry (Ph.D.) preferred, experience in cell biology desirable. Studies will include the molecular characterization of human intestinal lymphocyte activation, cytokine secretion, and intestinal B cell immunoglobulin secretion. Funding by NIH training grant (U.S. citizens and permanent residents only). Please send curriculum vitae and three references with telephone numbers to: **Richard P. MacDermott, M.D.**, Gastrointestinal Section, Department of Medicine, Room 600, Clinical Research Building, 422 Curie Boulevard, Philadelphia, PA 19104-6144. Please call 215-898-0161 for further information. *Affirmative Action/Equal Opportunity Employer.*

**RESEARCH ENGINEER.** The Microelectronics Laboratory at the University of Illinois at Urbana-Champaign seeks person to operate, maintain, and develop laboratory equipment and train laboratory users. Requires BSEE or equivalent, familiarity with device fabrication, and knowledge of vacuum/computer systems. Familiarity with cleanroom protocol, ebeam lithography, and CAD desirable. Salary commensurate with qualifications. Regular, full-time position. Closing date: 4 September 1990. Starting date: 1 October 1990. Send letter of application, résumé, and reference list to: **James Renshaw**, Assistant Director, University of Illinois Microelectronics Laboratory, 208 North Wright Street, Room 127, Urbana, IL 61801. Telephone: 217-333-3097. *An Affirmative Action/Equal Opportunity Employer.*

## POSITIONS OPEN



Agricultural Research Service  
United States Department of Agriculture

### POSTDOCTORAL RESEARCH GENETICIST FIELD CROPS RESEARCH UNIT AMES, IOWA

ARS is seeking applications for a 2-year postdoctoral position to identify molecular genetic markers (RFLP) in diploid oats linked to genes for resistance to crown rust (*Puccinia coronata*). This project will complement an ongoing RFLP project in diploid oats to establish a base from which other areas of oat molecular biology are being developed. These areas include map-based cloning and the development of transformation systems in monocots. Candidate must have Ph.D. in genetics, molecular biology, plant pathology, or similar field. Experience in cloning, mapping, or plant transformation is desirable. Salary is \$24,705. For information on the research program and position, contact: **Dr. Roger Wise**, USDA-ARS, Department of Plant Pathology, Iowa State University, Ames, IA 50011. Telephone: 515-294-9756. FAX: 515-294-1337. For information on application procedures/forms, contact: **Janie Carr**, 301-344-4569. Applications in response to this advertisement should be marked ONO47. Mailing address: USDA, Agricultural Research Service, Personnel Operations Branch, 6305 Ivy Lane, Room 325, Greenbelt, MD 20770.

*An Equal Opportunity Employer.*

### POSTDOCTORAL/RESEARCH ASSOCIATE HEAT SHOCK PROTEINS

A postdoctoral/research associate position is available for at least 3 years to study the effect of heat shock on the structure and function of the nucleolus and ribosomal RNA transcription and processing in mammalian cells; the role of heat shock proteins, especially HSP 70, in this process will also be investigated. A good background in protein and nucleic acid chemistry is desirable. Salary is commensurate with experience. Please contact: **Dr. Andrei Laszlo**, Section of Cancer Biology, Washington University Medical Center, Box 8131, 4511 Forest Park, St. Louis, MO 63108-2136.

**ASSOCIATE RESEARCH SCIENTIST/POSTDOCTORAL ASSOCIATE POSITION.** Available immediately to join a multidisciplinary laboratory in the study of mechanisms of hormone-stimulated oncogene induction in a nontoxic animal model of gastric carcinoid tumorigenesis. Research involves generation and maintenance of carcinoid tumor in culture, study of tumor secretion, and investigation of mechanisms of hormone-stimulated oncogene amplification. Ph.D. or M.D./Ph.D. with 1 to 3 years of molecular biology experience preferred, but will consider candidates with solid graduate credentials. Please send résumé and names of three references to: **James R. Goldenring, M.D., Ph.D.**, GI Surgical Research Laboratories, Department of Surgery, Yale University School of Medicine, 333 Cedar Street, New Haven, CT 06510. *Affirmative Action/Equal Opportunity Employer.*

### RESEARCH ASSOCIATE MOLECULAR BIOLOGY

A postdoctoral research associate position is available immediately at the U.S. Department of Agriculture (USDA), Agricultural Research Service (ARS), Plum Island Animal Disease Center. The research involves studies on the foot-and-mouth disease virus cellular receptor site [Baxt and Becker, *Virus Genes* 4, 73 (1990)]. Expertise in monoclonal antibody techniques is essential. Expertise in membrane biochemistry and peptide synthesis and purification is desired. The position is fully funded and research is performed in laboratories providing the latest equipment. High-speed ferry service is available to Plum Island from either Long Island or Connecticut. Appointments are for up to 2 years and are funded at \$29,891 to \$35,825 depending on qualifications. Applicants should send curriculum vitae and the names and addresses of three references to: **Dr. Barry Baxt**, USDA, ARS, NAA, Plum Island Animal Disease Center, P.O. Box 848, Greenport, NY 11944. FAX: 516-323-2507. For information, call: 516-323-2500, ext. 276. Applications will be accepted until the position is filled.

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**ANIMAL RESEARCH COORDINATOR**

The Alcohol, Drug Abuse, and Mental Health Administration (ADAMHA) has an immediate opening for a senior scientist/staff specialist who will serve as the Agency coordinator, and as the senior advisor to the Administrator, for animal research issues. The incumbent will formulate and recommend Agency and PHS scientific/management policies in this area, public education initiatives, and collaborative efforts and networks with scientists and research administrators.

This position will be filled at the GS-14/15 level, with an annual salary range of \$50,342 to \$78,200. Physicians may be eligible for an additional Physician's Comparability Allowance of \$8,000 - \$20,000 annually. The position may also be filled through appointment in the PHS Commissioned Corps. Desirable qualifications include: 1) advanced scientific/health education (M.D. or Ph.D. preferred) and experience demonstrating knowledge of animal research methods and applications; and/or 2) extensive management experience within a scientific or academic/research environment. Research program planning and policy analysis experience, superb communication skills, and an understanding animal research issues are also essential.

This position is located in Rockville, Maryland and offers full Federal benefits. Relocation expenses may also be paid. U.S. Citizenship is required. Send Application for Federal Employment (SF-171)/resumes to: Ms. Mary Jane Meyers, ADAMHA Personnel Office, Rm. 15C-12, 5600 Fishers Lane, Rockville, MD 20857 (Telephone: (301) 443-5407). Applications must be postmarked by August 24, 1990.

ADAMHA IS AN EQUAL OPPORTUNITY EMPLOYER

**POSTDOCTORAL FELLOW  
MOLECULAR AND CELLULAR  
NEUROBIOLOGY**

Burroughs Wellcome Co., an innovative pharmaceutical company with a top reputation for research, has a postdoctoral position available in the Division of Cell Biology involving the study of:

**DNA-protein interactions which regulate  
the expression of neuronal protein kinases  
and neuronal differentiation.**

Candidates must have a Ph.D. or M.D. with training in biochemistry, molecular biology, cell biology, or neurobiology.

Burroughs Wellcome Co. offers top benefit programs along with competitive salaries. If you are interested, submit your curriculum vitae, indicating position #62185-4 in your cover letter, by **October 15, 1990** to: **Burroughs Wellcome Co., Scientific Recruiting and Staffing, Pos. #62185-4, 3030 Cornwallis Road, Research Triangle Park, NC 27709.**

For information on job opportunities with Burroughs Wellcome Co. at Research Triangle Park, call our Job Information Line at **(919)248-8347** from any touch tone phone.



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**GLAXO INSTITUTE FOR MOLECULAR BIOLOGY**

The Geneva molecular biology research Institute of one of the world's most successful healthcare groups is offering a

**POSTDOCTORAL FELLOWSHIP IN  
MOLECULAR NEUROBIOLOGY**

The project will focus on the establishment of neuronal cell lines and the ideal candidate will have a proven record in the cloning of genes, characterisation of promoter elements and mammalian cell culture. Experience with the analysis of transgenic mice would be an advantage.

The Glaxo Institute for Molecular Biology carries out long term research to support the company-wide effort to discover effective new medicines. It provides a dynamic research environment, and encourages the publication of scientific results as well as collaborative projects with academic groups.

We offer an excellent salary and benefits package and opportunities for career development in one of the most attractive parts of Europe.

If you are interested in this position, please send your Curriculum Vitae with a list of publications and the names of three referees to: Rita Gloor, Personnel Manager, GLAXO IMB S.A., 46, route des Acacias, 1211 Geneva 24, Switzerland.

## POSITIONS OPEN

### POSTDOCTORAL RESEARCH ASSOCIATE

A position is available for a recent doctorate in synthetic organic chemistry to join the Cyclotron-PET Program at Brookhaven National Laboratory, to participate in the development of imaginative new organic synthetic methods for incorporating the short-lived positron emitters carbon-11 and fluorine-18 ( $t_{1/2} = 20.4$  min and 110 min) into organic molecules.

In this position there will be broad interaction with a large multidisciplinary team of scientists whose research focus is on the study of biochemistry in the living human and animal brain and heart using positron emission tomography (PET). Specific interests include the development of rapid synthetic methods for the fluorination of organic molecules and for incorporating one-carbon precursors into complex organic molecules. However, emphasis is placed on broad knowledge of modern synthetic organic chemistry.

Applicants should send résumé and transcripts, and request that three letters of recommendation be forwarded to: **Dr. Alfred P. Wolf, Department of Chemistry, Brookhaven National Laboratory, Associated Universities, Inc., Upton, Long Island, NY 11973. Equal Opportunity Employer, M/F.**

### RESEARCH ASSOCIATE IN CHEMISTRY

Ph.D. in organic/biorganic chemistry with minimum of 2 years of experience in synthesis of heterocyclic compounds. Applicant is required to synthesize nucleoside/peptide analogs, to carry out purification of bioactive materials for drug development, and to participate in isolation of cDNA and gene products present in tumorigenic cells. Proven accomplishment in the above areas is expected. Expertise in analytical tools such as HPLC, GC, GC/MS, and NMR is essential. Ability to cooperate with biologists in antiviral research is required. Annual salary: \$30,000. Working hours: 40 hours per week. Send applications to: **Professor George Acs, Departments of Biochemistry, Box 1020, Mount Sinai Medical Center, One Gustave L. Levy Place, New York, NY 10029-6574.**

**CHIEF RESEARCH TECHNICIAN.** Current opening for a chief research technician in the Biomedical Physics Department of the King Faisal Specialist Hospital and Research Centre in Riyadh, Saudi Arabia. Must be capable of supporting all aspects of mammalian cell cultures including *in vivo/in vitro* systems. Experience in radiation biology would be desirable. Minimum of 5 to 7 years of mammalian research experience with B.S. degree in appropriate science (some reduction of experience requirement possible with M.S. degree). Potential tax-free salary and excellent benefits. Send résumé and salary requirements to: **Hospital Corporation International (HCI), 2515 Park Plaza, Nashville, TN 37203, or call toll-free at 1-800-251-2561 in the United States, 1-800-342-2110 in Tennessee, or COLLECT at 615-320-2440 from Canada. HCI is an Equal Opportunity Employer.**

**ASSISTANT RESEARCH SCIENTIST.** To investigate intraseasonal, interannual, and decadal variability of the atmosphere-ocean system and its predictability by formulating models for climatic variability and performing nonlinear analysis and numerical experiments, and to supervise students. Requires: Ph.D. in atmospheric sciences and 2 years in the job offered or 2 years of postdoctoral research experience working in the area of low-frequency variability. Demonstrated research ability in the fields of climate dynamics and global change. Expertise in the mathematical analysis and numerical simulation of atmosphere and ocean models as well as in the physical interpretation of the results. Experience in the use of nonlinear dynamics in LFV research. Salary: \$39,300 per year. Job location/interview: Los Angeles, California. Please send this ad and résumé to: **Job# CC16817, P.O. Box 9560, Sacramento, CA 95823-0560, no later than 25 August 1990.**

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### ASSISTANT RESEARCH SCIENTIST

The University of Iowa College of Medicine, Department of Psychiatry, is seeking a psychiatrist with advanced training in molecular genetics to direct a molecular genetics laboratory. Duties will include carrying out independent research projects and collaborating with faculty on existing projects on the genetics of psychiatric disorders. Contact: **Dr. Raymond R. Crowe, Department of Psychiatry, University of Iowa College of Medicine, 500 Newton Road, Iowa City, IA 52242. The University of Iowa is an Equal Opportunity/Affirmative Action Employer. Minorities and women are encouraged to apply.**

### VEGETATION OR CLIMATE MODELER

The University of Maine seeks applicants for a new, tenure-track faculty opening in either vegetation modeling or climate modeling, with special emphasis on use of paleoecological or paleoclimatic data. The successful candidate will have a joint appointment in the Institute for Quaternary Studies and an appropriate academic department, and will be expected to develop a strong program of teaching and research with particular emphasis on global climate change. Application deadline is 15 September 1990, or until suitable candidate is found. A letter of application, curriculum vitae with the names of three references, and a statement of research interest should be sent to: **Dr. G. L. Jacobson, Institute for Quaternary Studies, University of Maine, Orono, ME 04469. An Equal Opportunity Employer.**

**VIROLOGIST/MOLECULAR BIOLOGIST.** At Henry Ford Hospital. A position in the Division of Infectious Diseases offering the opportunity for a major commitment to research. The candidate must have 3 to 5 years of postdoctoral training. There is a guaranteed salary and benefits package with appointment commensurate with the level of qualifications and academic development. The division has a commitment to AIDS with funded clinical and epidemiological NIH studies. The institution also has several molecular biology investigators. Interested candidates should submit curriculum vitae by 1 January 1991 to: **Dr. L. Saravolatz, Division of Infectious Diseases, Henry Ford Hospital, 2799 West Grand Boulevard, CFP-104, Detroit, MI 48202.**

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## POSITIONS OPEN

The Department of Pathology, University of California, San Diego (UCSD), is seeking an **ASSISTANT RESEARCH MOLECULAR BIOLOGIST/PATHOLOGIST** in the Cardiovascular Pathophysiology Laboratory. The applicant should have completed a postdoctoral fellowship and be able to direct the activities of several graduate students, postdoctoral fellows, and technicians. The major research focus is the molecular biology of cardiovascular disease models including cardiac hypertrophy, G protein signal transduction, and endothelial cell biology. The qualified applicant will be expected to conduct his or her own individual research programs related to the major theme of this laboratory. Salary and level of appointment will be commensurate with the qualifications of the candidates. Curriculum vitae and three names of referees should be sent to: **Colin M. Bloor, M.D., Director, Molecular Pathology Ph.D. Graduate Program, Department of Pathology, M-012, School of Medicine, UCSD, La Jolla, CA 92083 by 31 August 1990.**

The Department of Psychiatry at the University of Arizona College of Medicine is seeking a **PRECLINICAL SCIENTIST** involved in psychiatric or substance abuse research for a tenure-track position. Must have M.D. or Ph.D. and proven research record. Salary commensurate with experience and rank. Applicants should submit curriculum vitae, letter of interest, and the names and addresses of three references to: **Alan J. Gelenberg, M.D., Professor and Head, Department of Psychiatry, Arizona Health Science Center, Tucson, AZ 85724.** Position will remain open until filled. *Women and minority applicants are strongly encouraged to apply. The University of Arizona is an Affirmative Action/Equal Opportunity Employer.*

## SITUATIONS WANTED

**COASTAL ECOLOGIST.** Ph.D. Postdoctoral plus 6 years of research experience, 25 refereed publications on mangrove, saltmarsh, coral ecosystems. Seeks research/teaching. **Box 77, SCIENCE.**

**MOLECULAR BIOLOGIST/IMMUNOLOGIST, Ph.D. (1986).** Four years of postdoctoral experience. Experience in transgenic animals, PCR, cloning, sequencing. Seeking industrial/biotechnology position. **Box 82, SCIENCE.**

**Ph.D. BIOCHEMISTRY (1978).** Extensive experience in insulin secretion/diabetes research. Excellent publication record. Seeks industrial/research position. **Box 84, SCIENCE.**

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<u>Anatomy:</u>	Professor/Associate Professor (Gross Anatomy)	: 1 post
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<u>Microbiology:</u>	Associate/Assistant Professor (Mycology)	: 1 post
<u>Pathology:</u>	Associate/Professor (Clinical Chemistry)	: 1 post
<u>Pharmacology:</u>	Assistant/Associate Professor (Biochemistry of intracellular second messenger)	: 1 post
	Assistant/Associate Professor (Cardiovascular research)	: 1 post
<u>Physiology:</u>	Assistant/Associate Professor (Neurophysiologist)	: 1 post
	Associate/Professor (Cardio-vascular Physiologist)	: 1 post
<u>Gynaecology &amp; Obstetrics:</u>	Professor (Neonatal Obstetrics)	: 1 post
	Professor (Endocrinology and Infertility)	: 1 post
	Associate Professor (Oncology & Urology)	: 1 post
	Assistant Professors (General Obstetrics & Gynaecology)	: 2 post
<u>Medicine:</u>	Associate/Assistant Professor (Infectious Diseases)	: 1 post
	Associate/Assistant Professor (Respiratory)	: 1 post
	Assistant/Associate Professor (Haematology)	: 1 post
<u>Nuclear Medicine:</u>	Assistant/Associate Professor (Clinical Nuclear Medicine Physician)	: 1 post
	Associate/Professor (Visiting Professor)	: 1 post
<u>Organ Transplantation:</u>	Assistant/Associate Professor (Transplant Surgery)	: 1 post
	Assistant/Associate Professor (Transp. Anaesthesia & Intensive care)	: 1 post
	Assistant Professor (Experimental Surgery)	: 1 post
<u>Pediatrics</u>	Assistant/Associate (Pediatric Allergy & Clinical Immunology)	: 1 post
	Assistant/Associate (Neonatology)	: 1 post
	Assistant/Associate (Molecular Biologist)	: 1 post
	Assistant/Associate (Pulmonary Medicine)	: 1 post
	Assistant/Associate (Pediatric Critical Care Medicine)	: 1 post
	Assistant/Associate (Emergency Medicine)	: 1 post
	Assistant/Associate (Pediatric Cardiology)	: 1 post
	Assistant/Associate (Genetics)	: 1 post
	Assistant/Associate (Infectious Disease)	: 1 post
<u>Psychiatry:</u>	Associate/Assistant Professors (Teaching and clinical services, Arabic speaking)	: 3 posts
<u>Radiology:</u>	Professor	: 1 post
	Assistant/Associate Professors	: 2 posts
<u>Surgery:</u>	Assistant/Associate Professor (Anaesthesia)	: 3 posts
	Associate/Professor (Orthopedic)	: 1 post
	Associate/Professor (Urology)	: 1 post

**REQUIREMENTS FOR APPOINTMENT:**

Qualifications: Applicants should possess a Ph.D or an equivalent high professional qualification i.e., FRCS/MRCP/MRCOG/MRCPath/MD/American Board in their respective speciality and have conducted and published research in their field.

Experience: Professors – 14 years (4 as an Associate Professor).  
Associate Professors – 9 years (4 as an Assistant Professor).

**CONDITIONS OF APPOINTMENT:**

Salaries: Total monthly salaries will be within the following scales according to qualifications and experience (1 KD = 2.3 Sterling Pound, US\$ 3.50 approximately). Increment per year KD. 20/-

**—PROFESSORS:**

With clinical appointments	= KD.1210–1370	(8 increments)
Medically qualified with a Ph.D in medical science	= KD.1140–1300	( " " )
Non-medically qualified	= KD.1070–1230	( " " )

**—ASSOCIATE PROFESSORS:**

With clinical appointments	= KD. 989–1149	(8 increments)
Medically qualified with a Ph.D in medical science	= KD. 932–1092	( " " )
Non-medically qualified	= KD. 875–1035	( " " )

**—ASSISTANT PROFESSORS:**

With clinical appointments	= KD. 768–928	(8 increments)
Medically qualified with a Ph.D in medical science	= KD. 724–884	( " " )
Non-medically qualified	= KD. 680–840	( " " )

**OTHER ALLOWANCES:**

— Social allowance will be paid in addition to the monthly salary as per the University regulations.

— Clinical allowance from the Ministry of Public Health for 10 months a year (i.e., the University Academic year from SEPTEMBER to end of JUNE) for clinical service commitments as follows:

Professor and Chairman	: KD. 450
Professor	: KD. 400
Associate Professor	: KD. 300
Assistant Professor	: KD. 200

**OTHER BENEFITS:** Conference attendance. Gratuity. Furnished accommodation (electricity and water free of charge). Free medical treatment in Kuwait. Free annual roundtrip airtickets from Country of citizenship or permanent residence for self and family up to three dependent children. Baggage and freight allowance. Education fees for maximum three children in Kuwait from elementary through high school. No taxation. Currency is transferable without restriction. 60 days paid annual leave.

**METHOD OF APPLICATION:** Curriculum vitae in duplicate which should include the names of 3 referees; personal particulars; copy of the relevant pages of passport; qualifications with dates; career history; teaching experience, research accomplishments and, where appropriate clinical experience should be sent to the: THE VICE-DEAN ADMINISTRATION (RECRUITMENT OFFICE), FACULTY OF MEDICINE, UNIVERSITY OF KUWAIT, P.O. BOX 24923 SAFAT, 13110 SAFAT KUWAIT—to arrive NO LATER THAN 15th NOVEMBER 1990.

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**RIV regulatory protein**  
The protein, a regulatory protein of the human immunodeficiency virus, contains 64 amino acids, including a Cys-rich cluster and a highly basic region. The fusion protein CII-lat was expressed in *E. coli* and isolated from the soluble cell lysate by cation exchange chromatography at 4°C.

Lysate was loaded through the pump into the column. The acidic proteins, the majority of the material, were washed through the column followed by gradient elution of the strongly basic CII-lat. The collected fraction was further purified by reverse phase chromatography. Sequencing of the first 20 N-terminal amino acids confirmed the identity of the product.

**Chromatogram provided by Dr. R. V. J. Kelle, Transgene S.A., Strasbourg, France**

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Non-porous resin (NPR) column materials offer the possibility of extremely fast and efficient separation of protein mixtures. The purification of cytochrome *c* from *R. viridis* required only sonication, centrifugation, and ion exchange chromatography of the crude supernatant.

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**Chromatogram courtesy of F. Lutzsch, Max Planck Institute, Martinsried, FRG**

**Enzyme purification**  
Aspartate aminotransferase (AAT) is a dimeric protein, molecular weight 87,000 and pI 4.6, with pyridoxal phosphate as coenzyme. The enzyme was purified from strain of *E. coli* containing a multicopy plasmid with the *lac* AAT, which results in 100% overexpression of the enzyme.

Cells were sonicated, centrifuged, and the insoluble cell debris applied to a strong anion exchange column. Absorption by the coenzyme at 360 nm is used to identify AAT during elution. This single chromatography purification step recovered active protein 95% pure by the  $A_{360}/A_{280}$  ratio.

**Chromatogram provided by Dr. F. Lutzsch, Max Planck Institute, Martinsried, FRG**

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