

mass-transfer phase during which the mass ratio is reversed. This reverse Algol phase was thought to be so brief as to be unobservable; now there seem to be several examples of it, and a reassessment of the theoretically expected lifetime is in order. R. F. Webbink gives a careful assessment of the observational evidence concerning the "common envelope" evolution of binary stars, in which large amounts of mass and angular momentum are very rapidly lost from the system and the outcome is either a merger of the two stars or a binary system whose orbital period is much smaller than before. Webbink's main concern is to identify the initial conditions that lead to this evolutionary pathway for binary stars rather than to the more familiar quasiconservative pathway.

Nearly every paper in this book adheres closely to the spirit of the conference as indicated by the title. A clear sense of dissatisfaction with our present understanding of binary star evolution is conveyed, along with the expectation that a much improved understanding is likely to be achieved rather soon, not in the vague, distant future. The requests and suggestions at the ends of the papers for additional observations or calculations are, for a change, not merely a conventional sign-off but worthy of serious consideration.

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Earth's Dimensions

Geophysical Geodesy. The Slow Deformations of the Earth. KURT LAMBECK. Clarendon (Oxford University Press), New York, 1988. xii, 718 pp., illus. \$135; paper, \$55.

Geodesy is the study of the shape of the earth and its gravity field. A number of classical books on geodesy have been published, including Bomford's *Geodesy*, now in its fourth edition, also published by Oxford. In this research monograph Kurt Lambeck presents a comprehensive treatment of classical geodesy including gravity and geoid anomalies, the earth's rotation, and the free oscillations of the earth. The presentations are highly mathematical and complete.

In recent years, space-based position measurements at the centimeter level have brought a renewed interest in geodesy. These observations have confirmed that the relative velocities between plates are the same on time scales of years and millions of years. They have also provided valuable data on the deformation adjacent to plate boundaries, for example in California. This book

gives an excellent analysis of the various systems used for position measurement such as lunar laser ranging and long-baseline interferometry. Some related material on the reasons for making the observations is given, but because of space limitations the discussion tends to be superficial. A detailed treatment of postglacial rebound is also given. This phenomenon places important constraints on the rheology of the mantle and remains a subject of some controversy.

This book is recommended to anyone interested in modern geodetic techniques and their relation to other problems in geophysics. It is clearly written and well produced.

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Books Received

Adopting a Stream. A Northwest Handbook. Steve Yates. Adopt-a-Stream Foundation, Everett, WA, 1989 (distributor, University of Washington Press, Seattle). xii, 116 pp., illus., + appendixes. Paper, \$9.95.

Advanced MOS Device Physics. Norman G. Einspruch and Gennady Sh. Gildenblat, Eds. Academic Press, San Diego, CA, 1988. xii, 370 pp., illus. \$85. VLSI Electronics Microstructure Science, vol. 18.

Advanced Programming with Microsoft QuickC. Keith Weiskamp. Academic Press, San Diego, CA, 1988. xiv, 548 pp., illus. \$49.95.

Advances in Algorithms and Computational Techniques in Dynamic Systems Control. Part 1. C. T. Leonides. Academic Press, San Diego, CA, 1988. x, 352 pp., illus. \$65. Control and Dynamic Systems, vol. 28.

Advances in Chinese Computer Science. Vol. 1. Xu Kongshe, Ed. World Scientific, Teaneck, NJ, 1988. viii, 224 pp. \$44.

Allied Health Services. Avoiding Crises. Institute of Medicine. National Academy Press, Washington, DC, 1989. xvi, 344 pp. Paper, \$35.

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Analyzing Systems. James A. Kowal. Prentice Hall, Englewood Cliffs, NJ, 1988. xxii, 441 pp., illus. \$54.

Andrology and Human Reproduction. A Negro-Vilar *et al.*, Eds. Raven, New York, 1989. xvi, 341 pp., illus. \$84. Sero Symposia Publications from Raven Press, vol. 47. From a symposium, Sao Paulo, Brazil, May 1987.

Animal Growth Regulation. Dennis R. Campion, Gary J. Hausman, and Roy J. Martin, Eds. Plenum, New York, 1989. xviii, 405 pp., illus. \$75.

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Biologically Active Natural Products. Potential Use in Agriculture. Horace G. Cutler, Ed. American Chemical Society, Washington, DC, 1988. xii, 483 pp., illus. \$89.95. ACS Symposium Series, vol. 380. From a symposium, New Orleans, LA, Aug.-Sept. 1987.

The Biology and Utilization of Shrubs. Cyrus M. McKell, Ed. Academic Press, San Diego, CA, 1988. xx, 656 pp., illus. \$125.

Biophysical Chemistry of Dioxygen Reactions in Respiration and Photosynthesis. Tore Vänngård, Ed. Published for the Royal Swedish Academy of Sciences by Cambridge University Press, New York, 1988. vi, 131 pp., illus. \$32.50. *Chemica Scripta*, vol. 28A. From a conference, Fiskebäckskil, Sweden, July 1987.

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The Coastal Zone. Man's Response to Change. Kenneth Ruddle, William B. Morgan, and James R. Pfafflin, Eds. Harwood, New York, 1988. viii, 555 pp., illus. \$65. Reprinted from *Resource Management and Optimization*, vols. 4 and 5.

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Conformational Analysis of Medium-Sized Heterocycles. Richard S. Glass, Ed. VCH, New York, 1988. xiv, 274 pp., illus. \$59.50.

Continuous Decoupling Transformations for Linear Boundary Value Problems. P. M. van Loon. Centrum voor Wiskunde en Informatica, Amsterdam, 1988. vi, 198 pp. Paper, Dfl 30.40. CWI Tract no. 52.

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Hot Thin Plasmas in Astrophysics. R. Pallavicini, Ed. Kluwer, Norwell, MA, 1988. xiv, 434 pp., illus. \$99. NATO Advanced Science Institutes Series C, vol. 249. From an institute, Cargèse, France, Sept. 1987.

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Neutrinos. H. V. Klapdor, Ed. Springer-Verlag, New York, 1988. viii, 338 pp., illus. \$49.50. Graduate Texts in Contemporary Physics.

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M. Zaslavsky. Harwood, New York, 1988. xxiv, 675 pp., illus. + plates. \$98; paper, \$39. Contemporary Concepts in Physics, vol. 4. Translated from the Russian by Igor R. Sagdeev.

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The U.S. Intelligence Community. Jeffrey Richelson. 2nd ed. Ballinger (Harper and Row), Cambridge, MA, 1988. xxvi, 485 pp., illus. \$39.95; paper, \$16.95.

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Products & Materials

Chromatography Autosampler

The model 507 autosampler can operate on-line as part of a System Gold liquid chromatograph or can be connected to another chromatography system. When integrated into a System Gold chromatograph, the 507 offers single-point control, distributed intelligence, and digital bidirectional communications. Also, the user can program and store sampling conditions, and the 507 can automatically reinject and reanalyze a sample if its results are out of the expected range. The autosampler has a four-quadrant refrigerated sample holder with a 96-vial capacity and a separate vial for rinse liquid. Because vial access is direct, calibration vials need not be in sequence. Other features include variable injection volumes from 1 to 999 μ l; precolumn reagent addition, mixing, and reaction; and column switching. Beckman Instruments, Altex Division. Circle 441.

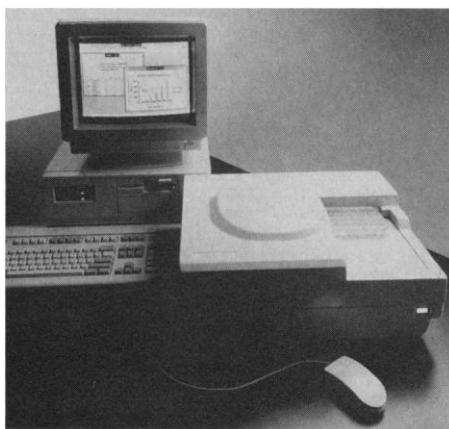
Homogenizer

The Sonic Disruptor disrupts, emulsifies, homogenizes, or disperses cells, microbes, spores, and tissues. The instrument's power supply converts 50/60-Hz power to high-frequency 20-kHz electrical energy, which is then converted to mechanical vibrations. The vibrations are intensified by the horn, creating cavities that expand and then implode violently during the positive excursion. Available power supply outputs are 300 W, 600 W, 600 W dual output, and 1500 W. Tekmar. Circle 444.

Plate Scanner

The CytoFluor Fluorescent Measurement System is a computer-controlled scanning device for multiwell plates. It can quantify both soluble and cell-associated fluorescent signals. Applications include cytotoxicity

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.



testing, phenotyping, cell receptor labeling, and fluorescence-based enzyme assay. The instrument can read fluorescent signal in less than 1 min through standard tissue culture plastic or through membrane-based tissue culture devices. The CytoFluor System accommodates 6-, 12-, 24-, and 96-well plates. Multiple wavelength scanning is possible, and data can be reported either as an EXCEL spreadsheet or as a comma-separated values file. Millipore. Circle 455.

Integrated FFT Analyzer and Digital Scope

The R45 is a combination fast Fourier transform spectrum analyzer—digital scope—laptop computer. The portable 40-megabyte computer can capture, analyze, and display spectra in real time. The system's two channels can simultaneously acquire data at a sample rate of 20 MHz, and each channel has a data buffer of 128 kilobytes. Spectra can be stored as magnitude or complex data. The R45 has menu-driven turnkey software. \$7995. Rapid Systems. Circle 453.

Chromatography Integrator

The D 2520 GPC Integrator processes and documents data from gel permeation chromatography (GPC), high-performance liquid chromatography, gas chromatography, and thin-layer chromatography. Calculations for GPC can be based on either standard calibration curves or a universal calibration curve. For optimal calibration, different curve fittings can be applied. Also, a compensation function is available to prevent calculation errors due to retention time drifts between standards and samples. The D 2520 GPC has an 80-character two-line liquid-crystal display. The instrument can automatically calculate polydispersity, intrinsic viscosity, and averaged molecular weights. Merck. Circle 445.

Immunoaffinity Chromatography Kit

The Cytokine Immunoaffinity Gel Kit is designed for separating and analyzing multiple samples by immunoaffinity chromatography. Each kit contains 3 mg of highly purified cytokine-specific antibody linked to agarose gel. Gels react with epitopes of both recombinant and natural antibody and can be regenerated for reuse. The kit is available with antibody to tumor necrosis factor, lymphotoxin, interleukin-1 α and β , interleukin-2, interleukin-6, granulocyte-macrophage colony-stimulating factor, or interferon γ . Included with the kit are buffers and a reusable glass column. \$495 to \$695, depending on the antibody included. Endogen. Circle 443.

Literature

Microbiological Analysis is a brochure about a membrane for cell culture that has a dot pattern grid. Gelman Sciences. Circle 467.

The 240-page *Handbook of Fluorescent Probes and Research Chemicals* lists more than 1200 reactive fluorescent dyes, enzyme substrates, cross-linking reagents, intracellular ion indicators, potential sensitive probes, cell viability indicators, polar tracers, histochemical stains, membrane probes, spin labels, avidin-biotin derivatives, and protein conjugates. Molecular Probes. Circle 528.

Sonomicroscope System 3100 is a brochure about a scanning acoustic microscope and how it can be used. SonoScan. Circle 529.

FTIR Photoacoustic Literature Survey compiles 180 abstracts of articles on Fourier-transform infrared spectroscopy (FTIR) from 1980 to 1988. MTEC Photoacoustics. Circle 530.

Products for Filtration, Separation, and Life Science Research is a catalog of apparatus and filter media for separation techniques, transfer methods, solid-phase assays, and related procedures. Schleicher & Schuell. Circle 531.

1989 Catalog lists more than 2000 laboratory products, including pH meters and electrodes, centrifuges, spectrophotometers, and computer software and hardware. Whatman LabSales. Circle 532.

The MB200 Moisture Balance is a brochure about an electronic moisture balance with a total capacity of 200 g and an automatic drying mode. Ohaus Scale. Circle 533.

Nucleogen is a brochure describing columns for isolating high molecular weight nucleic acids and plasmids by high-performance liquid chromatography. DyChrom. Circle 534.

Personnel Placement

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

LINE CLASSIFIED ADVERTISING DEADLINES:

Thursday, 10 a.m., 2 weeks prior to issue date (mailed on issue date). For deadlines for display advertising, please contact Scherago Associates.

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

LINE CLASSIFIED (POSITIONS OPEN, COURSES, FELLOWSHIPS, MARKETPLACE, and so forth): \$40.00 per line; \$400 minimum, per week (minimum charge covers one inch on a single column; one inch equals 10 lines of 52 characters and spaces per line). No charge for use of box number. No agency commission for ads less than 4 inches. No cash discount. Prepayment required for all foreign ads. Purchase orders and/or cover letter including billing address required for all other advertising.

To ESTIMATE ad cost:

Structure ad copy on a separate page, on lines of 52 characters and spaces. Include any desired heading. Each line of heading, and/or extra line spaces, and all partial lines (including centered reply information) are counted as full lines. Ad titles located within the text are printed in boldface caps and are only 32 characters per line. In ESTIMATING the cost, multiply total lines x \$40.00 = approximate cost of ad. (This is an approximate cost ONLY: Allow for variation between estimated lines and actual typeset lines and the resulting final cost. Purchase orders must allow for some degree of flexibility and/or adjustment.)

CANCELLATION POLICY:

NOTE: Ad cancellations made after Thursday, TWO weeks prior to issue date incur a 10% production charge. Final deadline for cancellations is 12 p.m. Tuesday, ONE week prior to issue date. Cancellations must be in writing.

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

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

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

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

Blind ad replies should be addressed as follows:

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

POSITIONS WANTED

Biochemist, Ph.D. 1979. Nine years of academic experience, Board certified, qualified by CLIA as Director. Excellent administrative, grant and publication records. Excellent references. Seeks position as laboratory director, teaching at medical school environment or industrial position. P.O. Box 92, 1014 Norcross, GA 30092.

Biopsychologist/Neurophysiologist, Ph.D. UCLA postdoctoral experience; single and multiple unit studies of sensory and memory processes; topographic brain mapping studies of Alzheimer's disease; presently assistant professor at midwest medical school, seeks research position. Box 76, **SCIENCE**.

Registered Patent Agent. Patent searches, patentability opinions, application preparation and submission. Scott Ramsey, Ph.D., 5253 Even Star Street, Columbia, MD 21044. Telephone: 301-730-9467.

POSITIONS WANTED

Biochemist/Immunologist, M.S. research and development of monoclonal antibodies for tumor imaging. Pharmacokinetics of antibodies and chelates. Radioimmunochemistry. Product development of tumor marker ELA's Purification by physicochemical and immunologic methods. Budget and staffing responsibilities. Seeks industrial research-management position. Box 77, **SCIENCE**.

M.S. Plant Biochemist. Three publications in plant enzymology/physiology. Experienced plant tissue culture/regeneration, maize pollenation/genetics, many biochemical techniques. Nursery and botanic garden experience. Seeks position utilizing broad based skills in biochemistry and plant science. Box 78, **SCIENCE**.

Research Scientist, Ph.D. Looking for an interesting research project. Background in wound healing, plasma proteins, and connective tissue. Box 70, **SCIENCE**.

Toxicologist, Ph.D., Board-certified with 10-plus years of industrial experience seeks position in California: chemical, consumer product, pharmaceutical, and hazardous waste site experience. Box 71, **SCIENCE**.

POSITIONS OPEN

ADVANCED RESEARCH ASSISTANT position with nationally known NIH-funded Parkinson's disease research project available immediately. Responsibilities include management of tissue culture laboratory and execution of experiments under supervision. Requirements: B.S. or M.S. in biological sciences or related disciplines and at least 2 years of experience using tissue culture techniques. Preference will be given to applicants with a more specific background in neurotoxicology. Salary: \$25,000 to \$30,000 per year plus benefits. Send curriculum vitae and names of two references to: **Dr. Dino DiMonte, Institute for Medical Research, 2260 Clove Drive, San Jose, CA 95128.**

ASSISTANT PROFESSOR APPLIED MATHEMATICS

Assistant professor level of applied mathematics. This is a tenure-track position. A person is sought with an active research program in the application of mathematics and/or statistics to toxicology and occupational medicine. Candidates are sought who have an interest in the mathematical modeling of biological events. Current research programs involve modeling carcinogen biochemistry, neurotoxicity of chemicals, pharmacokinetics of xenobiotic chemicals, deposition of chemicals in the respiratory tract and cancer surveillance. Active collaboration in one or more of these areas is available. Teaching responsibility for basic statistics and decision theory to medical and graduate students. Excellent computational facilities, including supercomputing, available.

Send curriculum vitae and names of five references to: **Dr. B. Menzel, Professor and Chairman, Department of Community and Environmental Medicine, University of California, Irvine, CA 92717.**

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

The University of Idaho is currently accepting applications for the position of **ASSISTANT PROFESSOR IN FISH ECOLOGY**. Required qualifications include an earned doctorate, expertise in fish ecology, good communication skills and proven research ability (design, conduct and reporting of results). Desired qualifications include expertise in the ecology, habitat, and management of salmonid fishes, demonstrated effectiveness in the classroom, and demonstrated ability to obtain research funding and publish results. Additional desired qualifications are statistical/quantitative skills, ability to work as a team member, and demonstrated skills in interagency cooperation. Salary is commensurate with experience. Search will be closed when a sufficient number of qualified applicants has been identified but not earlier than 15 June 1989. Send letter of interest, résumé, and three letters of recommendation to: **David H. Bennett or C. Michael Falter, Co-Chairs of the Search Committee, Department of Fish and Wildlife Resources, University of Idaho, Moscow, ID 83843. Telephone: 208-885-6337 or 208-885-7123. The University of Idaho is an Equal Opportunity/Affirmative Action Employer and Educational Institution.**

POSITIONS OPEN

ASSISTANT PROFESSOR, tenure-leading, with specialty in limnology. Will devote 75% time to research in annual 12-month duties. Expected to develop research program focusing on water quality, including ground water quality, on the ecology of lakes, rivers, ponds, and reservoirs in Nebraska. Will also teach 25% time, including courses in limnology, advanced limnology, and related courses in fisheries or ichthyology. Requires Ph.D. in limnology, aquatic ecology, or closely related field. Preference will be given to those with demonstrated teaching abilities. Remit letter of application, complete résumé, transcripts, statement of research interests, and arrange to have three reference letters sent by 23 June 1989 (or until a qualified candidate applies thereafter) to: **Dr. Gary L. Hergenrader, Head and State Forester, Department of Forestry, Fisheries and Wildlife, University of Nebraska-Lincoln, Lincoln, NE 68583-0814. Affirmative Action/Equal Opportunity Employer.**

UNIVERSITY OF OKLAHOMA COLLEGE OF MEDICINE DEPARTMENT OF ANATOMICAL SCIENCES

One tenure-track **ASSISTANT PROFESSOR** position available. Teaching responsibilities would comprise instruction Gross Anatomy to Medical, Dental, Graduate or Allied Health students. Candidates should possess a Ph.D., M.D., D.D.S., or equivalent degree and at least 1 to 2 years of postdoctoral research experience. The Department has been under new leadership for the last 12 months and has undergone considerable development and expansion. Current faculty research interests include neurotransmitter histochemistry, intracranial pressure, neural response to injury, structure and histochemistry of autonomic nervous system, tissue culture/ cell biology of chondrocyte and extracellular matrix, fetal alcohol syndrome and bone, reproductive endocrinology, wound healing, and muscle response to stress, injury and metabolic disease. Starting date beginning 1 September 1989, or as soon thereafter as feasible.

Curriculum vitae and names of three references should be directed to:

Search Committee
Department of Anatomical Sciences
College of Medicine
University of Oklahoma Health Sciences Center
P.O. Box 26901
Oklahoma City, OK 73190

Closing date for applications is 31 July 1989.

We are an Equal Opportunity/Affirmative Action Employer.

The Center for Neural Science at Brown University has a tenure-track position available at the **ASSISTANT PROFESSOR** level for an individual to carry out theoretical research on synaptic modification in the mammalian cerebral cortex. Candidates should have experience in neural networks, programming languages and neuronal modelling, and an interest in interaction with experimentalists working in neuronal plasticity. Current research activities in the Center involve experimental and theoretical approaches to understanding synaptic plasticity in the neocortex. Interested candidates should submit curriculum vitae, a description of their research and teaching experience, and the names of three references not later than 1 July 1989 to: **Dr. Ford Ebner, Center for Neural Science, Brown University, Box 1953-J.A., Providence, RI 02912. An Equal Opportunity/Affirmative Action Employer.**

ASSISTANT PROFESSOR TENURE-TRACK POSITION DEPARTMENT OF OTOLARYNGOLOGY

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

SCIENTIFIC AND COMMERCIAL LAUNCH OPPORTUNITIES

The University Corporation for Atmospheric Research (UCAR) has entered into an agreement with NASA that provides an innovative opportunity to launch qualified payloads for scientific and commercial purposes. Utilizing External Tanks of the National Space Transportation System, payloads up to 450 kg and 1 cubic meter may be accommodated. Requests on your company, institution or agency letterhead for a User's Guide should be addressed to UCAR's program manager:

EXTERNAL TANKS CORPORATION
1877 Broadway
Boulder, CO 80302

OXYGEN ISOTOPE ANALYST

The Unocal Science & Technology Division has an immediate opening for an Oxygen Isotope Analyst at the Fred L. Hartley Research Center in Brea, California (about 35 miles east of Los Angeles).

We are seeking a person to operate an oxygen isotope extraction line for the analysis of silicate rocks and minerals. This facility supports the research and technical service needs of the oil and gas, geothermal, and minerals divisions of Unocal. The minimum qualifications for this position are a BS degree in chemistry, geochemistry, or geology, preferably with some post-graduate education or training, especially in isotope geochemistry; one or more years of experience operating high-vacuum lines, especially silicate extraction with bromine pentafluoride; and the ability to expand our isotopic analytical capabilities to include the isotopic analysis both of oxygen in water and of hydrogen in silicates and water. A broad knowledge of isotopic applications, especially to geologic problems, and a familiarity with mass spectrometry are highly desirable.

U.S. citizenship or permanent U.S. residency is required. Qualified candidates should send a resume to:

John S. Mahar
Supervisor, Human Resources
UNOCAL CORPORATION
Science and Technology Division
P.O. Box 76, Dept. 89017
Brea, CA 92621
An Equal Opportunity Employer

UNOCAL

TOXICOLOGY

IIT Research Institute, a leading R&D organization based in Chicago, has an opening in its well equipped inhalation toxicology laboratory for a Research Toxicologist. The chosen candidate will assume responsibilities as study director for acute, subchronic and chronic toxicology/carcinogenicity studies.

Responsibilities will include participation in design, supervision and conduct of experiments, preparation of protocols and SOPs, scheduling of studies, interpretation and evaluation of results and preparation of reports.

Candidates should have a PhD in toxicology, pharmacology or related discipline and 2-5 years of post-doctoral experience in toxicology. Preference will be given to candidates having experience in inhalation toxicology. Demonstrated technical writing skills a must. Knowledge of GLP regulations and various testing guidelines is desirable. ABT certification is preferred; eligibility is required.

The position offers excellent opportunity for collaborative work with staff members involved in immunotoxicology research. Salary commensurate with qualifications and experience. Please submit resume including salary history to: **Ms. Lucy Amft, Senior Personnel Representative, IIT Research Institute, 10 West 35th Street, Chicago, IL 60616.** Equal Opportunity/Affirmative Action Employer. M/F/V/H



Immunologists

Hawaii Biotechnology Group, Inc. is seeking highly motivated individuals to join its Immunology Group. We are an equal opportunity employer.

Director - Immunology Group

Experienced scientist (Ph.D. or M.D.) to lead and direct immunochemistry research involved in development of immunoassays and immunotoxins, isolation of marine natural products, and development of novel uses for monoclonal antibodies. Hands on involvement expected. Develop new product proposals, contract research and grant proposals. Industry management experience desirable. This position offers an outstanding opportunity to shape the future growth of the business and share in its rewards.

Immunologist

Ph.D. responsible for investigation of immunoconjugates and immune reactions of marine natural products for development of immunoassay, immunoprophylactic and immunotoxin systems. Develop and write new research proposals. Individual must take scientific initiative and responsibility for projects and project development.

Hawaii Biotech offers excellent salary and benefits, opportunities for equity participation, and a location with quality of life second to none. Send your application, résumé and three references to:



Tom Humphreys, Ph.D.
Vice President
Hawaii Biotechnology Group, Inc.
99-193 Aiea Heights Drive
Honolulu, Hawaii 96701

POSITIONS OPEN

The Department of Pharmacology and Toxicology invites applications for a tenure-track appointment at the **ASSISTANT PROFESSOR** level. Although all qualified candidates will be considered, preference will be given to individuals whose basic research interests are in the following, or related areas: immunopharmacology/toxicology; molecular biology in pharmacology/toxicology; environmental toxicology. Candidates should have a Ph.D. or M.D. degree, postdoctoral experience, and strong commitment to research at the molecular level. The successful candidate will be expected to participate in teaching in graduate and professional school courses and to develop a vigorous research program capable of attracting extramural funding support. Send curriculum vitae and names of three references to: **William J. Waddell, M.D., Department of Pharmacology and Toxicology, School of Medicine, University of Louisville, Louisville, KY 40292**, by 1 July 1989. *The University of Louisville is an Equal Opportunity/Affirmative Action Employer.*

ASSISTANT PROFESSOR, ASSOCIATE PROFESSOR OR PROFESSOR OF PHYSIOLOGY AND BIOPHYSICS (Ph.D. and/or M.D.). Research areas: Cell physiology, membrane transport, receptor mechanisms. Able to teach areas other than research interest, e.g., gastrointestinal to medical, nursing and graduate students. Postdoctoral training for assistant professor. Competitive grant necessary for higher ranks. Application deadline: 24 August 1989. Send curriculum vitae, research summary and list of five references to: **C. H. Baker, Ph.D., Department of Physiology and Biophysics, Box 8, College of Medicine, University of South Florida, Tampa, FL 33612**. *Affirmative Action/Equal Opportunity Employer.*

ASSISTANT/ASSOCIATE PROFESSOR MEMBRANE BIOCHEMISTRY

The University of Idaho is seeking an assistant or associate professor in membrane biochemistry. This tenure-track position is 67% research and 33% teaching. Although the specific research area is open, the successful applicant will have a strong background in the biochemistry of eukaryotic membrane systems with experience in molecular techniques. Possible research areas include membrane receptors, transport, energy transduction, membrane biogenesis, membrane proteins, etc. Applicants will have a Ph.D. in biochemistry or related field, postdoctoral experience, and the potential for establishing an outstanding research program. Send curriculum vitae, statement of research interests, a copy of transcripts, and arrange for three letters of reference by 1 July 1989 to: **Dr. David J. Oliver, Department of Bacteriology and Biochemistry, Life Science Building, University of Idaho, Moscow, ID 83843**. *Affirmative Action/Equal Opportunity Employer.*

ASSOCIATE CHIEF OF STAFF

Associate Chief of Staff for Research and Development (ACOS/R&D), VA Medical Center and **ASSISTANT/ASSOCIATE/FULL PROFESSOR** (Department as appropriate): The Lexington, Kentucky, VA Medical Center is fully affiliated with the University of Kentucky College of Medicine. The position's primary function is administration of the Medical Center's Research and Development Program which includes assisting investigators in all administrative, scientific, and technical matters pertaining to the conduct of their research. It is essential that candidates for the position be nationally recognized scientists with well-established records of research productivity who have received research funding from peer-reviewed sources. Candidates should also have significant administrative experience. Familiarity and experience with the Veterans Administration research program is desirable but not essential. Candidates should submit curriculum vitae with bibliography and history of all VA and extra-VA research support. Candidates should be physicians, however, in an exceptional circumstance the Chief Medical Director can approve the appointment of a Ph.D. Salary related to level of appointment and determined by the established salary schedules of the Veterans Administration and the University of Kentucky College of Medicine. Reply to: **John Diana, Ph.D., Chairman, ACOS/R&D Search Committee (151), VA Medical Center, Lexington, KY 40511**. *The Lexington VAMC and UK are Equal Opportunity/Affirmative Action Employers. Closing date: 23 June 1989.*

POSITIONS OPEN

HARVARD SCHOOL OF PUBLIC HEALTH ASSISTANT OR ASSOCIATE PROFESSOR

Applications are being accepted from persons with graduate training, postdoctoral experience, and proven accomplishment in nutrition or the following sciences related to nutrition: biochemistry, or cell or molecular biology. Applicants must demonstrate the ability to develop an independent research program and to participate in the teaching of a course on a biological approach to the effects of foods and their constituents. Preference will be given to candidates whose research has a biochemical, cellular, or molecular orientation. It is hoped to make an appointment as early as the first half of 1990.

Expression of interest is particularly invited from qualified women and minority candidates.

Send curriculum vitae, a summary of past accomplishments, a statement of future interests in research and teaching, and the names and addresses of three references to:

**Professor Peter Goldman
Harvard School of Public Health
665 Huntington Avenue
Boston, MA 02115**

The Department of Otolaryngology of the Harvard Medical School and the Massachusetts Eye and Ear Infirmary seeks an investigator at the **ASSISTANT OR ASSOCIATE PROFESSOR** level with research interests in the functional anatomy of hearing. The major qualifications are research experience in the study of the auditory system including the cochlea and the central pathway. Familiarity with cell biological and immunohistochemical approaches is required. The appointee is expected to pursue an independent research program supported by extramural funding. Some teaching of medical and graduate students and supervision of research done by postdoctoral fellows and residents will be expected. The Department seeks to identify qualified female and minority candidates. Please send curriculum vitae to:

**Joseph B. Nadol, Jr., M.D.
Professor and Chairman
Massachusetts Eye and Ear Infirmary
243 Charles Street
Boston, MA 02114**

Position available for **BASIC SCIENTIST** to do full-time research in urology. Research would involve prostate disease, growth factors, and oncogene expression. The position is non-tenure-track but includes a basic science title and courtesy appointment. Teaching load will be limited so as to permit full-time research. Applicants should have training in molecular genetics, recombinant DNA tissue culture experience and a Ph.D. in a biologic science. Salary commensurate with experience. Please send curriculum vitae to: **Mark J. Noble, M.D., Urology, Kansas University Medical Center, 39th and Rainbow, Kansas City, KS 66103**. *KUMC is an Equal Opportunity/Affirmative Action Employer.*

BIOCHEMISTRY TENURE-TRACK POSITION begins fall 1989. Molecular biology/other modern research techniques preferred; research area open. Successful applicant to establish a strong independent research program. Rank/salary negotiable. Send curriculum vitae and three letters of reference to: **Dr. P. G. Iatridis, Assistant Dean and Director, Northwest Center for Medical Education, Indiana University School of Medicine, 3400 Broadway, Gary, IN 46408**. *Affirmative Action/Equal Opportunity Employer.*

BIOLOGICAL PSYCHIATRIST—The Department of Psychiatry at Long Island Jewish Medical Center seeks a biological psychiatrist to develop independent research programs in affective disorders, suicide, alcoholism, and schizophrenia. The successful candidate will have at least 10 years of research experience and research training in the biological investigation of schizophrenia, depression, suicidal behavior, and alcoholism. Salary and academic appointment commensurate with experience. Contact: **John Kane, M.D., Chairman, Department of Psychiatry, Hillside Hospital, P.O. Box 38, Glen Oaks, NY 11004**. The Long Island Jewish Medical Center is the Long Island Campus for the Albert Einstein College of Medicine. *Affirmative Action/Equal Opportunity Employer.*

POSITIONS OPEN

DIRECTOR BREAST CANCER CENTER MICHIGAN STATE UNIVERSITY

Applications and nominations are being requested for the position of Director of the newly formed and University-wide Comprehensive Breast Cancer Center at Michigan State University. The position is a tenure-system associate professor or full professorship, with full benefits normally accruing to tenured faculty members at this institution. Individuals must possess the M.D., D.O., or Ph.D. degree, and must have had previous experience with a cancer center with a national reputation in this area. Experience both as a scientist and as a science administrator in a relevant cancer discipline is required. Further desirable attributes possessed by this individual include: experience working with basic scientists and clinicians, experience in doing community outreach, prevention and cancer control, experience in working with minority groups, experience in working with high risk cancer groups, experience in working with the National Cancer Institute and the American Cancer Society, and experience in fund raising. Applicants should submit curriculum vitae, a statement of present and past research efforts, teaching and administrative experience and the names of three or more references to:

**Dr. E. Bettinghaus, Dean
287 Communication Arts Building
Michigan State University
East Lansing, MI 48824**

Application deadline is 15 June 1989. *Michigan State University is an Equal Opportunity/Affirmative Action Employer. Applications from or nominations of women and/or minority candidates are encouraged.*

DIRECTOR OF RESEARCH NEUROLOGY OF AGING

Texas Tech University Health Sciences Center invites applications from scientists capable of developing basic and/or clinical research related to Alzheimer's disease, Parkinson's disease, or stroke. Candidates may hold Ph.D. or M.D. or both and should qualify for tenure-track appointment. Their primary background may be in neurology, neuropsychology, neurochemistry, neuropharmacology, neurophysiology, or epidemiology. Excellent clinical and laboratory facilities are available, as well as technical support. Those interested should submit an up-to-date curriculum vitae, along with the names of three references to: **Dr. Joseph B. Green, Chairman, Department of Medical and Surgical Neurology, Texas Tech University Health Sciences Center, Lubbock, TX 79430**. *Equal Opportunity/Affirmative Action Employer.*

UCLA INSTITUTE OF GEOPHYSICS AND PLANETARY PHYSICS (IGPP) DIRECTORSHIP

University of California, Los Angeles (UCLA), is seeking an outstanding scientist and scholar to direct the IGPP, which has a research faculty of 24 professors, and programs in climatology, constitution and evolution of the earth's interior, evolution of life, origin of the solar system and space plasmas. The IGPP will be able to make a substantial number of faculty appointments. The new Director will also hold a half-time faculty appointment in a regular department. Candidates outside IGPP's program areas who can evolve IGPP in new directions as well as build to its current strengths are welcome. Send curriculum vitae and a statement of interest in the position to: **Professor F. Coroniti, Chair IGPP Search Committee, c/o UCLA Astronomy Department, Los Angeles, CA 90024**. *The University of California is an Equal Opportunity/Affirmative Action Employer.*

FACULTY POSITION/Tenure-track in the Division of Clinical Pharmacology, University of Colorado Health Sciences Center (UCHSC), Denver, Colorado. Qualifications include (i) M.D. or M.D./Ph.D. degree; (ii) Board-eligibility in internal medicine; and (iii) postdoctoral training in clinical pharmacology and/or hypertension research. Applicants should forward curriculum vitae and the names of three referees to: **Alan S. Nies, M.D., Division of Clinical Pharmacology, UCHSC, Box C-237, 4200 East Ninth Avenue, Denver, CO 80262**.

The University of Colorado is an Affirmative Action/Equal Opportunity Institution.

Research Scientists

The Squibb Institute for Medical Research is recognized internationally as a leader in research and development of novel therapeutic agents for the treatment of cardiovascular and infectious diseases.

Peptide & Protein Chemistry

- Modern methods of solid phase peptide synthesis.
- Preparation of protected and preactivated intermediates.
- Peptide/protein purification and characterization, including a variety of chromatographic and quantitative analytical techniques, with particular emphasis on HPLC application.

Qualified candidates should have a BS or MS in Chemistry with at least 1 year of relevant experience. **Reply to Dept. #333.**

Molecular/Cardiovascular Receptor Pharmacology

Requires an MS in Pharmacology or Biochemistry, a knowledge of the theoretical aspects of receptor pharmacology and 4-6 years of research experience with radioligand-receptor binding and protein separation and characterization techniques. **Reply to Dept. #161.**

For confidential consideration, please send resume to: **The Squibb Institute for Medical Research, Human Resources Dept., P.O. Box 4000, Princeton, NJ 08543.** Equal Opportunity Employer M/F.



SQUIBB®



Toxicology Quality Assurance Inspector

CIBA-GEIGY's Agricultural Division has an opening for a Quality Assurance Inspector at its Environmental Health Center located in Farmington, CT. This position involves conducting inspections to include each critical phase of assigned studies to assure that no deviations from the assigned protocol or Standard Operating Procedures were made without proper authorization and documentation.

The successful candidate will have a BS in Toxicology or closely related field plus two years of experience or an AA and five years experience in toxicology and a working knowledge of Good Laboratory Practices guidelines.

CIBA-GEIGY offers growth opportunities, competitive salaries and an attractive package of company paid benefits, including an excellent educational assistance program. For immediate consideration send your resume and salary requirements to: **Personnel Assistant, CIBA-GEIGY Corporation, Agricultural Division, 400 Farmington Avenue, Farmington, CT 06032.** We Are An Equal Opportunity Employer M/F/H/V.

Science Serving Mankind

CIBA—GEIGY

Program of Excellence in Molecular Biology of the Heart and Lung

Postdoctoral Positions

The National Heart, Lung and Blood Institute of the NIH has awarded the University of Cincinnati Medical Center a "Program of Excellence in Molecular Biology". The goals of the Program are to provide skills development and research opportunities in the molecular biology of heart and lung. Individuals begin at the postdoctoral level and progress to junior faculty status over the course of five years. New Investigators will initially work closely with the sponsor but in the final year will develop a research problem separate from that of the sponsor, and apply for independent funding to enable the Investigator to move to another institution if desired.

The Program is open to Ph.D.s or M.D.s with a strong background in molecular genetics who wish to apply their skills to significant problems of heart and lung or individuals with strong backgrounds in heart and lung who wish to develop molecular genetics tools for continued study of these problems. We are particularly interested in recruiting minorities to the Program. Stipends are competitive, beginning at \$25,000 per year and moving to \$37,000 in final years. The core faculty are:

1. Jerry Lingrel – Regulation of the Na,K-ATPase genes and RFLP analysis of diseases such as familial hypertension. Identification of the cardiac glycoside binding site using site specific mutagenesis.
2. Jeffrey Whitsett – Characterization of lung surfactant proteins and genes.
3. Winston Kao – Collagen gene expression in the lung.
4. Gary Shull – Structure-function relationships and genetic regulation of Ca-transporting ATPases of intracellular and plasma membranes.
5. Jeffrey Robbins – Study of cardiac contractile proteins and growth and developmental control of muscle and pulmonary proteins.
6. Donald Luse – Transcriptional analysis of lung surfactant protein gene promoters.
7. Steven Potter – Insertional mutagenesis for identifying critical genes in heart and lung development.
8. Arnold Schwartz – Structure and function of Ca^{++} channel proteins and gene regulation; isolation of receptors for calcium antagonists.
9. Judith Harmony – Proteins and genes involved in neutral lipid transfer; the regulation of cell proliferation and differentiation by apolipoproteins.
10. Thomas Doetschman – Gene targeting in ES cells using homologous recombination. Focus will be on vasculogenesis, angiogenesis and cardiogenesis.

Applicants should submit a C.V. and the names of three references to Jerry B Lingrel, Ph.D., Director, Program of Excellence in Molecular Biology, Department of Molecular Genetics, Biochemistry and Microbiology, University of Cincinnati College of Medicine, 231 Bethesda Avenue, Cincinnati, Ohio 45267-0524.

Affirmative Action/Equal Opportunity Employer

POSITIONS OPEN

FACULTY FOR ECOLOGICAL FIELD COURSES SCHOOL FOR FIELD STUDIES (SFS)

SFS seeks full-time faculty and administrative/academic leaders at centers offering undergraduate courses in ecology and sustainable development. Unique field-based program in spectacular settings emphasizing conservation study and research.

Zimbabwe: Director to start new center for sustainable development; curriculum-site development, faculty search.

Kenya (two): Director and large mammal and/or rangeland ecology expert for wildlife courses and research.

Caribbean (three): Director and senior faculty for coral reef, marine biology, cultural ecology program.

Baja, Mexico (three): Director and senior faculty for courses on whales, other marine mammals; marine biologist, marine mammalogist, and cultural ecologist. Director to develop new curriculum and center.

Australia: Director of Center for Rainforest Studies in Queensland.

To apply send résumé, detailed letter, and four references (with telephone): **Center Search, SFS 16 Broadway, Beverly, MA 01915.**

FACULTY POSITION, MUSHROOM SCIENCE. A tenure-track position is available for an individual with demonstrated strength in cellular and/or molecular fungal/plant physiology to conduct research on edible mushrooms. Development of a research program that will involve the culture of edible fungi and complement the Penn State mushroom science effort is expected. Opportunities exist for cooperative research with scientists throughout the University, including faculty of the College of Agriculture, Biotechnology Institute, and interdisciplinary graduate program in plant physiology. Individual will be expected to participate in graduate education programs and teach formal courses as appropriate, and to participate in extension education, especially the transfer of new science and technology to the mushroom industry. Ph.D. and experience in mycology, plant physiology, biochemistry, plant pathology, molecular biology, or related discipline required. Rank commensurate with experience. Send application letter, résumé, transcripts, and names of three references by 30 June 1989, to: **Dr. P. J. Wuest, Department of Plant Pathology—Box M, Penn State University, 211 Buckhout Laboratory, University Park, PA 16802.** An Affirmative Action/Equal Opportunity Employer. Women and minorities encouraged to apply.

FACULTY POSITIONS IN CELLULAR AND MOLECULAR PHYSIOLOGY

The Department of Physiology of The Pennsylvania State University College of Medicine is seeking applications for two full-time, tenure-track positions at the assistant/associate professor rank to begin in fall or winter 1989. The Department presently has ten full-time, well-funded faculty who are working in the general area of cellular and molecular physiology. We are seeking candidates with substantial postdoctoral experience in applying molecular biology and recombinant DNA techniques to one or more of the following areas: metabolic regulation, mechanisms of hormone action, membrane receptors, cytoskeletal-membrane interactions, intracellular membrane trafficking, signal transduction, ion channels, control of growth and differentiation, and regulation of expression of eukaryotic genes. Special attention will be given candidates who are able to relate molecular concepts and information to the cell and tissue levels of the organism. Significant research accomplishment and ability to obtain independent funding are essential. Excellent opportunities exist for research collaboration, teaching in a medical school curriculum, and participation in one or more graduate programs. Competitive salaries and start-up funding are available. Applicants should submit, prior to 1 September 1989, curriculum vitae, reprints, statement of current and planned research interests, and letters from at least three references to: **Dr. Leonard S. Jefferson, Chairman, Department of Physiology, College of Medicine, The Pennsylvania State University, P.O. Box 850, Drawer SC, Hershey, PA 17033.** An Affirmative Action/Equal Opportunity Employer. Women and minorities encouraged to apply.

POSITIONS OPEN

FACULTY POSITION: A tenure-track assistant/associate professor position to establish molecular pathology research and development laboratory and independent research program. M.D./Ph.D. with 5 years of experience beyond training required. Application letter, curriculum vitae, and three references should be sent by 1 July 1989, to: **Dr. Senhauser, Ohio State University, 4170 Graves Hall, 333 West 10th Avenue, Columbus, OH 43210.** Ohio State University is an Equal Opportunity/Affirmative Action Employer.

FACULTY POSITION DEPARTMENT OF MEDICAL BIOCHEMISTRY AND GENETICS

The Department of Medical Biochemistry and Genetics invites applications for a tenure-track faculty position. Salary and rank are open and dependent upon qualifications. An endowed chair is a possibility for an exceptional candidate. As part of an expanding research community, candidates are expected to establish or maintain a vigorous research program and participate in medical and graduate instruction. Applications from individuals with research interests in any area of biochemistry, molecular biology, or molecular genetics are encouraged. Submit curriculum vitae, description of research interests, and names of three references to: **Dr. Garret Ihler, Department of Medical Biochemistry and Genetics, Texas A&M College of Medicine, College Station, TX 77843-1114.** Equal Opportunity/Affirmative Action Employer.

FACULTY POSITION IN BIOCHEMISTRY AND MOLECULAR BIOLOGY

Excellent facilities, good support and good research environment available for established or highly promising researcher. Level of appointment commensurate with qualifications. Preference given to candidate who can enhance existing group of researchers on hormone action, in areas such as molecular structure/function relationships (NMR, x-ray crystallography) or study of peptide hormones. By 31 August 1989, send curriculum vitae, bibliography, and have three references write to: **Dr. John T. Penniston, Department of Biochemistry and Molecular Biology, Mayo Medical School, Rochester, MN 55905.** Mayo is an Affirmative Action/Equal Opportunity Employer.

FACULTY POSITIONS IN CARDIOVASCULAR/NEUROPHARMACOLOGY OR IMMUNOPATHOLOGY. The Department of Anesthesiology at the University of Michigan Medical Center has two tenure-track positions available immediately in the areas of molecular cardiovascular pharmacology, cellular neuropharmacology, or immunopathology. A Ph.D. and/or M.D. degree is required with training in the appropriate discipline. Postdoctoral training is desirable, but not necessary. Appropriate experience in application of physiology, immunology, biochemistry, molecular biology or cardiovascular/neuropharmacology is required and will be expected to conduct research in these areas and teach in the department. *Minority and women candidates are encouraged.* Submit curriculum vitae and three references with a brief statement of career plans to: **P. R. Knight, M.D., Ph.D., Professor and Associate Chairman, Director of Research, Department of Anesthesiology, Box 0048, 1500 East Medical Center Drive, Ann Arbor, MI 48109.** The University of Michigan is an Equal Opportunity/Affirmative Action Employer.

The Department of Ecology and Evolutionary Biology at Rice University seeks to hire a **LABORATORY INSTRUCTOR** to assist in developing and teaching introductory and advanced laboratory courses in a new biosciences curriculum. Advanced-level areas of instruction include ecology, evolutionary biology, and organismal biology. Experience in statistics or computer systems and software implementation is especially desirable. Advanced degree in biological sciences required. Interested applicants should send a résumé and three letters of reference to: **J. Smith, Employment Office, Rice University, P.O. Box 2666, Houston, TX 77252,** by 20 June 1989. Rice University is an Equal Opportunity/Affirmative Action Employer. M/F/V/H.

University of California, Davis CELLULAR NEUROBIOLOGY TRAINING PROGRAM

Funding is available to support qualified individuals for training in cellular neurobiology at both postdoctoral and predoctoral levels. Successful applicants will join a young, vigorous neurobiology group that is highly interactive and in which collaborations are common. We particularly encourage participation of trainees in projects involving the expertise of two or more training faculty:

Hilary Anderson, Development of insect nervous systems
Richard Carlsen, Cell biology of axonal and muscle regeneration
Leo Chalupa, Prenatal development of mammalian visual system
Carol Erickson, Morphogenesis and differentiation of neural crest
Mark McNamee, Molecular biology of ACh receptors
Brian Mulloney, Generation and modulation of motor patterns
Pamela Pappone, Biophysics of ion channels
Robert Scobey, Retinal physiology
Barry Wilson, Cholinesterases and neurotoxicology
Martin Wilson, Cell biology of the retina

For more information, contact Dr. Brian Mulloney, Director, Cellular Neurobiology Training Program, Department of Zoology, University of California, Davis, CA 95616, or phone

(916) 752-7468.

UCD is an Equal Opportunity/
Affirmative Action Institution.

Ph.D. Cell Biologist/ Biochemist

Monsanto's Central Research Laboratories is seeking an accomplished Ph.D. Cell Biologist/Biochemist for their Cell Culture/Biochemistry Group. This individual will conduct studies on the biological properties of tumor cell derived autocrine factors using in vitro models of tumorigenesis and metastasis. This position requires an individual with expertise in the areas of cell culture and protein purification. This will be a highly interactive position requiring effective communication and organizational skills.

Candidates should submit a letter of application, a curriculum vitae and the names of three individuals familiar with their recent research from whom letters of recommendation may be solicited. Please submit responses to: **Joseph E. De Larco; MONSANTO COMPANY; 800 N. Lindbergh Blvd.; St. Louis, MO 63167.** Equal Opportunity Employer M/F/H/V.

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آغا خان یونیورسٹی

THE AGA KHAN UNIVERSITY

Faculty of Health Sciences
Medical College

The Aga Khan University is now in its sixth year of operation. Its affiliated Aga Khan University Hospital has well equipped teaching and service laboratories and will have 654 beds when fully operational. The University and the University Hospital are autonomous, privately-funded and philanthropic institutions committed to the provision of effective health professional education and health services relevant to Pakistan and the region.

Applications are invited from highly committed professionals for the following key positions in our **Microbiology Department**:

ASSOCIATE PROFESSOR

Candidates applying for this position must have an M.B.B.S. and M.R.C. Path or equivalent qualifications, preferably with experience in a Clinical Microbiology laboratory. Candidates having experience of teaching in a Medical College; routine diagnostic services and medical research will be given preference.

The current research work in the Microbiology Department focuses on the Immunology of Mycobacterial diseases and the candidates are encouraged to develop their own areas of interest.

ASSISTANT PROFESSOR

Candidates applying for this position must have a Ph.D. in Microbiology or related subject with experience in Bacteriology/Virology will be preferred. The incumbent will be required to participate in teaching and research activities.

Salary and benefits will be offered commensurate with qualifications, experience and level of responsibility. Candidates intending to pursue a career in Pakistan are preferred. If you are seeking professional growth and an excellent environment, please send your detailed résumé, bibliography and names of at least three referees familiar with recent work history to the **Personnel Manager**, The Aga Khan University, P.O. Box 3500, Stadium Road, Karachi-74800, Pakistan.

AIDS Research at the Centers for Disease Control Atlanta, Georgia

Research Microbiologist

The Laboratory Investigations Branch, HIV/AIDS Division seeks a senior scientist to participate in a broad spectrum of Branch activities. The principle function of this position will be to characterize the structural and regulatory proteins of HIV and to study the immune response and natural history of HIV infections. This scientist will be part of the existing effort at CDC to develop and evaluate new technology for detecting and characterizing HIV infections. This position will also act as a consultant to CDC epidemiologists on laboratory issues relating to seroprevalence studies conducted in the U.S. and internationally.

Prefer candidates have a Ph.D. in Microbiology, Molecular Biology, or Biochemistry and at least three years of post-doctoral experience in the use and development of monoclonal antibodies, synthetic peptides, immunoassays, and recombinant DNA technologies. Salary will depend on experience.

For additional information regarding the position, contact Richard George, Ph.D. at (404) 639-3765. Interested applicants should send their applications and curriculum vitae to: William R. Hudson, Personnel Management Specialist, Centers for Disease Control, 1600 Clifton Road, Atlanta, Georgia 30333. CDC is an equal opportunity employer and provides a smoke-free work environment.

EMBL

The European Molecular Biology Laboratory, an international research organization situated in Heidelberg, West Germany has the following vacancies at its outstation in Grenoble:

Structural Molecular Biologist

The Grenoble Outstation of the EMBL is a structural molecular biology laboratory which aims to combine expertise in biophysical techniques (notably neutron and X-ray methods) with modern methods of molecular biology. The laboratory is situated at the Institut Laue-Langevin, a high flux neutron source and adjacent to the future European Synchrotron Radiation Facility and is well equipped for neutron scattering, X-ray crystallography (including access to a FAST detector), electron microscopy, dynamic light scattering and molecular biology. Current interests include the molecular biology and X-ray crystallography of surface viral glycoproteins (adenoviruses and myxoviruses) and amino acyl-tRNA synthetases, the dynamics of proteins studied by inelastic neutron scattering, the structure and dynamics of supercoiled DNA and in-vivo deuteration. There are vacancies for up to three staff scientists to contribute to existing projects or to initiate new projects suited to the scientific environment of the laboratory.

Candidates in the following areas will be considered (the examples are not to be considered exhaustive):

- Neutron scattering in biology (e.g. high resolution neutron crystallography of deuterated proteins, or low resolution crystallography of macromolecular complexes).
- X-ray protein crystallography (including new techniques such as diffuse scattering or Laue diffraction).
- Molecular biologist/biochemist with an interest in structural problems (e.g. protein/nucleic-acid interactions, virus/cell interactions).

Staff scientists will be appointed on an initial contract of three to five years on grades 8 or 9 depending on experience. An above-average tax-free salary is offered. Certain allowances are payable in addition, depending on personal circumstances.

Further information and application forms can be obtained by writing (with enclosed CV and brief statement of interests) to the Director quoting reference no. 89/22: EMBL Grenoble Outstation, c/o ILL, 156X, 38042 Grenoble Cedex, France.

PhD TERATOLOGIST/ REPRODUCTIVE TOXICOLOGIST

Wyeth-Ayerst pharmaceuticals has an immediate opening for a PhD level Teratologist/Reproductive Toxicologist to direct pre-clinical reproductive and developmental toxicology studies within the Drug Safety Evaluation Division. Entry level senior candidates with appropriate background will be considered. The position requires broad based technical expertise and skills in interpreting safety data as well as the ability to communicate results orally and in writing. Skills in fetal visceral and skeletal examinations in common laboratory species and in assessment of potential postnatal functional/behavioral effects are highly desired.

The successful candidate will work on a cooperative basis with senior level personnel to define and characterize the reproductive and developmental toxicologic potential of a broad range of potential therapeutic agents.

The Wyeth-Ayerst Drug Safety Evaluation Division is located between the foothills of the Adirondack Mountains and the shores of Lake Champlain. The area offers the benefits of a relaxed rural lifestyle and a wide range of outdoor recreational activities while being within easy driving distance of such cultural centers as Lake Placid, New York, Burlington, Vermont, and Montreal, Canada. Wyeth Ayerst is an equal opportunity employer offering the successful candidate an attractive benefits package and a salary commensurate with experience.

Please send resume and salary history in confidence to:



Gary D. Wagoner, Personnel
WYETH-AYERST RESEARCH
Rouses Point, New York 12979

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POSITIONS AVAILABLE

Associate (Tenured)/Assistant (Tenure Track) Professor University of Minnesota Medical School Department of Laboratory Medicine & Pathology

Two faculty positions are available, depending on the qualifications, for candidates who hold a Ph.D. or M.D. in biomedical sciences, with postdoctoral experience in matrix protein molecular biology, or chemical synthesis of peptides to interact with group research effort on tumor metastasis, wound healing and diabetic complications. Individuals will also be expected to develop or continue individual research program in an area of interest to him/her. Demonstration of prior research productivity is necessary for Assistant Professor candidates and an established record of research productivity is needed for Associate Professor candidates including publications in peer reviewed journals.

Individuals will be involved in teaching and assisting with graduate student advising.

Research Associate/Assistant Professor (Non-Tenured) University of Minnesota Medical School Department of Laboratory Medicine & Pathology

A research associate/assistant professor (non-tenured) position is available for candidates who hold a Ph.D. in basic biomedical sciences, with minimum of three years postdoctoral experience in molecular biology/recombinant DNA techniques to participate in group research effort on the structure/interactions of basement membrane/extracellular matrix macromolecules. Previous experience in this field is desired.

Applicants should send curriculum vitae and names of three individuals who can provide letter of reference to:

Leo T. Furcht, M.D.
Box 609 UMHC Department of Laboratory Medicine & Pathology
420 Delaware Street SE
Minneapolis, MN 55455

Deadline for receipt of applications is June 15, 1989. The University of Minnesota is an equal opportunity educator and employer and specifically invites and encourages applications from women and minorities.

ASSISTANT DEAN FOR RESEARCH

The University of Medicine and Dentistry of New Jersey-New Jersey Medical School is recruiting for an Assistant Dean for Research and Sponsored Programs.

The duties of this position include providing technical assistance and consultation to the faculty of the New Jersey Medical School regarding identification of funding sources and development and preparation of grant and contract proposals. This individual will provide increased support to the Office of Research and Sponsored Programs in the administration of research programs.

The successful candidate must have a Doctoral degree in the medical and/or biological sciences as well as experience in grant and research administration and must be eligible for appointment to the faculty.

Please send resume to: **Erich Hirschberg, Ph.D., Associate Dean for Research and Sponsored Programs, UMDNJ-New Jersey Medical School, (S), 185 South Orange Avenue, (MSB-C-662), Newark, NJ 07103-2757.**

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experience)

A postdoctoral position is available in the Developmental and Reproductive Toxicology Group of the Systemic Toxicology Branch, Division of Toxicology Research and Testing, NIEHS, located in Research Triangle Park, NC. The activities of the group are directed towards the determination of the site and mechanism of action of reproductive and developmental toxicants and the development of new methods/model systems to identify reproductive/developmental toxicants. Selectee will participate in ongoing programs directed at developing a rat model for the excretion of chemicals into human milk, the effect of toxicants on the lactation process and the role of lactation in mediating the toxicity of chemicals to neonates.

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

For additional information contact Johnny McLean or Lisa Fletcher at (919) 541-7513. To apply, send curriculum vitae and the names of three references by June 30, 1989 to:

Johnny McLean (Code HNV5)
NIEHS Personnel Office
P.O. Box 12233
Research Triangle Park, NC 27709



"AN EQUAL OPPORTUNITY EMPLOYER"

Postdoctoral and Staff Research Positions

Lawrence Livermore National Laboratory, located in the San Francisco Bay Area, is seeking applicants for several postdoctoral positions and staff research positions in the Biomedical Sciences Division. Initial appointments are for two years with an option for extension.

Candidates should have a B.S., M.S. or Ph.D. degree in Molecular Biology, Biochemistry, Biophysics, or Genetics. Experience in one or more of the following areas is desirable: nucleic acid chemistry, gel electrophoresis, molecular cloning in cosmid or yeast artificial chromosomes, DNA sequencing, nucleic acid hybridization, DNA transfection, protein biochemistry.

Openings are available in:

Molecular Biology

A growing effort to investigate the molecular mechanisms of mutation in humans and in animal models. This project seeks to define the DNA alterations associated with spontaneous and induced mutation. Initial emphasis will be placed on the mouse and human *hprt* loci. Detailed characterization will be performed using pulsed-field gel electrophoresis, conventional restriction analysis, enzymatic amplification of DNA, and sequencing. For further information contact: Dr. Irene Jones (415) 423-3626.

A team research effort to establish macro- and micro-restriction maps and ordered clone maps of the human genome. This project entails the development and applications of clone fingerprinting/walking strategies, contig mapping and closure schemes, library construction and characterization, and mapping by pulsed-field and conventional electrophoresis. Positions are also available for individuals interested in interfacing with an instrument development group to automate sample preparation, restriction mapping, and DNA sequencing. For further information contact Dr. Anthony Carrano (415) 422-5698.

Human Germinal Mutation

A team project to develop new efficient molecular approaches for measuring human germinal mutations. The project's goals are to develop methods for measuring specific-locus mutations, aneuploidy, and chromosomal aberrations directly in human sperm. The approach utilizes a variety of protein and DNA techniques including cloning and sequencing human sperm genes, polymerase chain reaction, fluorescence *in situ* hybridization, as well as fluorescence antibody detection of proteins and cells. Also going on in the laboratory are investigations involving multiple-beam flow cytometry and flow sorting, automated image analysis, and transgenic mice. For further information contact: Dr. Andrew J. Wyrobek (415) 422-6296.

DNA Repair

An established project dealing with the genetic and biochemical analysis of human DNA repair genes. Genes are being mapped to specific chromosomes, cloned, and characterized in molecular detail. Repair proteins encoded by cloned genes will be isolated and identified in terms of biochemical functions. Goals include studying the role of repair proteins in DNA replication and recombination (e.g., sister chromatid exchange) and constructing repair-deficient transgenic mice. Major tasks involve antibody production, purification of repair protein from overexpression system, and devising functional assays of protein activity. For further information contact: Dr. Larry Thompson (415) 422-5658.

We offer a highly competitive salary and benefits package. Send curriculum vitae to **Earl G. Morrell, Professional Employment, Lawrence Livermore National Laboratory, P.O. Box 808, L-725., Dept. KSC5R902B, Livermore, CA 94550.** U.S. citizenship required. Equal Opportunity Employer.

University of California

 **Lawrence Livermore
National Laboratory**

POSITIONS OPEN

JUNIOR FACULTY POSITION (non-tenured track) available in a new program involving the molecular analyses of hemoglobinopathies. Applicant should have experience in protein chemistry and hematology. Salary negotiable. Applicants should send curriculum vitae and names and addresses of three references to: **Dr. Titus H. J. Huisman, Department of Cell and Molecular Biology, Medical College of Georgia, Augusta, GA 30912-2100.** An Equal Opportunity/Affirmative Action Employer.

MAURY W. BRONSTEIN PROFESSOR OF PHYSIOLOGY

An endowed tenure-track professorship in cardiovascular physiology or other closely related areas is available in the Department of Physiology and Biophysics at The University of Tennessee, Memphis. Candidates should have a Ph.D. or M.D. degree, an excellent history of research funding, a well-funded research program, and a strong research background in cellular aspects of cardiovascular physiology or other related areas. The Maury W. Bronstein Professor will be expected to contribute significantly to the development of the cardiovascular research programs within the department and the University. Demonstrated ability to engage in teaching activities of the department are expected. Funding for this position will be through an endowed professorship. Nominations and applications are invited. Applicants should send curriculum vitae, copies of three representative publications and the names of three references to: **Dr. Leonard R. Johnson, Thomas A. Gerwin Professor of Physiology and Chairman, Department of Physiology and Biophysics, University of Tennessee, 894 Union Avenue, Memphis, TN 38163.** An Equal Opportunity/Affirmative Action Employer. Minorities and women are encouraged to apply.

DEPARTMENT OF AGRICULTURE (USDA) AGRICULTURAL RESEARCH SERVICE (ARS) MICROBIOLOGIST/VETERINARY MEDICAL OFFICER PHYSIOPATHOLOGY RESEARCH UNIT NATIONAL ANIMAL DISEASE CENTER (NADC), AMES, IOWA

ARS is seeking a scientist to lead its research program on Pathogenesis and Transmission of Salmonellosis in Swine. This individual will provide research leadership and technical supervision to a team comprised of two other scientists, three technicians, and two research animal technicians. The primary objectives of this project are to define the host-microbe relationships responsible for establishing and maintaining chronic enteric *Salmonella* infections in swine (carrier state) and develop strategies to modify the carrier state.

The candidate must have proven research experience with a strong background in molecular biology, immunology, and virulence attributes of pathogenic bacteria; and demonstrated knowledge and skill in communication and leadership.

Ph.D. is desirable. Must be U.S. citizen. Salary is commensurate with experience (\$41,121 to \$57,153). For information on the position, contact: **Dr. Shannon C. Whipp, Research Leader, Physiopathology Research Unit, NADC, or telephone: 515-239-8242.** For information on application procedures/forms, contact: **Janie E. Carr at 301-344-4569.** Applications in response to this advertisement should be marked 9N023.

Applications must be received by 5 July 1989.

Mailing address:

USDA—Agricultural Research Service
Personnel Operations Branch
Northern Section
Building 419, BARC-East
Beltsville, MD 20705

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POSTDOCTORAL ASSOCIATES to study the production and function of interferons and other lymphokines by mammalian embryos and cultured trophoblast cells. Applicants must have a Ph.D. and some experience in molecular biology and/or cell culture techniques, plus a background or interest in reproductive biology. Send curriculum vitae to: **Dr. R. M. Roberts, 158 ASRC, University of Missouri—Columbia, Columbia, MO 65211.**

POSITIONS OPEN

OB/GYN FACULTY POSITION—POSTDOCTORAL—The Department of Obstetrics and Gynecology, University of Oklahoma Health Sciences Center in Oklahoma City is seeking an individual with research interest in endometriosis. Training in immunology, biochemistry; Ph.D. required. Must be skilled in student and resident teaching, research design, and statistical analysis. Send curriculum vitae and bibliography to: **Robert A. Wild, M.D., Associate Professor, Department of Obstetrics and Gynecology, University of Oklahoma College of Medicine, P.O. Box 26901, 4SP720, Oklahoma City, OK 73190.**

PHARMACOLOGIST: Faculty/research, assistant professor position for appropriate Ph.D. or Pharm.D. Qualifications and experience must include strong medical school teaching skills and research accomplishments. Interested qualified candidates are invited to send curriculum vitae including teaching experience, statement of research interests, research background, prior and current funding, and the names of three references to: **Robert E. Mancini, Ph.D., D. O., Associate Dean for Academic and Research Affairs and Chairman, Department of Pharmacology/Toxicology and Experimental Therapeutics, New York College of Osteopathic Medicine, Box 170, Old Westbury, NY 11568.**

Major national patent law firm located in New York City seeks highly qualified Ph.D. **SCIENTISTS** in biomedical fields interested in second career opportunities in intellectual property law. Demonstrated technical writing skills essential. Competitive salaries and benefits, and opportunities for challenging assignments. Send résumé to: **Box 73, SCIENCE.**

POSTDOCTORAL ASSOCIATE

Postdoctoral opportunity available to study gene products of hepadnaviruses on the molecular level in the laboratory of **Dr. Mark Feitelson.** Studies include further structural characterization of these products as well as structure-function relationships essential to better understanding of virus replication and persistence in chronic infection. Naturally and experimentally infected animal models are available to study the immunology, genetics, molecular biology and pathology of acute and chronic hepadnavirus infections which are important to the establishment and maintenance of chronicity as well as hepatocellular carcinoma. Preference will be given to candidates with training in molecular biology and/or immunology. Please send curriculum vitae, interests and the names of three references to: **Mary Ann Michini, Personnel Department, Fox Chase Cancer Center, 7701 Burholme Avenue, Philadelphia, PA 19111.** Equal Opportunity Employer.

POSTDOCTORAL FELLOW/ RESEARCH ASSOCIATE GENE EXPRESSION/ TRANSCRIPTION FACTORS

The Laboratory of Molecular Endocrinology at the Massachusetts General Hospital seeks a postdoctoral fellow or research associate to work on the regulation of polypeptide hormone genes. Previous experience in molecular biology is required. The laboratory is focused on studies of the cis and trans factors that lend cAMP-mediated and cell-specific expression to polypeptide hormone genes. A microchemical facility for protein sequencing-synthesis and DNA synthesis is available. Salary and rank are commensurate with experience. Send curriculum vitae and two letters of recommendation to: **J. Habener, Chief, Laboratory of Molecular Endocrinology, Massachusetts General Hospital, Boston, MA 02114.**

POSTDOCTORAL FELLOWSHIP available 1 July 1989 to study pathogenesis of human immunodeficiency infection by in situ hybridization techniques. Send curriculum vitae and names and addresses of three references to: **Ashley T. Haase, M.D., Professor and Head, Department of Microbiology, University of Minnesota Medical School, Box 196 UMHC, Minneapolis, MN 55455.** The University of Minnesota is an Equal Opportunity Educator and Employer and specifically invites and encourages applications from women and minorities.

POSITIONS OPEN

POSTDOCTORAL FELLOW: Position immediately available to study repair of carcinogenic DNA alterations. Project includes enzymology, photochemistry, and molecular biology. Send curriculum vitae and names of three references to: **Dr. Nahum J. Duker, Department of Pathology, Temple University School of Medicine, Philadelphia, PA 19140.** An Equal Opportunity/Affirmative Action Employer.

Diabetes Unit at Massachusetts General Hospital (MGH) seeks a **POSTDOCTORAL FELLOW OR RESEARCH ASSOCIATE** with experience in molecular biology to study the regulation of transacting factors that mediate the effect of insulin on gene expression. Salary is commensurate with experience. Send curriculum vitae with two letters of recommendation to: **Dr. M. Alexander-Bridges, MGH, Wellman 306, Blossom Street, Boston, MA 02114.**

POSTDOCTORAL FELLOWSHIP—NEUROTRANSMITTER RECEPTORS to study the functional responses (channel opening and desensitization) of receptors and their modulation and the molecular mechanisms of neurotransmitter-receptor interaction using ion-flux methods including quench flow and stopped flow. Projects include the study of GABA receptor, glutamate receptor, and acetylcholine receptor. The position will be in the Department of Biochemistry, University of Missouri—Columbia. Write: **Dr. Derek J. Cash, Neurochemistry Unit, Department of Biochemistry, University of Missouri—Columbia, School of Medicine, 5400 Arsenal Street, St. Louis, MO 63139-1494.** Equal Opportunity/Affirmative Action Employer.

POSTDOCTORAL/INSTRUCTOR POSITIONS IN ANATOMY. The Program in Anatomy, Development and Neurobiology at Ohio University has two positions for individuals seeking postdoctoral training in anatomy, evolutionary biology, neurobiology, muscle biology, functional morphology or biomechanics. Ohio University offers excellent research facilities as well as a strong intellectual environment in these subjects. Each position involves teaching human gross anatomy one quarter per year to medical students. A Ph.D. and prior experience in gross anatomy instruction are required. Ohio University, with a student body of 15,000, is located in a small picturesque town in the Appalachian foothills of Southeast Ohio. Costs of living and housing are moderate. The appointments will be for 1 year, renewable for up to 5 years. Starting salary is \$18,000. Application deadline is 15 June 1989. Send curriculum vitae, including statement of teaching experience and research interests, and the names of three references to: **Dr. Michael H. Rowe, Anatomy Search Committee, Department of Zoological and Biomedical Sciences, Ohio University, Athens, OH 45701.** Telephone: 614-593-2112. Ohio University is an Affirmative Action/Equal Opportunity Employer.

POSTDOCTORAL POSITION available July 1989 to study microcirculatory characteristics of human abnormal and sickle blood by intravital techniques (video-microscopy, hemodynamic measurements, dual-slit cross-correlation, video-image splitting, fluorescence microscopy). Emphasis will be given to blood cell-endothelium interaction, vascular tone and perfusion conditions. Reply with names of three references to: **Dr. D. K. Kaul, Associate Professor of Medicine, Room U-917, Albert Einstein College of Medicine, 1300 Morris Park Avenue, Bronx, NY 10461, or call: 212-430-3702.**

POSTDOCTORAL POSITION

Available immediately to investigate the regulation of immune function in swine exposed to various stressors. An earned Ph.D. degree in immunology, environmental physiology or endocrinology is preferred. Send curriculum vitae and names of three references to: **Dr. Gary Allee, Animal Sciences Department, S105 Animal Sciences Center, University of Missouri, Columbia, MO 65211.** Applications must be received by 16 June 1989 or until a suitable candidate is found.

POSTDOCTORAL POSITION for research on transgenic mice. Areas under study include germ cells and embryo development, neurobiology, and oncogenesis. Apply with curriculum vitae to: **Dr. R. L. Brinster, School of Veterinary Medicine, University of Pennsylvania, Philadelphia, PA 19104.**

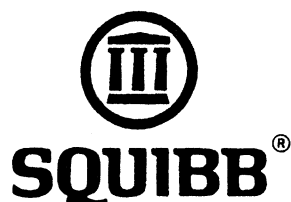
PhD, Molecular Biology Research

Assistant Director Biomedical Evaluation and Investments

Squibb Corporation is a Fortune 200 Company and an internationally recognized leader in the research, marketing, and manufacture of innovative pharmaceuticals. Currently, we seek an individual to identify and select technology investment and collaboration opportunities emerging from biotechnology industries as well as from academic research programs.

You will be responsible for the evaluation of incoming biomedical proposals, coordinating the selection process with senior staff members and providing ongoing analysis for negotiations leading to investments and collaboration. Requirements include a PhD and 5 to 10 years experience in molecular biology research.

For confidential consideration, please submit your resume to **Squibb Corporation, Science & Technology, Human Resources Department 207, P.O. Box 4000, Princeton, NJ 08543-4000**. An equal opportunity employer.



SR. ORGANIC CHEMIST

GIBCO/BRL Research Products Division of Life Technologies, Inc. is a leading supplier of reagents, chemical and apparatus to the life sciences community.

We are currently seeking an individual to plan and implement development of new organic compounds for use in molecular biology. This involves organic synthesis, analysis using primarily HPLC and the use of basic molecules biology techniques.

The professional requirements are: Ph.D. in chemistry or biochemistry with no post-doctoral experience or MS in chemistry with a minimum of 3 years of experience. The work experience should include chemical modification and purification of proteins and nucleic acids and familiarity with basic techniques in molecular biology.

Send resume to:

Richard L. Hotaling, Jr., Dept. GG
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Gaithersburg, MD 20877
(A suburb of Washington, D.C.)

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LIFE TECHNOLOGIES, INC.
RESEARCH PRODUCTS DIVISION

NEW ENGLAND BIOLABS EXPANSION

New England Biolabs, Inc., a pioneer and leader in biotechnology, located twenty miles north of Boston near the ocean has begun a major expansion of its research facilities. In addition to competitive salary, NEB offers a very generous fringe benefits package and profit sharing. Attendance at meetings, publication of research results and open communication with others are encouraged. The following positions are available immediately.

Staff Scientist:

Gene Cloning in Streptomyces — Ph.D. with a strong background in recombinant DNA techniques to work on projects involving cloning, over-production and mutagenesis of restriction-modification systems in Streptomyces.

Postdoctoral Positions:

1. Gene Cloning

The candidate should have training in biochemistry/enzymology, molecular biology, or microbiology. Projects involve the cloning, characterization and mutagenesis of restriction-modification systems.

2. Molecular Parasitology

The parasitology group at New England Biolabs, Inc. is studying the major filarial diseases. Candidate should have experience in molecular biology and/or immunology. Projects will involve the cloning and characterization of filarial antigens.

Molecular Biologist:

Restriction endonuclease purification, requires B.S. or M.S. experience in protein purification. Strong background in molecular biology with emphasis on cloning techniques. Experience with HPLC would be helpful.

Candidates please submit curriculum vitae with three references to:

New England Biolabs, Inc.
Human Resources
32 Tozer Road
Beverly, MA 01915



NEW ENGLAND

Biolabs®

SR. RESEARCH BIOLOGIST/ GROUP LEADER

Committed
To
Scientific
Excellence



The Sterling Research Group, the world-wide pharmaceutical research and development organization of Sterling Drug Inc., announces an opening for a Senior Research Biologist/Group Leader in the Pharmacology Department of Sterling's Rensselaer, New York facility.

The successful candidate will have a Ph.D. with a minimum of 3-5 years experience in Cardiovascular Research. Expertise in ischemia and free radical damage is required with a biochemical background preferred.

The Sterling Research Group-Rensselaer facility is located near Albany, New York which is a center for summer and winter recreational activities. We offer an excellent benefits program and an exciting work environment based on a team approach to research and development.

Please send resume, with salary requirements, in confidence to:

Mr. John P. Harvey
Employment Manager

**STERLING
RESEARCH GROUP**
A Division of Sterling Drug Inc.
81 Columbia Turnpike
Rensselaer, New York 12144

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POSTDOCTORAL SCIENTIST POLYMERS/THIN FILMS/ADHESIVES

*ONE DISCOVERY
DESERVES ANOTHER*

Boehringer Mannheim is a rapidly growing leader in the fields of Medical Diagnostics and Medical Research.

This leadership has been attained through emphasis on quality and team effort. Due to our growth, we are currently seeking a qualified Postdoctoral Scientist at our Indianapolis corporate headquarters.

This position is responsible for the development of solid phases for use in immunoassays. A scientist with previous experience in protein-polymer interactions and surface modification technique is preferred.

At Boehringer Mannheim we offer an exciting and challenging work environment as well as an excellent compensation and benefit program including 401K. Qualified applicants should send a resume with cover letter and salary history for confidential consideration to: Dept. H.B., Boehringer Mannheim, 9115 Hague Road, P.O. Box 50100, Indianapolis, IN 46250.

An Equal Opportunity Employer.

**BOEHRINGER
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At Praxis Biologics, we're pioneering the design, manufacture and marketing of vaccines so sophisticated, they're changing people's lives—right now.

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MANAGER, PROTEIN AND ANALYTICAL CHEMISTRY

We are seeking an individual experienced in the areas of protein sequencing, amino acid analysis, peptide synthesis and protein purification, to head our Protein and Analytical Chemistry Department. In this critical role, you will contribute scientifically to a number of projects and coordinate all protein-related efforts.

To qualify, you should have a Ph.D. (or equivalent) in Biochemistry, Protein Chemistry or a related field and 8-10 years' professional experience. Prior management experience and excellent interpersonal and communication skills are also required.

At Praxis, you'll enjoy a professional atmosphere and the kind of salary and benefits package you'd expect from an industry leader. Please send your resume to: **Human Resources Department, 300 East River Rd., Rochester, NY 14623.** An Equal Opportunity Employer M/F.

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1515 BROADWAY
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Unigene Laboratories, a multidisciplinary biotechnology corporation emphasizing peptide hormone research, is seeking a distinguished and creative scientist for the position of:

Group Leader Of Protein Chemistry

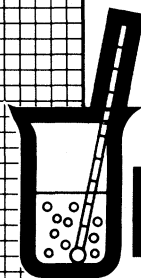
- Ph.D.-level scientist, minimum 8-10 years post-degree research experience.
- Will supervise a group of 10-12 scientists, half are Ph.D.-level.
- Broad protein chemistry expertise, particularly in areas of purification and analysis of native and recombinant proteins, enzymology, protein processing, protein refolding.
- Responsible for staffing, budgeting and supervision of all departmental research programs.

Unigene offers an excellent and comprehensive compensation package and the opportunity to work in an environment which fosters continuing professional development. Resumes containing a description of relevant experience and a list of publications should be sent in confidence to:

MS. H. M. DEEGAN
UNIGENE LABORATORIES, INC.
110 LITTLE FALLS ROAD
FAIRFIELD, NJ 07006



An equal opportunity employer



Research Technician

The Lindsley F. Kimball Research Institute, located in Manhattan's East 60's, is the research arm of The New York Blood Center. Working within one of the world's leading laboratories for basic and applied studies in Transfusion Medicine, its pioneering accomplishments have enhanced the safety of blood transfusion.

The individual we select will aid the investigator using biological techniques. Familiarity with chromatography, cell fractionation, radioisotopes, cell culture and small animals is preferred. BS in Chemistry, Biochemistry or Cell Biology required. Prior experience a plus.

Excellent benefits include \$1040 increase after three months, five weeks vacation and eighty-five percent tuition refund.

If qualified, please send resume specifying salary history and requirements, in confidence, to: **DB/HUMAN RESOURCES, THE NEW YORK BLOOD CENTER, 310 East 67th Street, New York New York 10021.** An equal opportunity employer M/F.

THE NEW YORK
BLOOD CENTER



RJR-LEON GOLBERG MEMORIAL FELLOWSHIPS

Postdoctoral Training Opportunities in Integrated Toxicology

Duke University and RJR Tobacco Company now have established training fellowship honoring the eminent toxicologist, the late Dr. Leon Golberg. The program consists of over 50 faculty members representing a wide variety of disciplines including chemistry, ecotoxicology, biochemistry, cell biology, metabolism, molecular biology, pathology, pharmacokinetics and pharmacology. Emphasis is placed on molecular mechanisms of toxicology, in which this program is pre-eminent. A competitive stipend will be offered. Fellows will have the opportunity to spend at least 2 years at Duke or RJR, under the guidance of one faculty member and to interact extensively with other faculty members. Interested individuals should send a C.V., a description of their current research project, and the names and addresses of 3 references to:



Doyle G. Graham, M.D., Ph.D.
Integrated Toxicology Program
Box 3712
Duke University Medical Center
Durham, NC 27710

Duke University and RJR Tobacco Company are Equal Opportunity Employers

POSITIONS OPEN

POSTDOCTORAL POSITION in epilepsy research—available for Ph.D. in pharmacology or biochemistry to study basic neurochemistry of petit mal epilepsy using animal models. Salary range \$20,000 to \$25,000. Send curriculum vitae and three letters of recommendation to: **Dr. O. Carter Snead III, Childrens Hospital of Los Angeles, Division of Neurology, 4650 Sunset Blvd., Los Angeles, CA 90027.** *Affiliated with USC School of Medicine, an Equal Opportunity Employer.*

POSTDOCTORAL POSITION available for 3 years to study physiological properties of olfactory circuits using intracellular recording, real-time voltage-sensitive dye imaging, and neural modeling. Send letter of application, curriculum vitae, and three letters of recommendation to: **Dr. John Kauer, Department of Neurosurgery, New England Medical Center (Tufts School of Medicine), 750 Washington Street, Boston, MA 02111.**

POSTDOCTORAL POSITION available immediately to study cross-talk between second messenger systems and nicotinic acetylcholine receptor signal transduction. Ph.D. in biochemistry or cell biology preferred. Send curriculum vitae to: **Drs. Adrienne Gordon or Daria Mochly-Rosen, University of California, San Francisco General Hospital, Building 1, Room 101, San Francisco, CA 94110. Telephone: 415-476-2858.** *The University of California is an Equal Opportunity Employer.*

POSTDOCTORAL POSITION. Research in airway cell biology with major interest in epithelial cell and smooth muscle interactions. Expertise in all aspects of cell culture and membrane ion transport required. Position available now, funded for minimum of 2 years. Salary range \$22,000 to \$28,000. Outstanding opportunity to work with a collaborative group. Reply with curriculum vitae and two references to: **Alan R. Leff, M.D., Department of Medicine, University of Chicago, 5841 South Maryland Avenue, Box 98, Chicago, IL 60637.** *Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL POSITION IN AIDS IMMUNOLOGY

Position available now to study mechanism of cellular immunity to HIV. Our laboratory is utilizing human T cell clones and HIV envelope and core peptides to define T cell-dependent epitopes of the virus. Mechanisms of T cell cytotoxicity and in vitro cellular defects are being studied. An active multidisciplinary program with biochemists, molecular biologists and clinicians is available. Please send curriculum vitae and names of three references to: **Daniel Stites, M.D., University of California, San Francisco, Box 0100, San Francisco, CA 94143.** *The University of California is an Affirmative Action/Equal Opportunity Employer.*

POSTDOCTORAL POSITION TUMOR VIROLOGY NYU MEDICAL CENTER

We have recently discovered RNA covalently linked to SV40 TAg and to the oncogene product p53. The RNAs, the bonding and the possible significance to oncogenic transformation will be studied. Must be U.S. citizen or permanent resident. Send curriculum vitae and names of three references to:

**Dr. Robert Carroll
Department of Pathology
New York University Medical School
550 First Avenue
New York, NY 10016**

POSTDOCTORAL RESEARCH POSITION IN NEUROSCIENCE is available immediately for studies on the immunohistochemical localization of unique markers in the brain in Alzheimer's Disease. Applicants should have a background in anatomy, neuroscience, immunocytochemistry and in situ hybridization and a Ph.D. in a related biomedical science. Appointment initially for 2 years. Salary commensurate with experience, excellent fringe benefits. Please send curriculum vitae and three letters of reference to: **Dr. A. P. Osmand, Department of Medicine, University of Tennessee Medical Center at Knoxville, 1924 Alcoa Highway, Knoxville, TN 37920.** *UTMC is an Affirmative Action/Title IX/Section 504 Employer.*

POSITIONS OPEN

POSTDOCTORAL POSITION. To study the cellular and molecular biology of insulin receptor regulation and insulin action. Experience in tissue culture and molecular biological techniques required. Send résumé and three reference letters to: **Dr. P. Berhanu, Division of Endocrinology, University of Colorado Health Sciences Center, 4200 East Ninth Avenue-B151, Denver, CO 80262.**

University of Colorado is an Equal Opportunity/Affirmative Action Employer.

POSTDOCTORAL POSITION

Available immediately to participate in studies on hormonal and developmental regulation of gene expression in heart and skeletal muscles (*J. Biol. Chem.* 262, 13316; *Proc. Natl. Acad. Sci. U.S.A.* 84, 3122). Recent Ph.D. in biochemistry, microbiology, pharmacology, or a related field with strong molecular biology research background is preferred. Opportunity to develop independent project. Salary negotiable. Send curriculum vitae together with names of three references to: **Eugene Morkin, M.D., Director, University Heart Center, University of Arizona Health Sciences Center, Tucson, AZ 85724.** *An Equal Opportunity/Affirmative Action Employer.* Closing date for applications is 16 June 1989.



**OKLAHOMA
MEDICAL
RESEARCH
FOUNDATION**

POSTDOCTORAL POSITION IN VASCULAR MOLECULAR/CELL BIOLOGY

Study the expression and function of hemostatic and inflammatory effector proteins synthesized by monocytes and endothelial cells. Current focus is on regulation of the inducible cell surface receptor that triggers the coagulation protease cascade (tissue factor) and the proteins it interacts with. Experience in nucleic acids and/or cell biology techniques desirable. Send curriculum vitae, statement of interests, and names of three references to: **James H. Morrissey, Ph.D., Oklahoma Medical Research Foundation, Program in Cardiovascular Biology, 825 N.E. 13th Street, Oklahoma City, OK 73104.**

POSTDOCTORAL POSITIONS

Several postdoctoral positions are available immediately to work on channel protein—structure and function. Research experience in membrane biophysics, molecular biology or protein engineering is required. Send résumé, reprints, and two names of references to: **Dr. Mauricio Montal, University of California San Diego, La Jolla, CA 92092-0319.** *An Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL POSITIONS

Plant physiologist to study the uptake and metabolism of industrial waste compounds by plant tissue cultures and seedlings. Plant ecologist to expand existing computer database and use it to study the influence of xenobiotic chemicals on terrestrial ecosystems. Salaries: \$21,000. Send curriculum vitae and three references to: **John Fletcher, Department of Botany and Microbiology, University of Oklahoma, Norman, OK 73019-0245.** *Telephone: 405-325-4321. OU is an Equal Opportunity Employer.*

POSTDOCTORAL RESEARCHER REGULATION OF I-A EXPRESSION THE OHIO STATE UNIVERSITY

Postdoctoral position available 1 July 1989 to study regulation of MHC Class II expression that is controlled by the Bcg gene. Applicants should have a Ph.D. degree with experience in membrane biochemistry, molecular biology, immunology or microbial-host cell interactions. Please send a copy of your curriculum vitae and names of three references to: **Dr. Bruce S. Zwilling, Department of Microbiology, The Ohio State University, 484 West 12th Avenue, Columbus, OH 43210.** *The Ohio State University is an Affirmative Action/Equal Opportunity Employer and specifically invites and encourages minority and women applicants.*

POSITIONS OPEN

TWO POSTDOCTORAL POSITIONS in Molecular Biology/Immunology to study molecular mechanisms of Ag presentation and genetic control of immune response in humans with **Drs. D. G. Marsh and B. Ghosh.** The projects include T cell cloning and mapping T cell epitopes on Ag molecules and generation of B cell transfectants with class II genes. Strong background in molecular biology and/or cellular immunology required. Send curriculum vitae, research résumé, and names of three referees to: **David G. Marsh, Ph.D., Johns Hopkins University School of Medicine, Good Samaritan Hospital, Baltimore, MD 21239.** *Affirmative Action/Equal Opportunity Employer.*

TWO POSTDOCTORAL POSITIONS available 1 July 1989. M.D. or Ph.D. to study carbohydrate and protein metabolism using NMR and mass spectroscopic stable isotope tracer techniques in animals and humans. M.D. or Ph.D. in cellular biology or engineering fields to develop a hybrid artificial liver based upon liver cell culture and bioreactor designs. Salary consistent with NIH Guidelines. Curriculum vitae to: **Drs. John F. Burke or Ronald G. Tompkins, ACC 3A, Suite 364, Massachusetts General Hospital, Boston, MA 02114.**

POSTDOCTORAL POSITIONS IN IMMUNOLOGY TRAINING PROGRAM available for M.D.'s or Ph.D.'s in the areas of autoimmunity, molecular immunology, retroviral immunology, and T and B cell development in the laboratories of **Drs. Norman Talal, Michael Fischbach, Judy Teale, and Ellen Kraig.** Annual salaries from \$17,000 to \$31,500, depending on postdoctoral experience. Available for a start date as early as 1 July 1989, but applications will be accepted for subsequent years as well. Applicants must be U.S. citizens or have permanent residency status. Send curriculum vitae and have letters of recommendation sent to: **Ms. Barbara Boyle, Division of Clinical Immunology, Department of Medicine, The University of Texas Health Science Center, 7703 Floyd Curl Drive, San Antonio, TX 78284.** *Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL RESEARCH ASSOCIATES

The U.S. Department of Agriculture (USDA), Agricultural Research Service (ARS), has available two postdoctoral research associate positions at the Regional Poultry Research Laboratory, East Lansing, Michigan, in areas of: (1) Fowlpox recombinant viruses; recent Ph.D. in molecular biology or related disciplines is required; and (2) Cellular biology; recent Ph.D. in cellular biology/immunology is required. Salary commensurate with experience (\$28,852 to \$34,580). Please send curriculum vitae or SF-171, application for federal employment, and names of three references to: **Dr. K. Nazerian** for position (1); and to: **Dr. A. M. Fadly** for position (2); **USDA-ARS-Regional Poultry Research Laboratory, 3606 East Mount Hope Road, East Lansing, MI 48823** or call: 517-337-6828. Applications must be marked 8N032 for position (1) or 9N022 for position (2), and must be received by 30 July 1989.

ARS is an Equal Opportunity Employer.

PROFESSOR OF PHYSICAL OCEANOGRAPHY—The Department of the Scripps Institution of Oceanography at the University of California, San Diego (UCSD), invites applications for assistant, associate or full professor (tenure-track or tenured) positions in physical oceanography; rank and salary will be commensurate with qualifications and experience in accord with UC scales. At the time of appointment successful candidates must possess a Ph.D. degree in physical oceanography or a related science. Applications from junior scientists are encouraged. The position(s) will involve graduate teaching and supervision of graduate student research. Successful applicants will be expected to carry out a vigorous research program supported by extramural funds. Candidates at the associate or full professional level must show evidence of a strong research record. Assistant level candidates will be evaluated on their potential from their publication record and letters of recommendation, as appropriate to their level of experience. Send letter of application, including names of five references, to: **Chairman (PO), Graduate Department, A-008, Scripps Institution of Oceanography, UCSD, La Jolla, CA 92093.** Applications received after 1 August 1989 may not receive full consideration. *An Equal Opportunity/Affirmative Action Employer.*



CASE WESTERN RESERVE UNIVERSITY

Dean of Medicine and Vice President for Medical Affairs

Case Western Reserve University invites nominations and applications for the positions of Vice President for Medical Affairs and Dean of the University's School of Medicine. Both positions are currently held by Richard E. Behrman, M.D., who has resigned effective August 1, 1989, to become director of the new Packard Center for the Future of Children. The University anticipates that one candidate will be appointed to the two positions.

The Vice President for Medical Affairs is a member of the University's senior administrative group, responsible to the President for medical education and research, including interactions with affiliated teaching hospitals and other organizations, planning for capital needs, and working with other administrative officers to see that University services effectively serve these objectives. The Vice President reviews all recommendations from the School of Medicine for faculty actions, for budgets, and for policy changes before they are submitted to the President.

The Dean serves as chief executive of the School of Medicine, the largest and oldest of the University's six professional schools and one of the world's leading centers of medical education and research. The Dean provides academic and administrative leadership for a faculty with more than 1,000 full-time members and 1,200 part-time members. The School enrolls over 800 students in curricula leading to the M.D., to the Ph.D. in various biomedical sciences, and to the joint M.D.-Ph.D., and is a national leader in programs for innovative medical education. The School's budget for the 1988-89 academic year is approximately \$80 million, of which about two-thirds represents external support for research. This total does not include compensation for full-time faculty that is derived from patient care programs. The Dean represents the School to other units of the University and to external audiences in the public and private sectors, and provides leadership in strategic planning and in identifying and attracting the financial resources needed by the School.

Nominations and applications may be submitted for review by the search advisory committee: Chairman, Search Advisory Committee for
Dean of Medicine
and Vice President for Medical Affairs
Office of the President
Case Western Reserve University
Cleveland, Ohio 44106

Review of submissions will begin immediately, and will continue until an appointment is made.

In employment as in education, Case Western Reserve University is committed to Affirmative Action and Equal Opportunity.

Request for Applications

RESEARCH PROGRAMS IN CYSTIC FIBROSIS

The Cystic Fibrosis Foundation announces competitive awards for research related to cystic fibrosis (CF):

RESEARCH GRANTS AND NEW INVESTIGATOR GRANTS

Application Deadline: September 1 Support for pilot and feasibility studies to develop and initially test new hypotheses and methods. Support of up to \$30,000 in annual direct costs for two years may be requested.

RESEARCH SCHOLAR AWARDS

Application Deadline: September 1 Corresponding to the NIH's Research Career Development Awards, these awards are designed to encourage a sustained commitment to CF from scientists engaged in outstanding, independent research careers. Support of up to \$100,000 per year for three years may be requested. Applicants must contact the Foundation before submission of proposals.

RESEARCH FELLOWSHIPS

Application Deadline: September 1 Awards for postdoctoral training in basic or clinical research. Stipends are available for \$30,000 (first year), \$31,000 (second year), and \$33,000 (optional third year).

CLINICAL RESEARCH GRANTS

Application Deadline: October 1 To support clinical research focusing on the pathophysiology, diagnosis and/or therapeutic management of CF. Funding request and duration of the award should reflect the nature of the study.

HARRY SHWACHMAN CLINICAL INVESTIGATOR AWARD

Application Deadline: August 1 Special award for promising physicians entering academic appointments with commitment to establishing research careers related to CF. Total of \$60,000 in annual direct costs for three years may be requested.

Interested individuals are encouraged to contact the Foundation to discuss the relevance of their work to cystic fibrosis. For further information, contact Robert J. Beall, Ph.D., or Dale S. Glass, M.S., at the



6931 Arlington Road
Bethesda, Maryland 20814
(301) 951-4422

POSITIONS OPEN

POSTDOCTORAL RESEARCH ASSOCIATE—

Exciting opportunity to work on interactions of cell membranes with drugs, anesthetics, and alcohol. Facilities and funding for these areas are excellent. Experience in one or more of the following areas required: protein-lipid interactions, membrane protein reconstitution, lipid bilayers, cell membrane isolation and characterization, fluorescence spectroscopy, phospholipases, etc. Position suitable for a new or recently qualified Ph.D.; available immediately or possibly at a later date. Send curriculum vitae and the names of three references to: **Dr. C. D. Stubbs, Room 271, Jefferson Alumni Hall, Thomas Jefferson University, Philadelphia, PA 19107.** *Thomas Jefferson University is an Equal Opportunity/Affirmative Action Employer.*

The USDA—Agricultural Research Service (ARS) is seeking a **POSTDOCTORAL RESEARCH ASSOCIATE IMMUNOLOGIST/PHYSIOLOGIST** to study effects of prolactin on immune system and adrenocortical development in neonatal pigs. Candidates must have completed Ph.D. and have experience in immune system measures. Salary varies with experience (\$28,852 to \$34,580 per annum). Send curriculum vitae and names of references to: **Dr. H. G. Klemcke, Announcement No. 9W025, USDA-ARS Meat Animal Research Center, P.O.B. 166, Clay Center, NE 68933** or call: 402-762-4275. Applications accepted until position is filled or 31 January 1990. *An Equal Opportunity Employer.*

PROFESSOR OF PHYSIOLOGY

A tenure-track position at the rank of professor is available in the Department of Physiology and Biophysics at The University of Tennessee, Memphis. Candidates should have a Ph.D. or M.D. degree, a well-funded research program, and a strong research interest in developmental physiology related to the gastrointestinal tract. Demonstrated ability to engage in teaching activities of the department are expected. Applicants should send curriculum vitae, copies of three representative publications and the names of three references to: **Dr. Leonard R. Johnson, Thomas A. Gerwin Professor of Physiology and Chairman, Department of Physiology and Biophysics, University of Tennessee, 894 Union Avenue, Memphis, TN 38163.** *An Equal Opportunity/Affirmative Action Employer. Minorities and women are encouraged to apply.*

PROTEIN BIOCHEMIST. A postdoctoral position is available immediately with the USDA, Agricultural Research Service (ARS), Albany, California, to participate in studies of enzymes involved in glycoalkaloid biosynthesis and metabolism in plants. Research focuses on the purification and characterization of glycosyl transferases and other enzymes, to be followed by cloning of appropriate cDNA's for gene inactivation experiments in potato. Previous experience with plant enzymes or in related areas is desirable. Salary range: GS-11, \$28,852 to GS-12, \$34,580. For information on the research program, contact: **Dr. M. Friedman, telephone: 415-559-5615/5642, Western Regional Research Center, USDA, ARS, 800 Buchanan Street, Albany, CA 94710.** For application procedures/forms, contact: **Rita Millard, telephone: 301-344-3138.** Applications should be marked Code 9W026. *An Equal Opportunity Employer.*

RESEARCH ASSOCIATE

Research associate position to conduct research on the nature of interaction between cytomegalovirus (CMV) and human immunodeficiency virus (HIV, AIDS virus) in various cell systems. Involves detailed analysis of changes in transcription and elucidation of the role of other cellular genes in the development of AIDS. Work has been expanded to obtain deletion mutants of both simian immunodeficiency virus (SIV) and HIV-1 towards generation of attenuated viral strains. This work involves making various constructs of CMV and HIV genes also. Ph.D. in virology required with 3 years of experience in job offered or 4 years in retrovirology research. Forty hours a week, \$32,000 a year. All qualified applicants must quote job order number 4274722 and submit curriculum vitae to: **The Philadelphia Job Bank, 444 North 3rd Street, 3rd Floor, Philadelphia, PA 19123.** *Equal Opportunity Employer.*

POSITIONS OPEN

POSTDOCTORAL RESEARCH ASSOCIATE.

U.S. Department of Agriculture (USDA), Agricultural Research Service (ARS), Orlando, Florida. ARS is seeking a research associate to develop assays, detect, isolate, and characterize a biochemical factor from whiteflies responsible for "silverleaf" symptoms in cucurbits and irregular ripening of tomatoes. Experience in plant and/or insect biochemistry or natural products chemistry is desirable. Two-year appointment. Ph.D. within the past 3 years. Salary commensurate with experience: \$28,852 to \$44,957. Contact: **Dr. J. P. Shapiro at 407-897-7376.** *An Equal Opportunity Employer.*

University of California, Los Angeles (UCLA)—**POSTDOCTORAL TRAINING** in atherosclerosis research. An interdepartmental training committee is soliciting applications for postdoctoral fellowships in atherosclerosis research emphasizing human and molecular genetics, pathology, enzymology and lipid biosynthesis and transport. Qualifications include a doctorate in the sciences or medicine, two recommendation letters, and publications, if available. U.S. citizenship or permanent residence required by funding agency. Qualified applicants will be contacted by a faculty sponsor, and together they will plan a program of research and study. Final selection will be made by our Training Committee. *Women and other underrepresented applicants are strongly encouraged to apply.* Reply to: **Professor V. N. Schumaker, Molecular Biology Institute, UCLA, Los Angeles, CA 90024-1570.**

RESEARCH ASSISTANT PROFESSOR

The Department of Microbiology, School of Dental Medicine, at the University of Pennsylvania seeks candidates for a nontenure-track research position. The successful applicant will be expected to develop a research program with independent funding in the area of structural and functional analysis of herpes simplex virus glycoproteins. Applicants must possess a Ph.D. in microbiology or a related field and several years of postdoctoral experience. A background in the study of the molecular biology of herpes viruses is essential, and experience in the isolation of virus mutants and in vitro mutagenesis is desirable. Forty hours weekly; salary approximately \$28,500. Send curriculum vitae, statement of research interests, and three letters of reference to: **Dr. Gary H. Cohen, University of Pennsylvania School of Dental Medicine, 4010 Locust Street, Philadelphia, PA 19104.** *An Equal Opportunity/Affirmative Action Employer; we encourage female and minority candidates.*

RESEARCH ASSOCIATE: To conduct independent research in the role of zinc and other metals in chromatin structure and composition, with emphasis on the control of gene expression in eukaryotes. The work involves isolation and characterization, using zinc-free conditions, of nuclei, chromatin, and its constituents, specifically chromosomal metalloproteins and transcription factors; purification of mRNA and development of a cDNA library, culture techniques of mammalian and non-mammalian cells; metal ligand exchange methods; flameless atomic absorption spectroscopy; and spectroscopic methods for determination of the structure of metal binding sites. Requirements include Ph.D. in biochemistry and 3 years of related research experience. Salary: \$24,000 per year. Send résumés to: **Massachusetts Department of Employment and Training, Special Program Department, 19 Staniford Street, Boston, MA 02144,** and refer to case number 9702.

RESEARCH ASSOCIATE POSTDOCTORAL POSITION LOYOLA UNIVERSITY OF CHICAGO

We currently have an excellent opportunity for Ph.D. candidates to study the molecular biology of nitrate assimilation in soy beans. Experience with molecular biological techniques and enzymology preferred.

Position will begin 1 July 1989. We offer a salary commensurate with qualifications plus benefits. Send curriculum vitae and names and addresses of three references to:

**Stan Hewitson
Loyola University of Chicago
6525 North Sheridan Road
Chicago, IL 60626**

Equal Opportunity Employer M/F

POSITIONS OPEN

PRESIDENT

THE ROCKEFELLER UNIVERSITY

Applications are invited for the position of President, The Rockefeller University. An individual of international renown and outstanding scientific accomplishment is sought. Extensive management and administrative experience is preferred. Applications and inquiries should be addressed to: **The Search Committee, The Rockefeller University, 1230 York Avenue, New York, NY 10021.**

The Rockefeller University is an Equal Opportunity/Affirmative Action Employer and does not discriminate in any of its employment policies or practices on the basis of race, color, religion, sex, national origin, handicap or status as a veteran.

PUBLIC EDUCATION DIRECTOR SOCIETY FOR NEUROSCIENCE

A new position has been created in a large, vigorous, and growing scientific society to implement a long-term program to educate and inform the general public about basic neuroscience. Activities will include preparation of material for lay media representatives and arranging contacts with them throughout the year, development of source materials and databases for the lay media in neuroscience and exploration of effective means to directly educate the general public about the field. The position will be located in the Society's central office in a desirable part of Washington, D.C. Applicants must have a bachelor's degree with a strong background in science and a minimum of 6 years of work experience; graduate training, preferably in neuroscience, is desired. Successful experience in preparing descriptions of scientific material for nonspecialists and/or lay persons and knowledge of press and media activities are essential. The position will demand an active, creative person. A competitive salary, commensurate with experience, good fringe benefits and a good working environment will be offered.

If you are interested in a unique opportunity in the Nation's capital to help interpret an exciting field of science to the public, send a résumé with a cover letter and examples of material you have prepared for general audiences to: **Search Committee, Society for Neuroscience, 11 Dupont Circle, N.W., Suite 500, Washington, DC 20036.** For first consideration, applications must be received by 19 June 1989.

RESEARCH FELLOW BIostatistician/PROGRAMMER CENTER FOR WATER AND THE ENVIRONMENT NATURAL RESOURCES RESEARCH INSTITUTE UNIVERSITY OF MINNESOTA, DULUTH

The Research Fellow—Biostatistician/Programmer is a 12-month professional appointment renewable annually.

Responsibilities: Collaborate with scientists in broad variety of environmental and natural resources research. Participate in research design, methodology development and data analysis. Design and develop software applications programs for ecological research problems. Develop computer models with scientists involved in ecosystem studies, particularly linking simulations with Geographic Information Systems (GIS). Supervise additional staff, data management and archiving.

Minimum qualifications: M.S. degree in an appropriate field and 3 years of relevant experience. Experience in biostatistics and software such as SAS and SPSS. Programming experience in FORTRAN, C and database management software.

Desired qualifications: Experience with spatial statistics and nonparametric methods, and applications of GIS to ecological problems. Experience with modelling approaches in ecological and/or natural resources applications, especially GIS-based.

Salary: Competitive. Starting date: 1 September 1989 or as soon thereafter as possible. Applications must be postmarked by 15 June 1989. To apply, send an application letter, current résumé and the names, addresses, and phone numbers of three references to:

**Research Fellow Search Committee
Natural Resources Research Institute
University of Minnesota, Duluth
3151 Miller Trunk Highway
Duluth, MN 55811**

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

VIROLOGIST
School of Veterinary Medicine
Purdue University

The Department of Pathobiology, School of Veterinary Medicine, invites applications for a tenure track faculty position in veterinary virology. The successful candidate will be expected to develop an independent, competitively funded, creative research program which may be in collaboration with other scientists at Purdue University, teach virology and participate in graduate courses in molecular virology in the department's graduate program, direct graduate students, and serve as a consultant to the Indiana Animal Disease Diagnostic Laboratory on campus.

The ideal candidate will possess a DVM or equivalent degree and a PhD degree in molecular virology or viral immunology, or a PhD degree in virology and research training in animal health. Postdoctoral research experience is preferred. The position will be filled at the assistant, associate, or full professor level depending upon the candidate's qualifications.

The Department of Pathobiology is comprised of three sections: 1) Anatomic and Clinical Pathology; 2) Immunology and Infectious Diseases; and 3) Epidemiology and Public Health. The department offers a graduate program in collaboration with several major pharmaceutical companies, the Lovelace Inhalation Toxicology Research Institute, and the Indiana Department of Natural Resources. Purdue University provides an exciting research environment with an international reputation in biology, biomedical engineering, pharmaceutical sciences, molecular virology, neurosciences, and comparative oncology.

Please submit a curriculum vitae, a statement of career goals, and the names of three references to:

Dr. Larry Glickman, Head
Department of Veterinary Pathobiology
Purdue University
West Lafayette, IN 47907

Final review of applications will begin September 1, 1989. Purdue University is an affirmative action/equal opportunity employer/educator. Women and minority applicants are encouraged to apply.

Senior Scientist, Toxicology

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Interested candidates with experience in carbohydrate chemistry should submit their curriculum vitae, names of references and a list of publications as soon as possible, but at latest by June 15th to:

Sandoz Ltd.,
attention Mr. R. Zbinden, Personnel Department, Ref. 9803
CH-4002 Basel, Switzerland



POSITIONS OPEN

RESEARCH ASSISTANT/ ASSOCIATE PROFESSOR

The Division of Molecular Virology and Immunology, Department of Microbiology, of the Georgetown University Medical Center seeks candidates for a research position at the assistant/associate professor level. Program emphasis is on the molecular pathogenesis of the hepatitis delta virus. We require either a Ph.D. or M.D. with training in molecular virology and at least 3 to 5 years of postdoctoral experience. Salary and academic appointment are commensurate with experience and training. Send letter of application and curriculum vitae to:

Dr. John L. Gerin
Division of Molecular
Virology and Immunology
5640 Fishers Lane
Rockville, MD 20852

An Affirmative Action/Equal Opportunity Employer.

RESEARCH ASSISTANT PROFESSOR—Collaborate with NIH-funded studies of humoral factor(s) affecting cell ion transport and growth in hypertension [see *AJP* 251, H984 (1986); *Circ. Res.* 62, 1001 (1988)]. Applicant should have Ph.D. in biochemistry, pharmacology, or cell biology with postdoctoral training. Experience with cell culture and with chromatographic procedures, including HPLC, necessary. Beginning salary up to \$38,000. Send curriculum vitae to: **H. W. Overbeck, M.D., Ph.D., Departments of Medicine and Physiology, West Virginia University Health Sciences Center, Morgantown, WV 26506.** Deadline for receipt of curriculum vitae 30 September 1989. *Equal Opportunity/Affirmative Action Employer.*

RESEARCH INSTRUCTOR. Nontenure-track position available for individual with Ph.D. in mammalian molecular neurobiology. Experience in teaching medical histology required. Send curriculum vitae with names of three references to: **Dr. R. J. Mullen, Acting Chair, Department of Anatomy, University of Utah School of Medicine, Salt Lake City, UT 84132.** *An Equal Opportunity Employer.* Closing date 26 June 1989.

RESEARCH POSITION: Applications are invited for a non-tenure position in the Department of Pathology, East Carolina University School of Medicine. Applicants must hold a Ph.D. or equivalent and must have had at least 4 years of postdoctoral research experience. They must have extensive experience in the analysis of mononuclear phagocyte function and differentiation. Expertise in the analysis of eicosanoid synthesis and the culture of hemopoietic progenitor cells is important. The position will require graduate level teaching. Academic rank will be commensurate with experience. Please send curriculum vitae and names of at least three references to: **Dr. Alvin Volkman, Department of Pathology, East Carolina University, School of Medicine, Greenville, NC 27834.** *East Carolina is an Affirmative Action/Equal Opportunity Employer. Federal law requires proper documentation of identity and employability at the time of employment. It is requested that this documentation be included with curriculum vitae.* Applications should be received by 24 July 1989.

Openings for **VETERINARY PATHOLOGISTS** to examine microscopic sections of animal tissues obtained at surgery or autopsy. Analyze tissue, fluids, secretions and other specimens. Give diagnosis and prognosis to determine the presence and status of disease in animals, the nature of the disease and the probable source of contamination or infection. Cut gross specimens that are to be examined microscopically. Evaluate cytologic specimens. Discuss results with contributing practitioners. Examine skin and kidney specimens for immunofluorescence using a fluorescent microscope. Write newsletter articles for the laboratory system and participate in retrospective research projects utilizing case material submitted to the laboratory. Requires a Ph.D. in Veterinary Medicine with 1 year of experience in job offered or 1 year directly related postresidency in a surgical pathology laboratory environment. Must be Board-eligible for the American College of Veterinary Pathology. Forty-hour work week; \$45,000 per year. Apply at: **The Texas Employment Commission, Dallas, Texas** or send résumé to: **The Texas Employment Commission, TEC Building, Austin, TX 78778. Job Order #5517525.** *Ad paid by an Equal Employment Opportunity Employer.*

POSITIONS OPEN

The Australian Museum is seeking a **SCIENTIFIC OFFICER.** Grade: 1 to 4. Salary: \$23,098 to \$43,575 AUS. Invertebrate zoologist position no.: AM 89/13. Conduct research on marine invertebrates (excluding Mollusca), preferably Echinoderms, Crustacea or Annelids; answer public/scientific enquiries; assist educational and collection management programs; supervise staff; manage resources. Essential: Tertiary qualifications in zoology; demonstrated research and publication record; demonstrated experience in phylogenetics and taxonomy.

Additional information: (0011 61 02) 339 8135 (Dr. M. Gray)

An Equal Employment Opportunity Employer.

Applications to: **The Staff Manager, Australian Museum, 6-8 College Street, Sydney 2000, Australia** by 14 July 1989.

SENIOR RETROVIROLOGIST

The University of Miami School of Medicine announces the creation of a senior faculty position for a virologist with special research interests and strengths in the molecular biology of retroviruses. Applications are invited from individuals with established research expertise who wish to implement and build an interdisciplinary research and training program. The primary faculty appointment for this position, at the full professorial level, is in the Department of Microbiology and Immunology. The appointee will assume the post of Director of the Retrovirology Collaborative Research Group for the medical campus. The mission of the Group is to create an outstanding and productive research program that is both independent and interactive with the many basic research programs within the Department, with well-funded projects in the AIDS Program at Miami, and with research workers in the Comprehensive Cancer Center. The appointee will also serve as program director for the Viral Oncology Program of the Comprehensive Cancer Center. In addition to the Director, the Group is envisioned to comprise two senior and two junior scientists to be recruited. The Director will have a major role in making these appointments. Ample, high-quality, modern laboratory space has been designated for the Group and considerable financial resources are available to ensure that a research facility of the first rank can be created. Interested individuals with an M.D. or Ph.D. degree are invited to send a brief letter of interest, a copy of the curriculum vitae, and names of three references to: **J. Wayne Streilein, M.D., Professor and Chairman, University of Miami School of Medicine, Department of Microbiology/Immunology, P.O. Box 016960 R-138, Miami, FL 33101. Telephone: 305-547-6694/6655; fax: 305-548-4623.** The review of applications will continue until the position is filled. *The University of Miami is an Equal Opportunity/Affirmative Action Employer.*

TENURED OR TENURE-TRACK FACULTY POSITIONS

Tenured or tenure-track faculty positions are available in a newly established Program in Molecular Medicine. This interdisciplinary program currently includes nine faculty research programs in complementary fields of biomedical science and occupies 40,000 square feet of research space in a newly constructed building. The Medical Center is committed to recruiting and supporting scientists of the highest quality in an outstanding research environment. Research areas currently being expanded include:

1. Molecular virology/retroviruses
2. Molecular immunology
3. Tumor biology/oncogenes
4. Macromolecular structure/x-ray crystallography/NMR
5. Cellular physiology/signal transduction

There is particular interest in candidates using contemporary methodologies, e.g. transgenic animals. Applicants must have a Ph.D. or M.D. degree with demonstrated research productivity. A strong motivation toward creative research and ability to attract independent funding is essential. Faculty rank and salary are negotiable. Applicants must submit curriculum vitae, summary of research interests and names of three references to: **Dr. Michael P. Czech, Director of Dr. John L. Sullivan, Search Committee Chairman, Program in Molecular Medicine, University of Massachusetts Medical School, 55 Lake Avenue North, Worcester, MA 01655.**

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POSITIONS OPEN

STAFF POSITION AVAILABLE AT WASHINGTON UNIVERSITY

The position entails participation in immunology research in my laboratory and management of a flow cytometry center. My laboratory studies development of human B lymphocytes using molecular and cellular techniques. Experience with flow cytometry, computers, and characterization of cell surface antigens would be desirable. Salary is competitive and will be commensurate with the qualification of the applicants. Please send curriculum vitae to: **Moon H. Nahm, M.D., Department of Pathology, Washington University School of Medicine, 660 South Euclid Avenue, Box 8118, St. Louis, MO 63110.**

WORKSHOP

DEGRADATIVE BIOTECHNOLOGIES FOR TREATING CHEMICAL WASTES San Miniato (Pisa, Italy), 26 to 29 June 1989

Recent trends in the field of refractory chemical waste biodegradation will be discussed. Applicative aspects regarding full-scale experiments of biodegradation carried out in open field as well as analytical methods for detecting polluting substances and molecular mechanisms of degradative enzymes will be presented. Registration fee and living expenses \$400. Contact: **Franca Perghem, Department of Chemistry, University of Florence, Via G. Capponi 7, 50121 Florence, Italy. Telephone: +39-55-2476949; Fax: +39-55-244102 or Giovanni Vallini, Soil Microbiology Center, CNR, Via Borghetto 80, 56100 Pisa, Italy. Telephone: +39-50-571562.**

FELLOWSHIPS

ANNOUNCING PUBLIC POLICY FELLOWSHIPS

The Joseph P. Kennedy, Jr. Foundation is accepting applications for 1-year Public Policy Fellowships in Mental Retardation. The Fellowships provide experience in public policy development related to mental retardation. Applicants must have a minimum of 5 years of experience in the field of mental retardation with background in biological, behavioral, or social sciences, education, medicine or health care, state or local government, or the law. Fellowships normally begin in January, July, or September. Applicants should submit a letter of interest, curriculum vitae, and two letters of support to:

Eunice Kennedy Shriver
The Joseph P. Kennedy, Jr. Foundation
1350 New York Avenue, N.W., Suite 500
Washington, DC 20005-4709

Deadlines for receipt of applications are 1 September 1989 for January start and 1 March 1990 for July or September start.

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Stationary rack system is one of our secrets to problem-free performance.

Many collectors have rotating carousel racks. Some of our earliest models did, too. But we soon recognized the advantages of a stationary rack. With fewer moving parts, the chance of mechanical problems is greatly reduced. The FC 203, since its introduction three years ago, has achieved a problem-free performance record of 98%. The stationary rack system is just one of the reasons why.

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And, the exteriors of Gilson fraction collectors are durable, too. For example, the FC 203 features a chemically-resistant molded case and keypad to protect the unit inside and out from spills.

SB-1,
introduced
1958



SC-Escargot,
introduced
1967



FC-220 Racetrack,
introduced 1972



Day-in and day-out convenience, too.

We also build Gilson fraction collectors for easy installation and use. It starts with compact design. The 202 has the largest capacity of any collector—540 tubes. Yet, it measures only 20 inches wide by 17 inches deep. And the FC 203 takes up only about a square foot of bench space.

Gilson fraction collectors can be used with any HPLC or LC system—ours or other manufacturers'. And three of the collectors can control peripherals such as pumps and chart recorders.

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