

BOVUMINAR® BULLETIN

Insights in Innovation

Free Fatty Acid Components of Albumin Stimulate Lymphocyte Growth

Free Fatty Acids are Essential for Lymphocyte Growth

Free fatty acids (FFAs) are essential components of the albumin used for growing stimulated lymphocytes in serum-free media.

A study at the University of Illinois School of Medicine found that commercial preparations of bovine and human serum albumin that lacked fatty acids gave poor growth support to concanavalin A-stimulated lymphocytes in Eagle's medium. Similarly, removing the FFAs from bovine serum albumin that contained fatty acids reduced lymphocyte growth by 80%-90%, while restoring the missing FFAs restored the growth-promoting effect.

In their detailed study, Herman Polet, MD, Professor of Pathology at the School of Medicine, and Helga Spieker-Polet, PhD, used ³H-thymidine incorporation to measure the growth rate of lymphocytes in the presence and absence of albumin or β -lactoglobulin, employing different combinations of FFAs at varying concentrations.

The protein proved to be necessary for lymphocyte growth. In the absence of albumin, FFAs alone were strongly growth inhibitory. Furthermore, in the presence of FFAs, albumin proved much more effective than β -lactoglobulin in promoting lymphocyte growth. Additionally, optimal growth required both a saturated and an unsaturated FFA. By themselves, neither saturated nor unsaturated FFAs appreciably increased the rate of lymphocyte growth over the rate produced by fatty-acid-free albumin.

Fatty-Acid Chain Length and Structure Govern Efficacy

For unsaturated FFAs, chain length, number of double bonds, and configuration at the double bond all influenced the effectiveness of growth promotion. Both oleic and petroselinic acid, with 18-carbon chains containing one double bond, were much more effective than shorter or longer chain FFAs. Effective growth promotion also required that the double bond be of *cis* rather than *trans* configuration.

The greatest growth rate occurred when a combination of oleic and palmitic acids was added to fatty-acid-free albumin. Replace-

ment of palmitic acid by several other saturated FFAs produced a similar effect.

Albumin Acts Through a Specific Cell-Surface Receptor

By quantitating the binding of ¹²⁵I-labeled HSA, the University of Illinois researchers identified a specific lymphocyte-surface receptor for albumin, suggesting that the protein exerts its effects in the same way as do hormones and growth factors. β -lactoglobulin became bound to this same receptor, but with an affinity 100-fold weaker than that of albumin.

Free Fatty Acids (FFAs) are essential components of the albumin used for growing stimulated lymphocytes in serum-free media.

Rather than depending on its binding affinity, however, the poorer growth-promoting effect of β -lactoglobulin seems to come from its lower FFA content. Although the Illinois study found that various lots of human and bovine serum albumin contained from 0.5 to 2.0 equivalents of FFA, several lots of β -lactoglobulin contained only 0.1 equivalent of FFA. Moreover, lymphocyte growth fell off rapidly as the molar ration of FFA to β -lactoglobulin increased, suggesting that optimal cell growth with β -lactoglobulin depends on its being present in a concentration sufficient to bind all of the FFA required for cell growth.

Albumin Acts as a Fatty-Acid Transfer Factor

The findings of the study support the concept that albumin and β -lactoglobulin act as transfer factors for FFAs, accepting the acids from adipose tissue and other sources, and conveying them to the lymphocyte membrane, where they are used as structural components. Both the albumin and lactoglobulin molecules also orient or localize the fatty acids in such a way as to permit their intercalation into the lipid structure of the cell membrane.

The growth of activated lymphocytes in serum-free medium depends on an albumin preparation that carries FFAs, (such as a Cold Ethanol Cohn Fraction V preparation). Dr. Polet points out that "a number of commercially available albumin preparations contain little or no free fatty acid, and won't give you cell growth. Thus, if you get negative growth results in an experiment, the first thing to check is whether your albumin preparation contains fatty acids."

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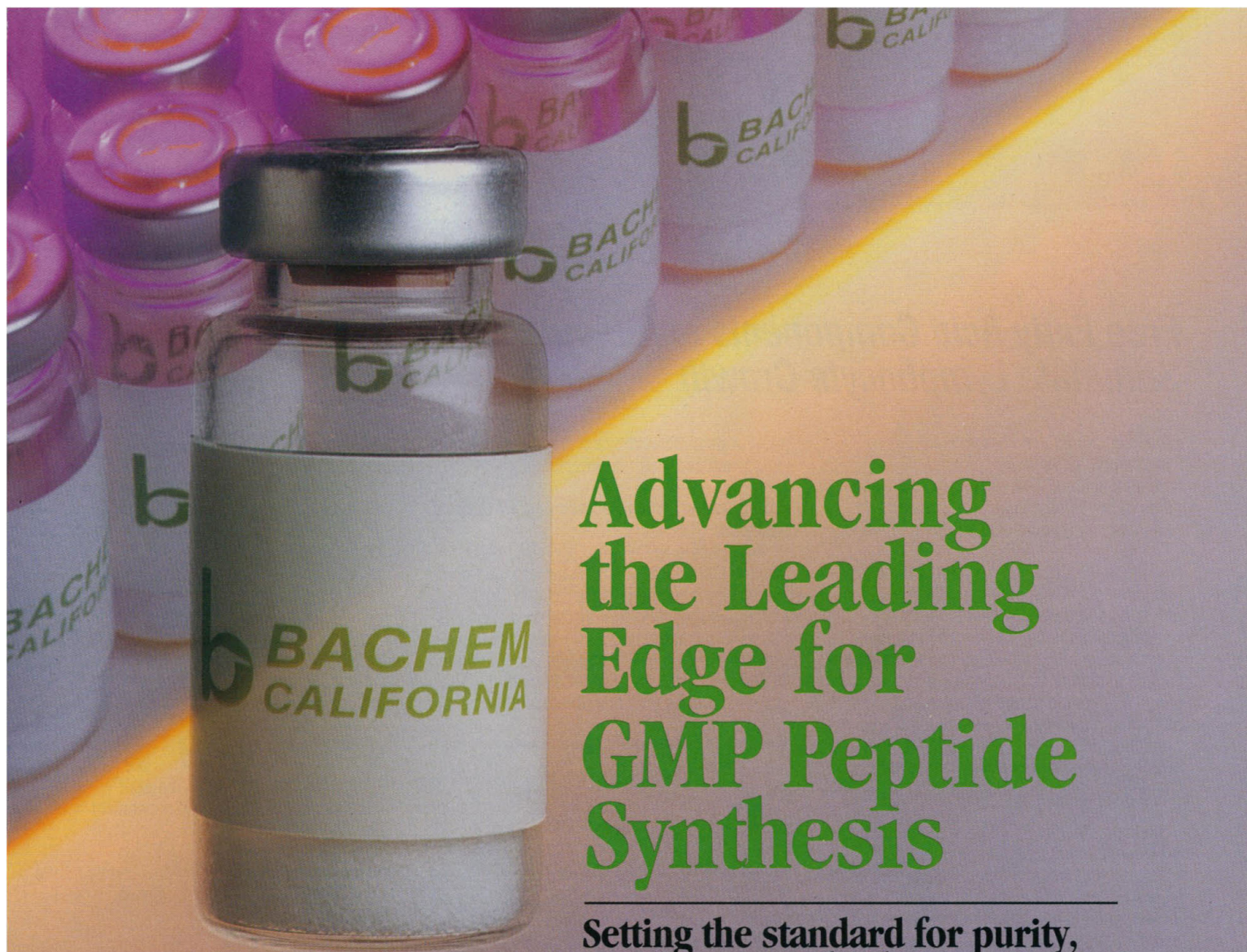
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References:

Spieker-Polet, H. and Polet, H. REQUIREMENT OF A COMBINATION OF A SATURATED AND AN UNSATURATED FREE FATTY ACID AND A FATTY ACID CARRIER PROTEIN FOR *IN VITRO* GROWTH OF LYMPHOCYTES. J. Immunol. 126, 949-954, 1981.

Polet, H. and Spieker-Polet, H. MECHANISM OF THE GROWTH-PROMOTING EFFECT OF SERUM ALBUMIN ON CONCAVALIN A-ACTIVATED LYMPHOCYTES: PROTECTIVE EFFECT OF THE PLASMA PROTEINS. J. Immunol. 117, 1275-1281, 1976.



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Volume 8, Number 5

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- Systat balances power and usability; SAS provides great power to users who master it, and Statgraphics is the easiest to learn and use. NSTL does not recommend the other programs for PC use except in businesses already running the mainframe version.
- Four of the statistics packages are sold as modules, and prices range from \$200 to over \$4,000 for a complete set. Refer to the Program Module Chart on page 10.

Contrary to the common belief among statisticians, great differences in calculation speed separate the programs. Calculation speed can be very important to users who run frequent analysis of large data sets. (Performance Results, page 32).

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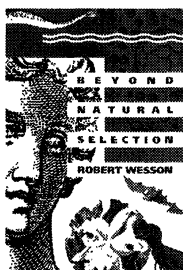
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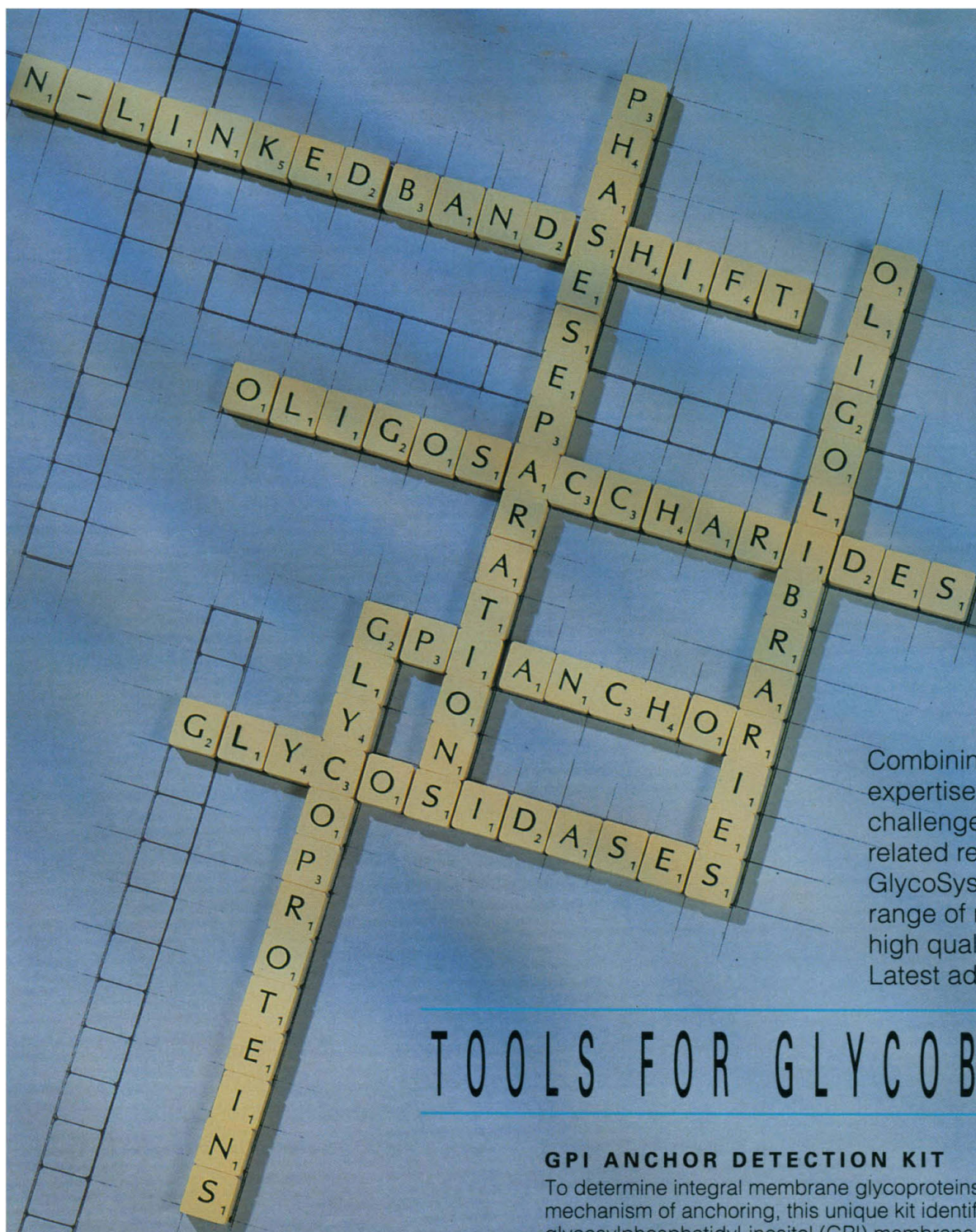
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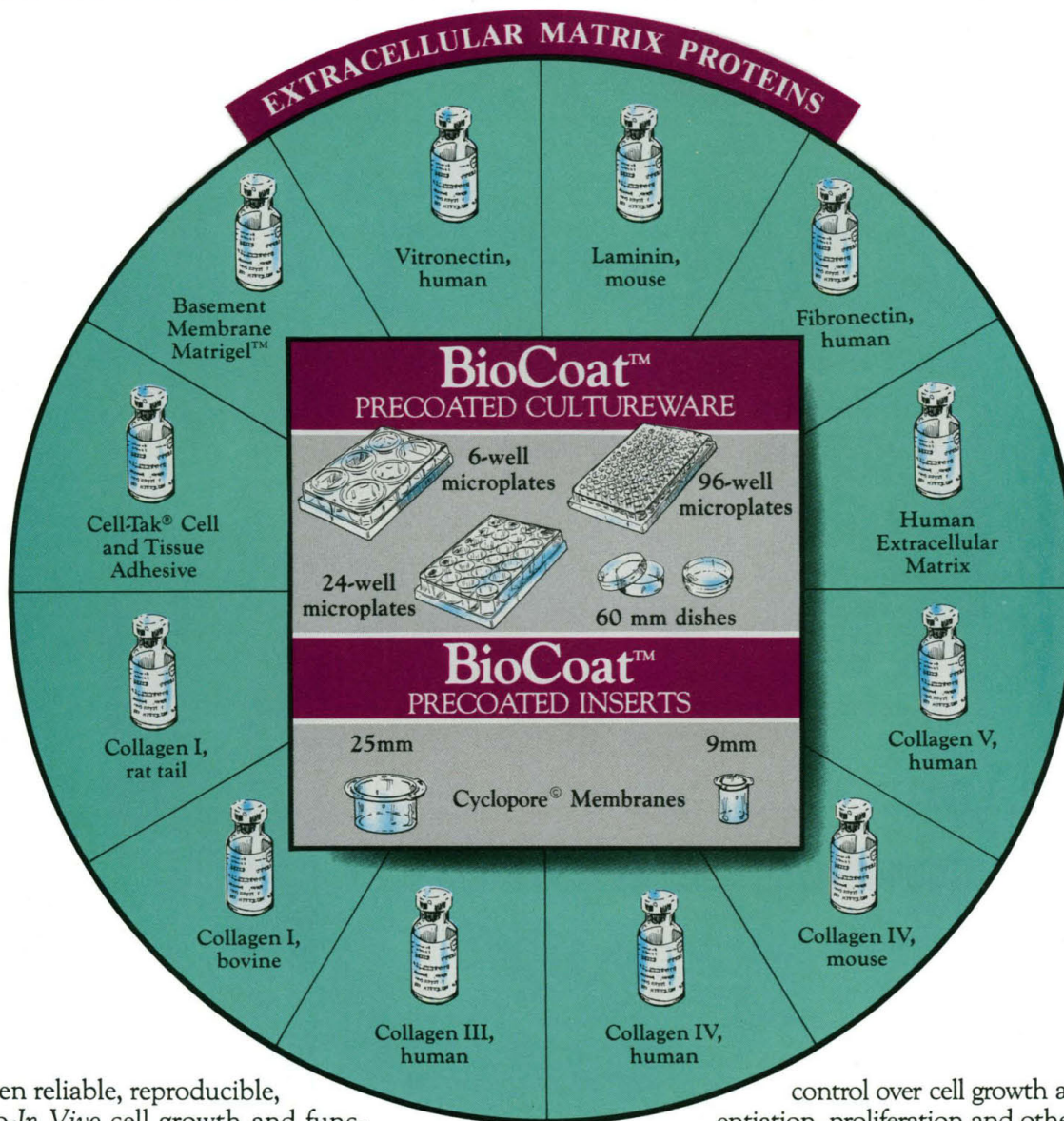


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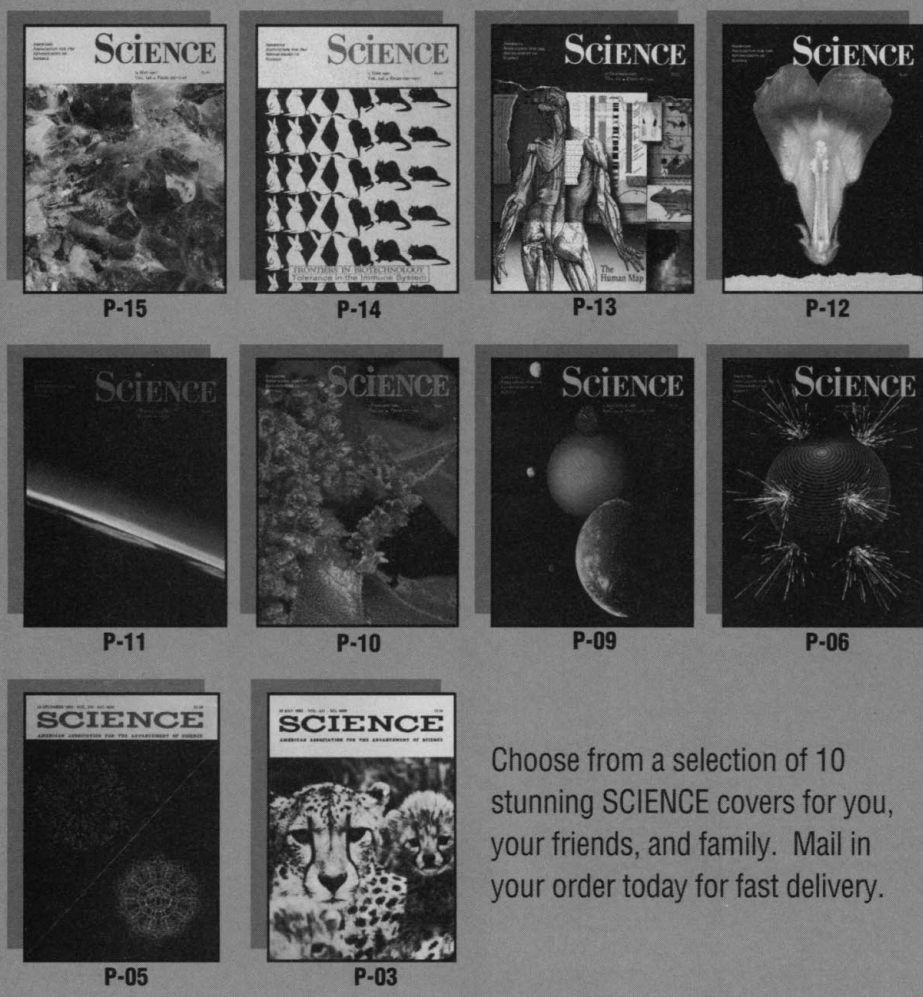
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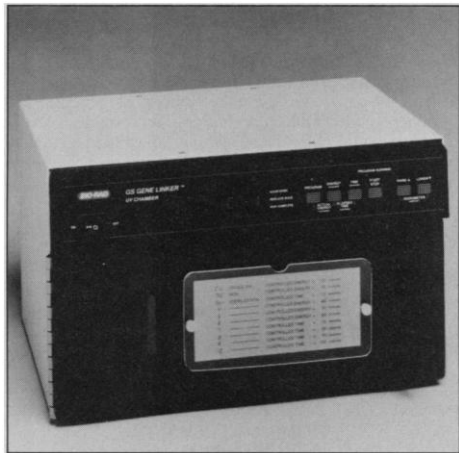
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The Department of Biochemistry at the Albert Einstein College of Medicine seeks **ASSISTANT PROFESSORS** for appointment to tenure-track positions. Salaries and other resources to initiate research programs are generous. Research strengths of the Department include protein-DNA interactions, regulation of gene expression, protein structure including crystallography, enzymology, membrane signaling and metabolic regulation. Applicants with research interests in these areas are preferred but research excellence in related areas of biochemistry will also be considered. *The Albert Einstein College of Medicine of Yeshiva University is an Equal Opportunity Employer.* Send curriculum vitae and the names of three or more references to: **Ms. Joan Savastano, Administrator, Department of Biochemistry, Albert Einstein College of Medicine, Jack and Pearl Resnick Campus, 1300 Morris Park Avenue, Bronx, NY 10461.** Applications should be received before 1 December 1991. *Equal Opportunity Employer.*

POSITIONS OPEN

BOTANIST. ASSISTANT PROFESSOR, tenure-track, fall 1992. Ph.D. in botany with organismal background. Commitment to undergraduate teaching and research required. Introductory team-taught course with laboratory, advanced botany, environmental science/topics/general education course. Independent Lutheran school near Chicago. Submit letter, curriculum vitae, transcripts and three letters of reference by 1 November 1991 to: **James Tan, Chair, Biology Department, Valparaiso University, Valparaiso, IN 46383. Telephone: 219-464-5373; FAX: 219-464-5489.** *Affirmative Action/Equal Opportunity Employer.*

DEVELOPMENTAL BIOLOGIST

The Department of Biology at the University of Rochester invites applications for a tenure-track **ASSISTANT PROFESSOR** in the area of animal developmental biology. Candidates should have shown excellence in research and have a commitment to teaching at the graduate and undergraduate levels. Applications will be considered from individuals working in any developmental system, who use the methods of genetics, cell biology and/or molecular biology to investigate basic developmental phenomena. Applicants should send curriculum vitae, a statement of research interests, and have three letters of recommendation sent to:

**Dr. R. C. Angerer, Chair
 Developmental Biology Search Committee
 Department of Biology
 University of Rochester
 Rochester, NY 14627**

Closing date for applications is 1 December 1991. *The University of Rochester is an Affirmative Action/Equal Opportunity Educational Institution. Women and minorities are encouraged to apply.*

ASSISTANT PROFESSOR-PLANT ECOLOGY DUKE UNIVERSITY

The Department of Botany invites applications for a tenure-track, junior-level faculty position in plant ecology. Although the area of specialty is open, preference will be given to individuals who study community ecology and who can link their studies to one of the established specialties in the department, including population ecology, evolutionary biology, ecophysiology and ecosystem analysis. Individuals will be expected to develop an active program of research and graduate training. Teaching responsibilities include participation in the departmental curriculum at the introductory level and development of a graduate class in the area of specialty. Applicants should forward their curriculum vitae and statement of research interests and arrange to have three letters of reference sent to: **Professor William H. Schlesinger, Department of Botany, Duke University, Durham, NC 27706.** To assure consideration, completed applications should be received by 15 November 1991. *Duke University is an Affirmative Action/Equal Opportunity Employer.*

ASSISTANT PROFESSOR OF IMMUNOLOGY

The Department of Cancer Biology at the Harvard School of Public Health is seeking an assistant professor. Background and training appropriate for conducting research in molecular immunology and expertise in the area of transgenic animals is required.

The successful candidate is expected to develop and run an independent research program and will be charged with the start-up of a transgenic mouse facility within the department. The successful candidate will also provide assistance and training to faculty and fellows, participate in the teaching of specialty courses in transgenic and embryonic stem cell cultivation and will supervise doctoral students conducting research in this area, as well as other areas of immunology.

Interested candidates should send curriculum vitae with complete bibliography, representative recent reprints, a description of research and teaching interests, and the names and addresses of three references as soon as possible to:

**Ms. Jacqueline G. Breen
 Associate Coordinator
 Department of Cancer Biology
 Harvard School of Public Health
 665 Huntington Avenue
 Boston, MA 02115**

Harvard University is committed to increasing representation of women and minority members among its faculty and encourages applications from such candidates.



Challenging Opportunities In Biomedical Research

Research Fellowship Program Staff Fellowship/Research Associate DHHS/PHS/Food And Drug Administration Center For Biologics Evaluation And Research

The Center for Biologics Evaluation and Research is searching for outstanding physicians to conduct biomedical research in order to provide a strong scientific base for the regulation of biological products and to review these products. The primary responsibility of the Center is to review the safety and efficacy of vaccines, blood products, certain diagnostic products and other biological and biotechnology-derived human products. In conjunction with regulatory and research responsibilities, the Center statistically evaluates clinical and preclinical studies of human biological products and vaccines and epidemiologically evaluates post-marketing studies and adverse biologics reactions. Current research includes investigations in the areas of viral and bacterial diseases and vaccines, mechanisms of pathogenesis, cytokines and growth factors, allergy and immunology, parasitic diseases, and developmental biology. We have active research on AIDS and related diseases. This is a truly unique fellowship program which integrates diverse biomedical research efforts with an introduction to the scientific principles applicable to biologics development and control.

Qualifications: Candidates for the Staff Fellowship Program must have completed all requirements for a Medical Degree from an accredited institution. Additional specialty training is desirable. Graduates of foreign medical schools must submit a copy of their permanent Educational Commission for Foreign Medical Graduates (ECFMG) certification. Candidates must be either U.S. citizens or resident aliens eligible for citizenship within four years.

Duration: Appointments are for an initial two-year period and may be extended up to a total of seven years.

Location: Laboratories are strategically located on the campus of the National Institutes of Health in Bethesda, Maryland, or in close proximity to the campus.

Salary: Salary range for the Staff Fellowship Program is from \$28,000 to \$57,650. Salary, research support, and level of responsibility are commensurate with education and experience.

Positions may also be filled by appointment in the U.S. Public Health Service, Commissioned Corps, Research Officer Group, Research Associate, with commensurate salary and benefits. Candidates for this program need to meet Commissioned Corps appointment standards.

How To Apply: Candidates should send a current Curriculum Vitae, bibliography, and statement of research interest to:

FDA/Center for Biologics Evaluation and Research
Building 29, Room 104.MO13
8800 Rockville Pike
Bethesda, Maryland 20892

Applications are accepted throughout the year, and candidates should indicate when they will be available for employment. However, to receive full consideration under this announcement, applications must be received by Wednesday, January 8, 1992. For further information, call Ms. Boyer or Ms. Blumenthal on (301) 496-5394.

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POSITIONS OPEN

FACULTY POSITIONS IN CELL BIOLOGY AND GENETICS UNIVERSITY OF UTAH

The biology department at the University of Utah seeks applications for two tenure-track positions, one in the area of cell biology and one in genetics. While the positions are nominally at the ASSISTANT PROFESSOR level, more senior applicants will also be considered. Interested individuals should submit curriculum vitae, three letters of reference, and a statement of research interests to the appropriate search committee. Review of applications will begin on 15 October 1991, and continue until the positions are filled.

Dr. Baldomero Olivera
Cell Biology Search Committee

or
Dr. John S. Parkinson
Genetics Search Committee
Biology Department
University of Utah
Salt Lake City, UT 84112

The University of Utah is an Equal Opportunity/Affirmative Action Employer and encourages applications from women and minorities.

ASSISTANT PROFESSOR POSITIONS DUKE UNIVERSITY MEDICAL CENTER SECTION OF CELL GROWTH, REGULATION AND ONCOGENESIS DUKE COMPREHENSIVE CANCER CENTER

Duke University Comprehensive Cancer Center invites applications for tenure-track positions in the Section of Cell Growth, Regulation and Oncogenesis at the level of ASSISTANT PROFESSOR. Research within the section is focused on the genes and biochemical pathways that regulate cell growth and the molecular analysis of the disruption of such controls in cancer cells. Investigators working at the molecular level on signal transduction, oncogenes/antioncogenes, angiogenesis, metastasis, and apoptosis are especially encouraged to apply. Minimally, applicants must have a doctorate, and 2 years of postdoctoral training. Candidates must have demonstrated high potential for imaginative, substantial independent research. Successful candidates will also be appointed into a basic science department within the Medical Center.

Applicants should send curriculum vitae and a brief description of present and proposed research to: **Dr. Robert M. Bell, Head, Section of Cell Growth, Regulation and Oncogenesis, Duke Comprehensive Cancer Center, Box 3686, Durham, NC 27710.** Applicants should arrange for three or more letters of recommendation to be forwarded to the same address.

To be assured of full consideration, the applications should be received by 1 December 1991.

Duke University is an Equal Opportunity/Affirmative Action Employer.

EVOLUTIONARY BIOLOGIST ASSISTANT PROFESSOR, TENURE TRACK DEPARTMENT OF BIOLOGICAL SCIENCES UNIVERSITY OF IDAHO

The individual selected for this position will be expected to establish an extramurally funded research program in evolutionary biology, and to direct M.S. and Ph.D. students. Preference will be given to individuals whose research interests complement those of faculty in the Department of Biological Sciences. Teaching will include one upper division/graduate course and one undergraduate course annually. Postdoctoral experience, success in obtaining research funding, and teaching experience are desired. The starting date is August 1992. Applicants should submit, by 15 November 1991: curriculum vitae and three or fewer reprints, a statement of research goals, and a statement of teaching interests and philosophy. These materials and three letters of recommendation should be sent to: **Dr. John A. Byers, Department of Biological Sciences, University of Idaho, Moscow, ID 83843.** *Affirmative Action/Equal Opportunity Employer.*

POSITIONS OPEN

CORNELL UNIVERSITY MICROBIOLOGIST—ASSISTANT PROFESSOR

The Section of Microbiology, Division of Biological Sciences, Cornell University, wishes to hire an Assistant Professor of Microbiology. This is a tenure-track, 12-month appointment with highly competitive start-up funds, laboratory space, salary and benefits. We are interested particularly in candidates with interests and expertise in environmental microbiology, but we will seriously and fully consider candidates with backgrounds in other areas of prokaryotic physiology or diversity. Applicants must have a Ph.D. in microbiology or a closely related subject, at least 1 year of postdoctoral experience, and a strong commitment to research and teaching. The successful candidate will be expected to develop and maintain a strong, externally funded research program, to participate in undergraduate and graduate training, and to teach upper-level courses in bacterial physiology. The Section of Microbiology currently has seven faculty members, each of whom studies contemporary prokaryotic biology. The Division of Biological Sciences has approximately 140 faculty members, with research interests that span the breadth of modern biology. Applicants should provide curriculum vitae, list of publications, statement of future research interests, and should also arrange to have three letters of recommendation sent to the chairman of the search committee: **Dr. Valley Stewart, Section of Microbiology, Cornell University, Wing Hall, Ithaca, NY 14853-8101 (telephone: 607-255-2416; FAX: 607-255-3904; electronic mail vjs@cornell.cit.cornell.edu).** The deadline for applications is 16 December 1991, and the position will be available on or after 1 July 1992. *Women and minority candidates are strongly encouraged to apply. Cornell University is an Equal Opportunity/Affirmative Action Employer.*

SUSTAINABLE AGRICULTURE—ASSISTANT PROFESSOR. New Mexico State University is seeking a RESEARCH LEADER for its Sustainable Agriculture Center at Alcalde in north central New Mexico. The research leader will establish, conduct and administer a research program in support of the Rural Agricultural Improvement and Public Affairs Project designed to aid limited resource farmers in north central New Mexico. This is a 12-month, tenure-track position with approximately 60% research and 40% administrative duties. Candidates should have a Ph.D. in agriculture or a related field or an equivalent combination of education and experience. Bilingual Spanish/English candidates are preferred. Reply to: **Dr. Gary L. Cunningham, Agricultural Experiment Station, Box 30003, Department 3BF, New Mexico State University, Las Cruces, NM 88003-0003. Telephone: 505-646-3125.** Send résumé and names, addresses and telephone numbers of three references. Deadline: 15 November 1991 or until suitable candidate is found. *New Mexico State University is an Equal Opportunity/Affirmative Action Employer. Offer of employment is contingent upon verification of eligibility for employment in the United States.*

MICROBIOLOGIST SWARTHMORE COLLEGE

The Biology Department of Swarthmore College seeks a microbiologist for a tenure-track appointment beginning September 1992, pending administration approval. This position will be at the ASSISTANT PROFESSOR level and entails teaching a sophomore-level microbiology course, an advanced course involving techniques of molecular biology, and participation in introductory biology. Ph.D. required. Please send curriculum vitae, statement of teaching and research interests, and three letters of recommendation by 15 December 1991 to: **Dr. Scott Gilbert, Microbiology Search Committee, Swarthmore, PA 19081-1937.** *Women and minorities are encouraged to apply. Swarthmore College is an Equal Opportunity Employer.*

ASSISTANT/ASSOCIATE PROFESSOR. The Institute for Toxicology, School of Pharmacy, University of Southern California. Applicants who have ongoing research interests in free-radical biology or chemistry as well as a strong commitment to teaching in the biomedical sciences are sought for tenure-track positions available immediately. Complete curriculum vitae and the names of three reference should be submitted by 15 November 1991 to: **Dr. Paul Hochstein, Institute for Toxicology, 1985 Zonal Avenue, Los Angeles, CA 90033.** *The University of Southern California is an Equal Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

INTEGRATIVE BIOLOGIST ASSISTANT PROFESSOR, TENURE TRACK DEPARTMENT OF BIOLOGICAL SCIENCES UNIVERSITY OF IDAHO

The individual selected for this position will be expected to establish an extramurally funded research program in integrative biology, and to direct M.S. and Ph.D. students. Any area of biology is acceptable, but preference will be given to individuals whose research interests complement those of faculty in the Department of Biological Sciences. Teaching will include one large enrollment, lower division core course in biology for nonmajors each semester. Postdoctoral experience, success in obtaining research funding, and teaching experience are desired. The starting date is August 1992. Applicants should submit, by 15 November 1991: curriculum vitae and three or fewer reprints, a statement of research goals, and a statement of teaching interests and philosophy. These materials and three letters of recommendation should be sent to: **Dr. A. W. Rourke, Department of Biology Sciences, University of Idaho, Moscow, ID 83843.** *Affirmative Action/Equal Opportunity Employer.*

UNIVERSITY OF LOUISVILLE SCHOOL OF MEDICINE DEPARTMENT OF MICROBIOLOGY AND IMMUNOLOGY

One tenure-track ASSISTANT PROFESSOR position is available for the spring of 1992. The University of Louisville is part of the State of Kentucky system and the department is undergoing a well-funded expansion at all levels. Candidates should hold a Ph.D., D.V.M., or M.D. degree and have at least 2 years of postdoctoral experience. Successful applicants receive generous start-up support, 12-month "hard money" salary, and are expected to excel in teaching medical and graduate students. They should be able to establish independent molecularly oriented research programs in one of four areas: virology, immunology, pathogenic mechanisms, or cell biology. Applicants should send curriculum vitae, statement on research interests, and the names of three references by 30 November 1991 to: **Dr. Gordon D. Ross, Chairman, Department of Microbiology and Immunology, University of Louisville, Louisville, KY 40292.** *The University of Louisville is an Equal Opportunity Employer that encourages applications from women and minorities.*

PHYSIOLOGIST. A tenure-track faculty position at the ASSISTANT, ASSOCIATE, or FULL PROFESSOR level in the Department of Veterinary and Comparative Anatomy, Pharmacology, and Physiology at Washington State University is available for a Ph.D. physiologist with at least 2 years of postdoctoral training and research experience in adaptation of skeletal, cardiac, or vascular smooth muscle. A preferred area of applicant interest would be on gene-mediated responses of muscle to physiologic (including exercise) or pathologic stressors. An alternative area of interest would be on tissues that affect muscle activity, such as vascular endothelium and its effects on vascular smooth muscle. However, exceptional candidates with other muscle-related interests would be considered. Candidates should indicate the level of appointment for which they are applying. To be considered at the full-professor level, a candidate must have an outstanding record as a research scientist. Salary commensurate with qualifications and experience. Send curriculum vitae, names, addresses, and telephone numbers of four professional references; and a statement of research interests to: **Dr. Kenneth Campbell, Chair of Search Committee, Department of Veterinary and Comparative Anatomy, Pharmacology and Physiology, Washington State University, Pullman, WA 99164-6520.** Application review will begin 1 November 1991. *Washington State University is an Affirmative Action/Equal Opportunity Employer. Protected group members are encouraged to apply.*

ASSISTANT/ASSOCIATE/FULL PROFESSOR. The Department of Psychiatry of the Uniformed Services University of the Health Sciences is seeking to fill a tenure-track research and teaching position with an individual with research interests to complement ongoing neuroscience research. Send curriculum vitae, a description of current and anticipated research interests, and the names of three references to: **Uniformed Services University of the Health Sciences, Attention CPO: Joan Ball, 4301 Jones Bridge Road, Bethesda, MD 20814-4799.** *Equal Opportunity Employer.*

Molecular Biologists Anticancer and Antibiotics Drug Discovery

The Upjohn Laboratories Division of The Upjohn Company has two immediate openings for research scientists to join the following two departments:

Cancer & Infectious Diseases Research

(Position Code 910197-074)

Working with a team of cell biologists, biochemists, and pharmacologists, the successful candidate will conduct independent research on selected molecular targets relevant to the discovery of novel agents for cancer treatment. This scientist will employ molecular biological approaches to studies of the mechanism of action of anti-tumor drugs such as novel DNA-interactive compounds or agents that inhibit tumor angiogenesis. The incumbent is expected to play a significant role in the selection of future molecular oncology-related areas of research focus for the cancer program and will carry out high-quality work warranting publication in peer-reviewed journals.

In addition to a Ph.D. degree in molecular biology, cell biology, biochemistry or related field, 3-5 years of independent research experience in recombinant DNA technology applied to a molecular oncology related field of investigation, such as growth factors, oncogenes, cell-cycle regulation or tumor suppressor genes is essential.

Molecular Biology Research

(Position Code 910596-075)

Working with our Infectious Diseases Research Group, the successful candidate will conduct independent research on replication, translation or transcription to study the mechanism of action of antibiotics of interest to our anti-bacterial program. This scientist will play a key role in identifying, designing and implementing mechanistic screens for specifically targeted anti-bacterial agents. Additionally, this scientist will collaborate with other researchers to provide support to heterologous gene expression in *E. coli*. The incumbent is expected to carry out high-quality work warranting publication in peer-reviewed journals.

In addition to a Ph.D. degree in microbiology, biochemistry, molecular biology, or cell biology, a minimum of 2 years of postdoctoral training and 3-5 years of independent research experience is required. Strong background in prokaryote genetics and molecular biology with proficiency in techniques required for experimentation in these areas is essential.

Upjohn offers a competitive salary and benefits package in addition to a stimulating, multi-disciplinary research environment. In 1990, Upjohn committed over \$400 million to research and development and we are currently increasing our research facilities by 50%. Qualified candidates are invited to send their curriculum vitae and cover letters to: THE UPJOHN COMPANY, CORP. RECRUITING, 7000 PORTAGE ROAD, KALAMAZOO, MI 49001, USA. Please refer to one of the above Position Codes in your correspondence. An Equal Opportunity Employer M/F.

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CELL ADHESION SIGNAL TRANSDUCTION

ICOS Corporation is combining biotechnology and pharmaceutical sciences to form a powerful coalition for drug discovery. We are currently conducting studies on cell adhesion and signal transduction to develop new biopharmaceuticals for the treatment of a broad array of human inflammatory diseases.

We are expanding our current research projects on the mechanisms of cellular adhesion and signal transduction. Several positions for PhD-level scientists at all levels of seniority are available.

MEMBRANE BIOCHEMIST

with extensive experience in protein purification and subcellular fractionation, and who has an interest in the reconstitution of signal transduction systems.

CELL BIOLOGISTS

with extensive experience using *in situ* hybridization techniques and in the localization of proteins using immunocytochemistry.

BIOCHEMISTS

with an interest in the enzymology of signal transduction and expertise in protein purification.

MOLECULAR BIOLOGISTS

with a strong background in **protein expression** to participate in two projects: the expression of adhesion molecules in mammalian cells and the development of high yield protein expression systems (mammalian cells, yeast, and bacteria).

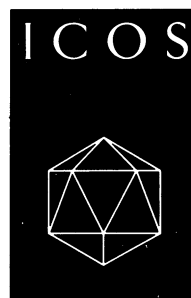
In addition, we are seeking:

RESEARCH ASSOCIATES

with a BS/BA or MS/MA degree who have at least 3 years of research experience in molecular biology, cell biology, or biochemistry.

ICOS is located in the Seattle area and offers competitive salaries and a benefits package that includes stock options, fully paid insurance benefits, and a 401(k) plan.

Send your resume to:



Director of Personnel
ICOS Corporation
22021 20th Ave SE
Bothell, WA 98021

ICOS Corporation is an equal opportunity employer.



Leicester University

CHAIR OF PHYSICAL CHEMISTRY

Applications are invited for the Chair of Physical Chemistry tenable from 1 April 1992 or as soon as possible thereafter. The Department of Chemistry is one of the University's major Physical Science Departments, but also has strong links with Biological Sciences through co-operation with Biochemistry and involvement in the new IRC in Mechanisms of Human Toxicity. Applications are encouraged from candidates with expertise in any area of Physical Chemistry, including Bio-Physical Chemistry.

Candidates should have a substantial record of achievement in research and in gaining support from grant-awarding bodies; they should be capable of enhancing the research standing of the Department and of providing academic leadership.

Informal enquiries are welcome and should be addressed to the Head of the Department of Chemistry, Professor John H. Holloway, Chemistry Department, The University, Leicester LE1 7RH, UK. Tel: (0533) 522106.

Salary will be negotiated within the Professorial Range, current minimum £28,364 pa.

Further particulars may be obtained from the Staffing Office (Academic Appointments), University of Leicester, University Road, Leicester LE1 7RH, UK. Tel: (0533) 522439.

U.K. candidates should submit fourteen copies of their application (overseas candidates may submit one copy). The University FAX number is (0533) 522200.

Closing date for applications: 1 November 1991.

KUWAIT UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF CHEMISTRY

The Department of Chemistry invites applications for posts of Professor, Associate Professor and Assistant Professor for the academic year 1991/92, tenable January 1992, in the following disciplines:

Organic Chemistry
Physical Chemistry
Inorganic Chemistry
Analytical Chemistry

The language of instruction in the Faculty of Science is English. The method of teaching is based on the credit hour system.

Applicants must hold the Ph.D. or its equivalent at the time of application.

Application forms and conditions of service may be obtained from:

Kuwait University Office
3500 International Dr. N.W.
Washington, DC 2008

Completed applications, together with non-returnable copies of academic qualifications and representative publications, should be returned directly to the Kuwait University Office—Att. Dept. of Chemistry not later than October 31, 1991.

SCIENTIFIC WRITER

Wyeth-Ayerst Research has an immediate opportunity available in its Clinical R&D Department in Radnor, PA for a Scientific Writer.

The candidate we seek must have a Ph.D./Pharm.D. degree. Demonstrated writing skills along with the ability to analyze and organize scientific data are most important.

The Scientific Writer will be involved with writing, editing, abstracting, proofreading and revising a wide variety of clinical documents for U.S. and International drug registration and marketing support. Responsibilities include organizing the presentation of clinical studies in New Drug applications (NDAs) and manuscripts and abstracts for publication.

We offer a competitive salary and extensive company benefits. For immediate consideration, please send resume, along with writing samples and salary history, to: **Wyeth-Ayerst Research Personnel, Position #062, P.O. Box 8299, Philadelphia, PA 19101.** Equal Opportunity Employer, M/F/H/V responses encouraged. Principles Only.



R.W. JOHNSON

SCIENTISTS/ GROUP LEADERS RIBOZYME RESEARCH

The R.W. Johnson Pharmaceutical Research Institute—Sydney, Australia, has immediate openings for highly qualified scientists interested in pursuing careers in ribozyme based gene therapeutics.

Laboratory Head/Group Leader. The successful candidate will have a distinguished record of scientific achievement and laboratory management in molecular biology with a concentration in one or more of the following areas: mammalian gene expression, vector design and construction, molecular virology, or oncogenes. The laboratory head will lead and direct a group of Senior/Principal Scientists and post-doctoral fellows in the development of human therapeutics based on catalytic anti-sense (ribozyme) technology.

Senior/Principal Scientists. The successful candidates will have completed a Ph.D. and post-doctoral training in the areas of virology (herpesviruses, retroviruses), molecular biology, or oncogenes.

The R.W. Johnson Pharmaceutical Research Institute is part of the Johnson & Johnson family of companies offering a competitive salary and benefits package. Successful applicants may be eligible to hold conjoint University appointments. Candidates should submit *curriculum vitae* and stated interests in pursuing a career in gene therapeutics to:

Patricia Fagan
Manager, Human Resources
R.W. Johnson Pharmaceutical Research Institute
3535 General Atomics Court, Suite 100
San Diego, CA 92121

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antibodies of clinical relevance.

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desirable. **Growing program
with opportunity for Senior
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technical and/or post-
doctoral support.** Salary
commensurate with experience
(range \$30,000 to \$50,000 per
year). Send Curriculum Vitae and
names of references to: **Dr. Lois
Salzman, Deputy Director,
Intramural Research Pro-
gram, National Institute of
Dental Research, National
Institutes of Health, Building
30, Room 131, 9000 Rock-
ville Pike, Bethesda, MD
20892.**

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EXECUTIVE DIRECTOR

The New York Academy of Sciences invites applicants for the position of Executive Director. Stated qualifications are the minimum requirements. Position available immediately.

The New York Academy of Sciences is a non-profit membership organization of more than 30,000 members located in every state of the U.S.A. and many foreign countries. The Academy's primary activities include the publication of some 30 Annals each year; the publication of the award-winning popular science journal, The Sciences, six times a year; the organizing, funding, and conducting of approximately 18-20 major scientific conferences each year; precollege science educational programs, including a Junior Academy of Sciences with 1,500 members; and science-based public policy involvement.

THE EXECUTIVE DIRECTOR is the Chief Executive Officer of the Academy, responsible to the Board of Governors which is made up of 16 scientists, corporate and foundation officials, and other professionals. The Academy has an annual budget of \$8 million and a staff of 70, including an Administrative Director. The Administrative Director is responsible for day-to-day financial, operating, and administrative matters, and reports to the Executive Director.

Responsibilities: Identify future goals and directions for the Academy, participate in policy-making, serve as a spokesperson for the Academy with liaison to governmental agencies, foundations, and other public and private organizations. Develop fund-raising for existing and future programs.

Qualifications: Demonstrated outstanding achievement based on a record of successfully conceiving, developing, and completing substantial programs in science and science-related fields.

Applicants professional background should also demonstrate ability to relate to the community of scientists to be served and the ability to interact with academic institutions, governmental agencies, industrial and financial corporations, and foundations.

Salary and benefits are competitive and commensurate with experience and qualifications. Applicant should submit a detailed curriculum vitae and 3 to 5 references. Applications and/or nominations should be sent by October 25, 1991 to:

Charles A. Sanders
Chairman, Search Committee
The New York Academy of Sciences
2 East 63rd Street
New York, NY 10021
An Equal Opportunity Employer



**Assistant Professor
Department of Anatomy**

Applications are being accepted for a tenure-track faculty position in the Department of Anatomy, Northeastern Ohio Universities College of Medicine (NEOUCOM). The successful candidate will have a proven record of research and publications with demonstrated ability or potential to attract extramural funding. Preference will be given to candidates who use modern cell biology techniques to address problems in the areas of skeletal muscle or developmental biology, however, all areas of research will be considered from qualified candidates. Candidates must have demonstrated teaching experience in dissection-based gross anatomy. Salary and start-up funds are competitive. NEOUCOM, in consortium with Kent State University, The University of Akron, and Youngstown State University and eight teaching hospitals offer a combined BS/MD degree. The medical school has 40 basic medical science faculty. Faculty participate in graduate programs leading to MS/Ph.D.'s in the areas of neuroscience, cell biology, physiology, pharmacology, and biological anthropology through the school of biomedical sciences at Kent State University. The Department of Anatomy currently has seven full time faculty. Applicants are requested to forward their curriculum vitae, a statement of research interests and the names of three references by December 15, 1991, to the Office of Human Resources, c/o Steven Ward, Ph.D., Chairman, Department of Anatomy, Northeastern Ohio Universities College of Medicine, P.O. Box 95, Rootstown, Ohio 44272. An equal opportunity affirmative action employer.

**Director of Animal Resources
University of Florida**

The University of Florida invites applications and nominations for a tenured position as Director of the University of Florida campus-wide program in laboratory animal resources. Letters of application or nomination should include curriculum vitae outlining academic training, teaching, administrative and present professional activities. The application should include a list of publications, statement of professional goals and names of 3 or more persons who can provide letters of reference.

Academic rank and salary will be commensurate with training and experience of the successful candidate. The Director of Animal Resources serves as the University of Florida attending veterinarian. The Director shall:

- I. Direct the operation of the laboratory animal care program for the University in accordance with AAALAC standards for accreditation.
- II. Insure the provision of adequate veterinary care for all University-owned animals as required by federal regulations and guidelines.
- III. Advise the University administration on all matters affecting compliance with the regulations implementing the Animal Welfare Act, the Public Health Service Policy, the NIH Guide for the Care and Use of Laboratory Animals, and any state or local ordinances.
- IV. Serve as a member of the Institutional Animal Care and Use Committee with the additional responsibility of advising the Committee on the interpretation and application of federal regulations, standards and guidelines.
- V. Assure the implementation and maintenance of current animal care technology most conducive to excellent research within reasonable costs and with minimal administrative impediment.
- VI. Develop and direct academic training programs in laboratory animal medicine and science. This includes residency training for graduate veterinarians leading to board certification, basic and clinical instruction for undergraduate veterinary students, graduate programs in collaboration with appropriate academic departments, instruction of research faculty and staff, and programs for animal caretakers leading to AALAS technician certification.

Qualifications for the position include a DVM or equivalent degree and board certification in the American College of Laboratory Animal Medicine. A doctoral degree (Ph.D. or equivalent) is preferred. An established record of excellence in veterinary, graduate or postdoctoral training is required. A commitment to excellence in academic service programs is essential.

Applicants or nominees should be eligible for appointment to tenure rank and membership in the Graduate Doctoral Research Faculty of the University of Florida. A detailed duties job description is available upon request.

Application deadline is November 15, 1991.
Contact: **Dr. Richard E. Dierks, Search Committee Chairperson,**
College of Veterinary Medicine, University of Florida,
P.O. Box 100125, Gainesville, FL 32610-0125.

The University of Florida is an affirmative action/equal opportunity employer.

POSITIONS OPEN

MOLECULAR GENETICS/ SIGNAL TRANSDUCTION MOLECULAR DEVELOPMENTAL BIOLOGY UNIVERSITY OF ILLINOIS AT CHICAGO (UIC)

The Laboratory for Molecular Biology of the Department of Biological Sciences invites applications for two tenure-track faculty positions at the **ASSISTANT PROFESSOR** level available in fall 1992. The Laboratory wishes to complement its strong molecular genetics research group by expanding its interest in signal transduction and developmental biology.

Outstanding candidates with promising research programs utilizing molecular and/or genetic approaches to study (1) regulatory mechanisms involving signal transduction pathways or (2) eukaryotic developmental systems are encouraged to apply.

Successful candidates are expected to have a Ph.D. or M.D. degree with postdoctoral experience, and to provide evidence that they can pursue a vigorous, independent research program, and must be willing to contribute to the department's coursework offerings. Please apply by sending curriculum vitae, description of research interests, and names and addresses of three references to:

LMB Search Committees
c/o Dr. Emanuel Margoliash, Coordinator of LMB
Department of Biological Sciences (M/C 066)
University of Illinois at Chicago
P.O. Box 4348
Chicago, IL 60680

Attention: Therese Roschay, telephone: 312-996-2213. Applicants must specify to which position they are applying. Application deadline is 15 November 1991. UIC is an Affirmative Action/Equal Opportunity Employer.

ASSISTANT OR ASSOCIATE PROFESSOR STATE UNIVERSITY OF NEW YORK AT STONY BROOK WINTHROP-UNIVERSITY HOSPITAL

The Department of Pediatrics, Division of Newborn Medicine seeks a faculty investigator at the assistant or associate professor level. Candidates should have a doctoral degree, postdoctoral experience, and have demonstrated the potential for independent research. We are seeking an outstanding individual with interests in investigating neonatal lung disease caused by oxygen and ventilator-induced injury. Experience with cell biologic techniques and/or physiologic models important. Excellent salary and benefits not dependent on external grant support, but candidate would be expected to develop and expand the department's research activities with external funding.

Applicant should send curriculum vitae, a brief description of research interests, and a list of possible references to:

Jonathan M. Davis, M.D.
Director, Division of Newborn Medicine
Winthrop-University Hospital
SUNY/Stony Brook School of Medicine
259 First Street
Mineola, NY 11501

SUNY/Stony Brook is an Equal Opportunity Employer.

FACULTY POSITIONS IN CELL, MOLECULAR, AND STRUCTURAL BIOLOGY

Applications are invited for tenure-track positions in the Department of Cell, Molecular, and Structural Biology at Northwestern University Medical School. **ASSISTANT TO FULL PROFESSOR** applicants must have a Ph.D., M.D., or equivalent degree, with research experience in cell, molecular, or structural biology. Applicants will be screened with respect to their ability to carry on vigorous independent research and to participate in the various teaching programs administered by the department. Candidates whose research interests include developmental biology, biochemistry, and structural biology are encouraged to apply, although outstanding applicants with research interests in other areas of molecular biology will be considered. Send complete curriculum vitae and a brief description of research interests to: **Dr. Robert D. Goldman, Chairman, Department of Cell, Molecular, and Structural Biology, Northwestern University Medical School, 303 East Chicago Avenue, Chicago, IL 60611.**

Northwestern University is an Equal Opportunity/Affirmative Action Educator and Employer and invites applications from all qualified individuals. Applications from women and minorities are especially sought.

POSITIONS OPEN

FACULTY POSITION

The Department of Medical Laboratory Sciences at Florida International University (FIU) invites qualified candidates to apply for 9-month faculty positions, at the **INSTRUCTOR** and **ASSISTANT PROFESSOR** (tenure track) levels. Applicants for the position of instructor must have a master's degree, while applicants for assistant professor must possess a Ph.D. All candidates must have recognized certification (ASCP or equivalent) in medical technology or a specialty field. We are seeking candidates with training and/or research experience in clinical hematology and/or immunohematology. Application deadline is 7 November 1991.

The Department of Medical Laboratory Sciences offers a CAHEA-accredited baccalaureate program in medical technology and master's programs in: clinical chemistry, clinical immunology, clinical microbiology, clinical hematology, and immunohematology. Florida International University is a member of the State University System of Florida and has an enrollment of 22,000. The successful candidate will enjoy a competitive salary and benefits program along with the cultural and seasonal amenities that South Florida has to offer.

Send curriculum vitae, names and addresses of three references and a statement of research and professional objectives to:

Beverly A. Warden, Ph.D.
Search Committee Chair
Department of Medical Laboratory Sciences
College of Health
Florida International University
Miami, FL 33199
or call 305-348-2870

FIU is an Equal Opportunity, Affirmative Action Employer.

FISHERY BIOLOGIST. Nine-month, tenure-track **ASSISTANT/ASSOCIATE PROFESSOR** position starting August 1992. Applicants with research interests at the interface between fishery management and productivity/trophic relationships in large freshwater systems are especially encouraged to apply. Requires Ph.D. in fishery biology or aquatic ecology. Teaching includes undergraduate courses in fishery science and fish biology, a graduate course, and seminars. Preference given to individuals with postdoctoral and teaching experience, strong quantitative skills, and experience with natural resource agencies. Submit a statement of experience and professional goals, résumé, transcripts, publications, and three letters of reference by 8 January 1992 to: **Dr. Stephen Flickinger, FB Search Committee, Department of Fishery and Wildlife Biology, Colorado State University, Ft. Collins, CO 80523. Telephone: 303-491-5657; FAX: 303-491-5091. Colorado State University is an Affirmative Action/Equal Opportunity Employer. Equal Opportunity Office: 314 Student Services Building.**

FACULTY POSITIONS ASSISTANT/ASSOCIATE/FULL PROFESSOR DEPARTMENT OF BIOCHEMISTRY UNIVERSITY OF ILLINOIS COLLEGE OF MEDICINE

Applications and nominations are invited for tenure-track faculty positions for September 1992. We are seeking candidates who are using contemporary approaches to investigate problems in the general areas of cell growth control and differentiation, enzymology, and structural biology. Applicants in other areas will also be considered. Applicants should have a Ph.D., postdoctoral experience, a strong record of research accomplishments, and demonstrable potential for the development of an independent research program. At the tenured level, applicants must have a strong record of research accomplishment. The department consists of 19 full-time faculty and has hired several new faculty in recent years. The department and college are well equipped and have research support facilities that include nucleic acid and protein synthesis and sequencing, NMR, EM, etc. Applications should include curriculum vitae, a summary of current and future research plans and the names of at least three individuals for references. Application deadline is 31 December 1991.

Send applications or nominations to:

Chairman, Search Committee
Department of Biochemistry (M/C 536)
University of Illinois College of Medicine
1853 West Polk Street
Chicago, IL 60612

Affirmative Action/Equal Opportunity Employer.

POSITIONS OPEN

PLANT MOLECULAR BIOLOGIST ASSISTANT PROFESSOR, TENURE TRACK DEPARTMENT OF BIOLOGICAL SCIENCES UNIVERSITY OF IDAHO

The individual selected for this position will be expected to establish an extramurally funded research program in plant molecular biology, and to direct M.S. and Ph.D. students. Preference will be given to individuals whose research interests complement those of faculty in the Department of Biological Sciences. Teaching will include one upper division/graduate course and one undergraduate course annually. Postdoctoral experience, success in obtaining research funding, and teaching experience are desired. The starting date is August 1992. Applicants should submit, by 15 November 1991: curriculum vitae and three or fewer reprints, a statement of research goals, and a statement of teaching interests and philosophy. These materials and three letters of recommendation should be sent to: **Dr. Douglass Henderson, Department of Biological Sciences, University of Idaho, Moscow, ID 83843. Affirmative Action/Equal Opportunity Employer.**

The Department of Biology at The University of Houston is seeking to fill two tenure-track positions at the **ASSISTANT** or **ASSOCIATE PROFESSOR** level. Although excellent candidates from any area of biology will be considered, we are primarily interested in a microbiologist/immunologist working either with prokaryotes or yeast, and a cell biologist/physiologist using molecular techniques. The University of Houston is a state-supported institution located on an attractive 500-acre campus with an enrollment of more than 34,000 students and attracts more than \$50 million annually in extramural funds. The Department of Biology is housed in a modern research facility within the science complex on the main campus, which is a short distance from other major research centers within the city. Candidates should submit curriculum vitae, statement of research interest and names of three references to: **Dr. Edwin H. Bryant, Department of Biology, University of Houston, Houston, TX 77204-5513.** Applications should be received by 1 December 1991 to ensure a full review. *The University of Houston is an Affirmative Action/Equal Opportunity Employer.*

MOLECULAR MECHANISMS OF VASCULAR DISEASE. The Department of Pathology of the University of Chicago seeks to recruit two new tenure-track faculty members (M.D./Ph.D., Ph.D. or M.D.) for its Program in Vascular Pathology—one at the senior level (**ASSOCIATE** or **FULL PROFESSOR**), one at the junior level (**ASSISTANT PROFESSOR**). Candidates for the senior position should have an established program in some molecular aspect of cardiovascular research (e.g., cell and molecular biology of blood vessels; lipoprotein molecular genetics, membrane ion channel physiology, cellular growth control, transgenics, etc.). Candidates for the junior position (who may be completing postdoctoral work) should have a strong background in basic science. Send letter of application, curriculum vitae and a statement of research interests to: **Peter F. Davies, Ph.D., Chairman, Search Committee, Department of Pathology, The University of Chicago, 5841 South Maryland Avenue, P-617/Box 414, Chicago, IL 60637. An Affirmative Action/Equal Opportunity Employer.**

The Department of Anatomical Sciences has two tenure-track positions available at the **ASSISTANT/ASSOCIATE PROFESSOR** level for appointment beginning 1 July 1992. Applications are invited from individuals with a Ph.D., M.D. or equivalent degree and at least 2 years of postdoctoral training. Preference will be given to individuals whose research focuses on cell biology, cellular/molecular aspects of developmental biology or neurobiology. Each candidate is expected to establish an independent research program. Teaching responsibilities will be in either gross anatomy or histology to professional and graduate students. Candidates should submit curriculum vitae, a summary of past and proposed research interest and names of at least three references to:

Raymond E. Papka, Ph.D.
Chairman of Search Committee
Department of Anatomical Sciences
University of Oklahoma Health Sciences Center
Post Office Box 26901
Oklahoma City, OK 73190

Closing date for applications is 31 December 1991. *Equal Opportunity/Affirmative Action Employer.*

Make A Difference In The Quality of Life

The Hyland Division of Baxter Healthcare, a leader in the area of human plasma-derived protein therapeutics, is undertaking the development of its next generation of therapeutics with the aid of state-of-the-art biotechnology. We seek energetic individuals who can contribute effectively in a multi-disciplinary R&D environment in the following areas:

SUPERVISOR Protein Purification (Dept. LD/SPP)

The successful candidate will lead protein purification projects for new therapeutics and novel separations methods. Proven experience in purification of monoclonal antibodies and recombinant/engineered proteins from a variety of sources is essential. A strong background in protein biochemistry, separation technology, and process development is required. The position includes coordination of staff and resources, and making recommendations on milestones, budgets, equipment and staffing. Effective communication skills, ability to function in a team environment, and knowledge of GLP/GMP and regulatory issues are required. Qualified individuals will have a Ph.D. in biochemistry, plus at least 3 years relevant experience.

SCIENTIST IV Protein Characterization (Dept. LD/C-4)

We seek an individual with demonstrated expertise in the biochemical investigation of proteins to participate in the study of structure and function of protein therapeutics under development. Applicants must be thoroughly versed in all aspects of protein biochemistry and/or molecular cell biology as these relate to the study of protein structure and function. Additional experience in development of novel techniques pertaining to protein-ligand interactions an asset. Excellent communication skills and ability to interact in a team-oriented R&D environment are essential. The successful candidate will make key recommendations concerning research directions of the Group and develop novel approaches which coincide with overall strategic R&D objectives. A Ph.D. in biochemistry with relevant industrial or postdoctoral experience is required.

SCIENTIST IV Process Analysis (Dept. LD/PA-4)

The successful candidate will design, conduct and oversee experiments relating to process validation in support of our existing protein therapeutic purification processes. Demonstrated familiarity with protein purification, process development, and investigation of biopolymer contaminants is required. Experience in the development of novel chemical, biochemical and immunological assay techniques an asset. Ability to interact in a group setting, excellent communication skills, and knowledge of regulatory issues are essential. We require a Ph.D. in biochemistry or related field, with relevant postdoctoral or industrial experience.

Baxter Healthcare Corporation, a Fortune 100 company, is synonymous with products, systems and services devoted to improving health care throughout the world. We provide a smoke-free environment, competitive compensation and benefits. Please send your resume in confidence (*indicating on the outer envelope the Dept. Code for your position of interest*) to: **Baxter Hyland Division, Human Resources Dept., 1710 Flower, Duarte, CA 91010.** An Affirmative Action/Equal Opportunity Employer.

Hyland Division

Baxter

POSITIONS OPEN

FACULTY POSITIONS OREGON HEALTH SCIENCES UNIVERSITY

The Oregon Health Sciences University is building additional facilities and is seeking new faculty for an expanding program in basic science research. Over the next 12 to 18 months several new faculty will be added in concert with the completion of a new building. Depending on rank, individuals will be expected to develop or transfer active research programs, be willing to participate in teaching, and to interact with other faculty in a vigorous research environment. Space, start-up funds and salaries are competitive.

• Department of Microbiology and Immunology—**SENIOR IMMUNOLOGIST**. The Department of Microbiology and Immunology has been newly reorganized and staffed to emphasize the molecular basis of microbial pathogenesis and immunity. This active and expanding department is now recruiting a **FULL OR ASSOCIATE PROFESSOR** with an outstanding record in the field of immunology. Special consideration will be given to individuals studying the molecular aspects of antigen processing and presentation. The applicant must have a record of substantial accomplishment as demonstrated by publications in major scientific journals and a history of continuous grant support from national agencies. Interested persons should send their curriculum vitae, statement of research interest and names of three references to: **M. B. Rittenberg, Search Committee, Department of Microbiology and Immunology, Oregon Health Sciences University, 3181 Southwest Sam Jackson, Portland, OR 97201.**

• Department of Cell Biology and Anatomy—**CELL AND MOLECULAR BIOLOGIST**. The faculty of the Department of Cell Biology and Anatomy is focused on molecular mechanisms of cellular control. This active department is seeking an **ASSISTANT OR ASSOCIATE PROFESSOR**, whose research interests lie in areas such as the control of growth and differentiation, intracellular trafficking, or the regulation of gene activity. Individuals working in either higher or lower eukaryotes are encouraged to apply. Applicants at the associate professor level should have an established research program with extramural funding. Interested persons should send their curriculum vitae, a statement of research interest and names of three references to: **C. Enns, Search Committee, Department of Cell Biology and Anatomy, Oregon Health Sciences University, 3181 Southwest Sam Jackson, Portland, OR 97201. An Equal Opportunity Employer.**



DIRECTOR OF APPLIED RESEARCH CENTER UNIVERSITY OF NORTH CAROLINA (UNC) AT CHARLOTTE

Seeking outstanding candidates for Director of the new 75,000-square-foot Applied Research Center. Candidates must be qualified for an appointment as full professor in an appropriate academic department. The director will report to the Dean of Engineering as Associate Dean for Research. Candidates are expected to have postdoctoral experience in an area related to one or more of the center's primary areas of research which include: materials science, precision engineering, optoelectronics, microelectronics, environmental engineering, biotechnology including biomedical technology, and computer integrated manufacturing. Candidates should have a strong record of research and have demonstrated leadership and management skills to work with faculty in engineering and the sciences to continue the development of this multidisciplinary Applied Research Center. Director must also have excellent communication and public relation skills to represent the center and the university to external agencies. Review of applications will begin 15 October 1991, and continue until the director has been selected. To apply please send résumé and the names of at least three references to: **Professor S. P. Almeida, ARC Search Committee, College of Engineering, UNC Charlotte, Charlotte, NC 28223. UNC Charlotte is an Equal Opportunity/Affirmative Action Employer.**

POSITIONS OPEN

ENDOWED CHAIR IN REHABILITATION ENGINEERING. The Department of Biomedical Engineering, University of Tennessee, Memphis, announces the establishment of the J. R. Hyde Chair of Excellence in Rehabilitation Engineering. This endowed chair will support a distinguished professor with a national reputation in research, education, and service in rehabilitation engineering (e.g., biomechanics, biomaterials, or prosthetics). The University of Tennessee, Memphis, has established 26 endowed professorships and Centers of Excellence in Molecular Resources, Neurobiology, and Pediatric Pharmacokinetics and Therapeutics. The university comprises Colleges of Medicine, Dentistry, Nursing, Pharmacy, Graduate Health Sciences and Allied Health Sciences. Candidates should have a Ph.D. in engineering, have several years of experience at the associate professor level or higher, and presently direct a major and continuing federally supported research program. The deadline for submitting applications for review is 31 December 1991; however, applications will be accepted until a suitable candidate has been identified. Applicants should send curriculum vitae and the names, addresses, and telephone numbers of five references to: **Professor Herbert D. Zeman, Chairman of the Search Committee, Department of Biomedical Engineering, University of Tennessee, 894 Union, Nash Building—Suite 250, Memphis, TN 38163. Minority candidates and women are especially encouraged to apply. The University of Tennessee is an Equal Employment Opportunity/Affirmative Action/Title IX/Section 504/ADA Employer. Rev. 2 (4/91).**

PROGRAM DIRECTOR NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM UNITED STATES DEPARTMENT OF AGRICULTURE (USDA)

The National Research Initiative Competitive Grants Program, U.S. Department of Agriculture, seeks a qualified scientist to serve as a program director for grant review and administration in the area of animal disease research. Candidates must have a D.V.M., Ph.D. or other degree with major study in microbiology, veterinary science or a related discipline of biological science. In addition candidates must have specialized experience.

Closing date is 4 November 1991. For further information on this full-time, permanent position, contact **Dr. Rosemary R. Grady, NRICGP, Room 323G Aerospace Building, 901 D Street, S.W., Washington, DC 20250-2200. Telephone: 202-401-6234. For information on application procedures/forms, contact Ms. Kathy Asmusen, Personnel Staff Specialist, telephone: 202-475-4811. USDA is an Equal Opportunity Employer.**

VICE PRESIDENT FOR RESEARCH AND CREATIVE ACTIVITIES MONTANA STATE UNIVERSITY (MSU)

Montana State University invites applications and nominations for the position of Vice President for Research and Creative Activities. Founded in 1893, MSU is a comprehensive land grant institution with an enrollment of approximately 10,000 students in seven colleges. MSU is committed to a mission of instruction, research and creative activity, and outreach.

The Vice President for Research and Creative Activities is responsible for promoting, facilitating and administering research, creative and scholarly activities within the university.

Nominations must be postmarked by 18 October 1991. Screening of applicants will begin 4 November 1991. Applications will be accepted until the position is filled. Applications should include a letter addressing all required and preferred qualifications, a complete résumé or curriculum vitae and the names, addresses and telephone numbers of five references. The complete list of responsibilities and qualifications, with application guidelines, is available from:

**Dr. Robert L. Brown, Chair
Search Committee—Vice President for
Research and Creative Activities
Academic Vice President's Office
211 Montana Hall
Montana State University
Bozeman, MT 59717
Telephone: 406-994-6122
FAX: 406-994-2893**

MSU is an Affirmative Action/Equal Opportunity Employer and Educational Institution and actively solicits applications from minorities and women. Veteran's preference.

POSITIONS OPEN

DEAN OF THE COLLEGE OF AGRICULTURE AND DIRECTOR OF THE AGRICULTURAL EXPERIMENT STATION, Montana State University (MSU). The Dean is the chief administrative officer of the College of Agriculture, and serves as Director of the Agricultural Experiment Station. Required qualifications include: earned doctorate in an agricultural or closely related discipline; record of excellence in research, teaching and service sufficient to qualify for appointment as associate professor or professor in the College of Agriculture; evidence of ability, or potential, in administration, policy formulation, personnel management, public relations, and fiscal management; demonstrated ability to establish and maintain strong ties with producer organizations, government agencies, community organizations, alumni and on-campus constituencies; demonstrated ability to secure extramural funding; and demonstrated commitment to *Affirmative Action*. Nominations are invited. Applicants should submit: (1) a current résumé; (2) a letter of application addressing the above qualifications and discussing the role of colleges of agriculture in the 21st century; and (3) names, addresses, and telephone numbers of five professional references by 15 December 1991 to: **Dr. David F. Gibson, Chair, c/o Mary Fran San Soucie, Secretary, Dean Search Committee, 213 Linfield Hall, MSU, Bozeman, MT 59717-0286. Telephone: 406-994-2272. Veterans preference. Affirmative Action/Equal Opportunity Employer.**

DEPUTY ASSOCIATE DIRECTOR. Geriatric Research Education and Clinical Center (GRECC), American Lake Veterans Affairs Medical Center (VAMC), Tacoma, Washington. Senior academic physician-investigator with expertise and experience in clinical or basic aspects of neuroscience to direct American lake component of combined Seattle/American Lake VAMC GRECC. Attractive opportunity to expand research and clinical programs in geriatric psychiatry, geriatric medicine and neuroendocrinology. Current research programs are related to neurobiology of dementia, neuroendocrinology of aging, and neuropeptide biosynthesis and processing. Research academic appointment in appropriate department at University of Washington School of Medicine. Academic rank. Salary and terms negotiable. Reply to: **Daniel Dorsa, Ph.D., Associate Director, GRECC (182B), Seattle VAMC, 1660 South Columbian Way, Seattle, WA 98108. An Equal Opportunity Employer.**

Green Seal, a nonprofit group awarding "seals of approval" to environmentally superior products, seeks a **DIRECTOR OF ENVIRONMENTAL STANDARDS** to manage the establishment of environmental standards for consumer products. Must have Ph.D. in engineering, biology, chemistry, toxicology, or another relevant scientific discipline and at least 5 years of experience analyzing environmental impacts of manufacturing or its equivalent. Salary commensurate with experience and excellent benefits. Send résumé and references to: **Green Seal, #300-A, 1875 Connecticut Avenue, N.W., Washington, DC 20009. Smoke-free office.**

FACULTY POSITIONS DEPARTMENT OF SURGERY THE UNIVERSITY OF CHICAGO

The Department of Surgery at the University of Chicago wishes to invite applications and nominations for several tenure-track positions to be filled in the 1991 to 1992 academic year. Candidates should be Board-certified or Board-eligible in the specialty. In addition to general surgery, positions are available in cardiac surgery, neurosurgery, oral and maxillofacial surgery, orthopaedic surgery, otolaryngology/head and neck surgery, pediatric surgery, plastic and reconstructive surgery, thoracic surgery, transplantation surgery, vascular surgery, and urology. Responsibilities will include teaching, clinical and/or basic research, and patient care. Applications should include curriculum vitae, a list of publications, and the names of at least four individuals from whom letters of reference may be solicited. While we have no formal deadline, we would appreciate receiving applications by 15 October 1991. Please send applications or nominations to:

**George E. Block, M.D., Acting Chairman
Department of Surgery
The University of Chicago
5841 South Maryland Avenue, Box 168
Chicago, IL 60637**

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

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

DIRECTOR, NIA

The National Institute on Aging (NIA) invites nominations and applications for the position of Director, NIA. This is a Civil Service position in the Senior Executive Service with a salary range of \$87,000 - \$108,300 per annum. The person selected may be eligible for Physician's Comparability pay up to \$20,000 per year. A one-year probationary period must be served by the individual selected if not currently in the Senior Executive Service.

The Director is responsible in the policy development and coordination of all Institute activities, which include: conducting, fostering and supporting biomedical, social and behavioral research and training pertaining to aging processes and common problems of older people.

Further information about the position and qualifications requirements may be obtained by contacting Mr. Michael P. Lockard at (301) 496-5347. An Application for Federal Employment (SF-171) accompanied by a current curriculum vitae and bibliography should be submitted to:

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



Applications must be postmarked no later than November 1, 1991.

Selection for this position will be based solely on merit, with no discrimination for non-merit reasons such as race, color, religion, sex, national origin, politics, marital status, physical or mental disability, age, or membership or non-membership in an employee organization.

Please note that this is a testing designated position. An applicant tentatively selected for this position will be required to submit to urinalysis prior to appointment to screen for illegal drug use.

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Exploring and testing your analytical and intuitive abilities is what a scientific career is all about. And Burroughs Wellcome Co. can give you those opportunities. We are at the forefront of important new pharmaceutical developments, with a long record of successes. That means you can have the resources and support to do your best work, and make a meaningful difference. Discover your capabilities at Burroughs Wellcome Co.

Senior Associate Pharmacologist Biochemical Pharmacology (Position #62307-4)

The Division of Pharmacology has an opportunity for a scientist to initiate and conduct independent research directed towards the discovery and development of novel anti-asthmatic agents.

Candidates must have a Ph.D. in biochemistry or a related discipline plus one year of research experience. Experience is needed in analytical procedures for quantitating lipid-derived mediators of allergy/inflammation. Other factors to be considered include skills and experience in mechanisms of cellular activation and function, cell adhesion processes, pharmacology, immunology and histology.

Deadline for Application: October 28, 1991.

Research Scientist Drug Metabolism (Position #63110-4)

In the Division of Pharmacokinetics and Drug Metabolism, this individual will develop and validate analytical methods, design and conduct disposition and metabolism studies, and provide support of toxicology and medical protocols for preproject and project compounds.

Candidates must have a Ph.D. degree in chemistry, biology, biochemistry, or a related chemical or medical science, **OR** a Master's degree in one of the above disciplines plus two years of experience in absorption, distribution, excretion, and metabolism studies, **OR** a Bachelor's degree in one of the above disciplines plus four years of experience as above. Candidates selected for interview will take an on-site writing assessment. Other factors to be considered include experience in a laboratory and working as part of a research team, and experience with HPLC, TLC, and radiochemicals.

Deadline for Application: December 2, 1991.

At Burroughs Wellcome Co., you will enjoy a compensation and benefits package that is among the best in the pharmaceutical industry, along with the advantages of being part of an innovative pharmaceutical leader. Please send your resume, indicating position number in your cover letter, by the deadline specified, to **Burroughs Wellcome Co., Recruiting and Staffing, 3030 Cornwallis Road, Research Triangle Park, NC 27709.**

For information on other job opportunities with Burroughs Wellcome Co., call our Job Information Line at (919) 248-8347



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PHARMACOLOGIST METABOLISM & PHARMACOKINETICS

Battelle, a world leader in contract research and professional services, has an immediate need for a pharmacologist with expertise in metabolism and pharmacokinetics. This is a study director position involving GLP regulated pharmacokinetics, bioavailability, and animal metabolism studies of a variety of drugs and chemicals for government agencies and pharmaceutical and chemical industries.

This position requires a relevant PhD. A recent graduate will qualify with experience doing pharmacokinetic modeling and data analysis/interpretation. Experience should also include chemical disposition experimental studies using common laboratory animals. The ability to implant vascular catheters and use radiotracer methods and analytical chemistry instrumentation is expected.

Battelle offers competitive salaries, comprehensive benefits and opportunities for professional growth. If interested, send your resume to: **Mr. Richard Shaw, Dept. 113, Battelle, 505 King Avenue, Columbus, Ohio 43201-2693.** An Equal Opportunity/Affirmative Action Employer M/F/H/V.



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CEDARS-SINAI  MEDICAL CENTER

MOLECULAR BIOLOGIST

Division of Pulmonary Medicine
Cedars-Sinai Medical Center
UCLA School of Medicine

Cedars-Sinai Medical Center is conducting a search for a Ph.D. Research Scientist with a strong background in Molecular Biology to collaborate with clinical investigators in the areas of transplantation and/or pulmonary circulation.

The position is well funded with lab space in a brand new research building with excellent facilities including core molecular biology lab. Will sponsor for faculty appointment at UCLA School of Medicine.

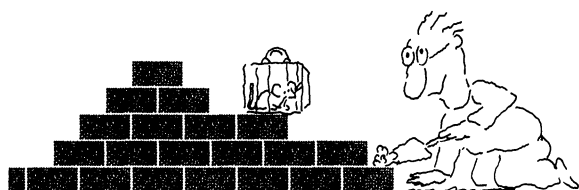
Uniquely situated on the west side of Los Angeles, Cedars-Sinai Medical Center is only minutes away from the beaches and mountains. Our international city offers a rich, cultural experience.

For this position, we offer a superior salary and benefits package. Applicants should submit curriculum vitae to:

SPENCER KOERNER M.D.
Director, Division of Pulmonary Medicine
Cedars-Sinai Medical Center
8700 Beverly Boulevard
Los Angeles, CA 90048

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Research Scientist

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*Division of Horticulture,
Merbein, Victoria, Australia*

The Division conducts applied and strategic research on horticultural crops of economic importance to Australia. We wish to appoint a highly motivated Research Scientist to join the viticulture group at our Merbein Laboratories, near Mildura, Victoria.

You will initiate research on aspects of grapevine growth, water use or nutritional balance modelling to further refine or develop efficient, highly productive and low input systems of vine management. The work will include studies of the influence of rootstocks, scion varieties and viticultural practice on vine performance. You will work as part of a team and be responsible for the management of externally funded projects.

You will need to have a PhD or equivalent qualification, with research experience in one or more of crop growth and development, water relations, nutrition or mathematical modelling of biological systems.

Further information on this position, the selection criteria and duty statement can be obtained from Dr. Rob Walker, telephone 61 50 25 6201. Selection criteria and duty statement are available from Ms. Vicki Keeble, telephone 61 50 25 6201 or fax 61 50 25 6823. Applications should be sent, quoting Ref No. M91/IS, to: **The Chief, CSIRO Division of Horticulture, GPO Box 350, Adelaide SA 5001, Australia, by October 25, 1991.**



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We currently have outstanding opportunities for recent Ph.D.s with training in molecular biology and tissue culture.

Candidates must have an interest in Cellular Immunology. Project involves gene expression in human T-cells and mechanism of action of immunosuppressive drugs.

Please send C.V. to Ms. Singh, Professional Recruiter, New York University Medical Center, 550 First Avenue, New York, NY 10016.



The Immune Response Corporation

THE IMMUNE RESPONSE CORPORATION has a postdoctoral position available to study T cell immunoregulation in Autoimmune Disease at our suburban San Diego R&D facility. Experience in cellular immunology and/or molecular biology is desired.

Interested candidates should forward their curriculum vitae to:

**Chief Scientific Officer
The Immune Response
Corporation
5935 Darwin Court
Carlsbad, CA 92008
Ref: Postdoctoral Fellow**

EQUAL OPPORTUNITY EMPLOYER

Research Scientist Preclinical Pharmacokinetics

American Cyanamid's Medical Research Division is currently seeking a Research Scientist to become part of a research and development team in Preclinical Pharmacokinetics.

In this position, you will be involved in the design, conduct, analysis and reporting of pharmacokinetic, toxicokinetic and pharmacodynamic studies essential to the registration of potential drug candidates. Your responsibilities will include the establishment of models both *in vitro* and *in vivo* appropriate to the pharmacokinetic characterization of drugs under evaluation. This position involves extensive interaction and coordination of research activities with other areas of the Medical Research Division, especially Toxicology.

A Ph.D. (or equivalent) and training in pharmacokinetics/toxicology are required. Additional expertise in pharmacology, drug metabolism, analytical chemistry or statistics is desirable. Excellent oral and written communication skills are also essential.

Located at the Lederle Laboratories campus in Pearl River, New York, just 25 miles north of New York City, you will enjoy a competitive salary and liberal fringe benefits, including a 401K



savings plan. For consideration, we invite you to submit your resume with salary history, in confidence, to: Professional Employment Office, Dept. ML, American Cyanamid Co., Middletown Road, Pearl River, NY 10965. We are an equal opportunity employer.

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Cardiovascular Disease

COR Therapeutics, Inc. is a rapidly growing biotechnology company located in the San Francisco Bay Area. We specialize in the development of novel therapeutics for the treatment of various aspects of atherosclerosis-induced cardiovascular disease. COR is actively recruiting highly qualified Scientists and Senior Scientists with proven track records to join multidisciplinary research teams in the following areas:

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A Senior Scientist with a pharmacology background to develop vascular cell proliferation animal models and evaluate anti-restenosis compounds.

Antithrombotics

A Scientist with a background in molecular biology to work on the coagulation inhibitor program to express recombinant inhibitors, and also to establish vectors, constructs and other expression systems.

Cellular Adhesion Inhibitors

A Scientist or Senior Scientist with a background in cell biology and/or biochemistry to develop inhibitors of cellular adhesions. These programs encompass disciplines of thrombosis and of inflammation relating to reperfusion injury.

Organic Chemistry

A Scientist to work on the novel synthesis of peptides by applying organic chemistry to synthetic peptide leads. Peptide synthesis experience preferred.

COR Therapeutics, Inc. offers competitive salaries, benefits and attractive equity positions to its employees combined with the challenge and opportunity to make significant contributions. To apply, please send curriculum vitae to: **COR Therapeutics, Inc., Human Resources (Ref# S91), 256 East Grand Avenue, South San Francisco, CA 94080.** COR is an equal opportunity employer.

COR

COR THERAPEUTICS, INC.

POSITIONS OPEN

NATIONAL INSTITUTES OF HEALTH NATIONAL HEART, LUNG, AND BLOOD INSTITUTE HEALTH SCIENCE ADMINISTRATOR BASIC CARDIOVASCULAR SCIENCES BETHESDA, MARYLAND

Cardiac Functions Branch is seeking an experienced cardiovascular physiologist, biochemist or pharmacologist to provide administrative scientific support in the management and development of the branch's extramural grant program.

Candidates must have a Ph.D. or equivalent, postdoctoral research experience and a strong desire to pursue an administrative, non-laboratory career track. Excellent written and verbal communication skills required.

The candidate selected will provide leadership for established national programs and develop new programs in his/her areas of expertise. Areas of interest include cardiac and vascular smooth muscle, cardiovascular receptor and signal transduction pathways, ion channel biology, circulatory and cardiac control, performance and energetics, etc.

Applicants must be U.S. citizens. Appointment at a GS/13-14 level anticipated. Send curriculum vitae (or SF-171) to:

Personnel Officer
National Institutes of Health
Building 31, Room 5A28
9000 Rockville Pike
Bethesda, MD 20892

MANAGER, R&D. Spectroscopy, integrated oil company, Cleveland, Ohio: Plans, purchases, implements, and supervises installation of vibrational analytical equipment. Hires employees and contracts outside vendors to implement systems. Trains personnel at research center, plant, and refinery locations to carry out complex experiments and procedures. Serves as mentor in IR/Raman/NMR (nuclear magnetic resonance)/absorption/fluorescence spectroscopic areas. Supervises staff of scientists and technicians. Responsible for developing and implementing analytical experiments in conjunction with other researchers. Directly responsible for management of several research projects. Projects for management of several research methods. Proposes and develops new spectroscopic analytical methods. Acts as liaison between businesses and the analytical laboratories. Must coordinate and plan infrared and NMR projects with business plant managers and R&D project directors to determine problem solution approach and to control personnel and equipment to implement analyses at laboratory and remote locations. Require Ph.D. in chemistry with emphasis in infrared spectroscopy plus 4 years of experience in the job or 4 years of experience as research associate—infrared spectroscopy. Four years of experience must include application of Fourier transform infrared, Raman, nuclear magnetic resonance, ultraviolet, visible, fluorescence, phosphorescence, and time-resolved spectroscopies to solution of chemical physical problems. Must have experience in development and application of advanced data analysis methods and in organic and inorganic synthesis; in design, specification, set-up, construction, and purchase of instruments; and as supervisor of research scientists; high visibility/recognition in scientific community and proven oral/written communication skills as evidenced by presentations, papers, and similar forums. Forty hours per week, 8:30 a.m. to 5:30 p.m.; \$60,000 per year. Send résumé in duplicate (no calls) to: **G. Maugans, JO #1255774, Ohio Bureau of Employment Services, P.O. Box 1618, Columbus, OH 43216.**

BIOCHEMIST

The Department of Chemistry at Hiram College invites applications for a tenure-track **FACULTY POSITION** in biochemistry to be filled by 1 September 1992. Teaching responsibilities will include organic chemistry, molecular biology, biochemistry, and biochemical research techniques which will lead to ACS certification in biochemistry. Qualified candidates should have a bachelor's degree in chemistry or biochemistry, preferably from a liberal arts college, and a doctorate in biochemistry; postdoctoral experience preferred. Send curriculum vitae with the names, addresses and telephone numbers of at least three references, a statement of research in an undergraduate teaching institution, to: **J. T. S. Andrews, Chair, Chemistry Department, Hiram College, Hiram, OH 44234.** Application deadline: 16 November 1991. *Hiram College is an Equal Opportunity Employer and is committed to diversity amongst its faculty and students.*

POSITIONS OPEN

THE UNIVERSITY OF NEW SOUTH WALES SYDNEY, AUSTRALIA SCHOOL OF BIOCHEMISTRY AND MOLECULAR GENETICS LECTURER/SENIOR LECTURER IN BIOCHEMISTRY PROTEIN STRUCTURE/BIOLOGICAL NMR (LEVEL B/C ACADEMIC) (TENURED/TENURABLE APPOINTMENT) (REF. 442)

Applications are invited for appointment to a lectureship or senior lectureship in biochemistry. The appointee will be expected to teach general biochemistry to undergraduate students in science and medicine, to participate in a specialist course on protein structure and function, and to undertake a research program including the supervision of postgraduate students.

The school has current research strengths in the areas of molecular biology, parasite biochemistry, plant biochemistry and protein structure. Applicants with experience in studies of protein structure or function, or in the application of NMR to biological systems will be given preference.

The position is available from January 1992 and appointment will either be with tenure or on the basis of a contract with provision for conversion to tenure.

Salary: Level B Academic range: A\$38,500 to A\$46,000 per annum. Level C Academic range: A\$47,500 to A\$55,000 per annum. Commencing salary according to qualifications and experience.

Membership of a university-approved superannuation scheme is compulsory for new appointees.

Further information from: **Professor I. W. Dawes, Head of School, on (International) 61 2 697-2089; FAX: 61 2 313-6271.**

Applications close 25 October 1991.

Please submit written application, quoting reference number, and include business and private telephone numbers, together with the names, addresses (and preferably facsimile numbers) of two referees, curriculum vitae and transcript of academic record to: **The Recruitment Officer, Staff Office, P.O. Box 1, Kensington, NSW 2033, Australia.**

COORDINATOR OF BIOENGINEERING. FACULTY POSITION. Department of Orthopaedic Surgery, Louisiana State University Medical Center in Shreveport. Activities include: independent research; collaboration with other investigators; supervision of student and orthopaedic resident projects; and teaching. Contact: **James A. Albright, M.D., Louisiana State University Medical Center, P.O. Box 33932, Shreveport, LA 71130-3392.** *LSUMC-S is an Equal Opportunity Employer.*

FACULTY POSITION IN PHARMACOLOGY

The Department of Pharmacology at Louisiana State University Medical School (LSUMC) in Shreveport invites applications for a **TENURE-TRACK FACULTY POSITION.** Applicants must have an M.D. or Ph.D. degree and 2 years of postdoctoral experience. Research areas of interest include neuropharmacology, the study of receptor-effector mechanisms, molecular neurobiology, and neuroimmunology. Appointment is anticipated as an assistant professor but may be possible at a higher rank under special circumstances. The successful appointee will be expected to establish a strong research program supported by extramural funding, and to participate in the teaching of graduate and medical students. Applications should include curriculum vitae, a list of publications, selected reprints, a brief summary of current and future research plans, and the names of three referees. Send applications to: **Adrian J. Dunn, Ph.D., Department of Pharmacology, LSUMC, P.O. Box 33932, Shreveport, LA 71130-3392.** *An Equal Opportunity/Affirmative Action Employer.*

One **POSTDOCTORAL OR JUNIOR FACULTY** position to work with (i) immunology of Lyme disease and (ii) growth factors of human prostate cancer cells is available. Recent Ph.D. graduate with a strong background in immunology and protein chemistry is preferred. Send curriculum vitae with names of three references to: **Professor J. W. Chiao, Department of Medicine, New York Medical College, Valhalla, NY 10595.**

POSITIONS OPEN

TWO FACULTY POSITIONS IN BIOCHEMISTRY—MOLECULAR BIOLOGY UNIVERSITY OF CALIFORNIA, SANTA BARBARA

The Biochemistry and Molecular Biology Program and the Departments of Biological Sciences and Chemistry invite applications for two tenure-track teaching/research positions: (1) **EUKARYOTIC CELL MICROBIOLOGY**, including the areas of retroviruses, oncogenes, receptors and signal transduction mechanisms; and (2) **BIOLOGICAL CHEMISTRY**, including the areas of atomic level structural analysis of biologically important molecules (x-ray crystallography) and novel catalytic structures (abzymes, ribozymes). Appointment may be at either the junior or senior level depending upon area of research and the record of applicant. Applicants must have a Ph.D. degree and postdoctoral training. The successful applicants will be expected to conduct vigorous independent research programs, and to contribute to teaching in molecular cell biology and biochemistry at the graduate and undergraduate levels. The positions are effective 1 July 1992.

Submit curriculum vitae, selected reprints, and a brief description of previous and anticipated research, and arrange to have at least three letters of reference sent to: **Director, c/o Frances McCutcheon, Interdepartmental Biochemistry—Molecular Biology Program, Department of Biological Sciences, University of California, Santa Barbara, CA 93106.** Application deadline is 15 October 1991, or until the positions are filled. *Proof of U.S. citizenship or eligibility for U.S. employment will be required prior to employment (Immigration Reform and Control Act of 1986). An Equal Opportunity/Affirmative Action Employer.*

DEPARTMENT OF ENTOMOLOGY UNIVERSITY OF ARIZONA

INSECT ECOLOGIST. Assistant professor: 80% research, 20% teaching. Required: Ph.D. in biological science with emphasis on insect ecology. Responsibilities include teaching and development of a distinguished research program in basic and applied agricultural entomology. Preference will be given to applicants with demonstrated scholarship and postdoctoral experience.

The successful candidate will have laboratory facilities in the Department of Entomology on campus and access to a wide variety of natural and agricultural field centers around Arizona. The incumbent will be an affiliate in the Center for Insect Science which fosters and supports collaborative research among approximately 50 insect scientists in Arizona.

Send curriculum vitae, statement of research interests, representative publications, and names, addresses/FAX numbers of five referees to: **Dr. E. A. Bernays, Head, University of Arizona, Entomology Department, Tucson, AZ 85721.** Application deadline is 15 November 1991.

Affirmative Action/Equal Opportunity Employer. Minorities/women are encouraged to apply.

CELL OR DEVELOPMENTAL BIOLOGY AND COMPUTATIONAL BIOLOGY FACULTY POSITION AT THE UNIVERSITY OF ARIZONA

As part of a continuing expansion, the Department of Molecular and Cellular Biology is seeking two new tenure-track faculty for appointment in 1992. Preference will be given to applicants with research interests in cell or developmental biology of multicellular organisms, or in computational biology, particularly computer applications in molecular biology and genome analysis. Exceptional candidates in other areas will be considered. Candidates at the assistant professor level are preferred but a more senior appointment may be made for an exceptional individual. Successful candidates will be expected to establish a competitive research program and to teach both undergraduate and graduate students. Send curriculum vitae, a one- to two-page statement of research interests, and have at least three supporting letters sent to: **Professor Samuel Ward, Head, Department of Molecular and Cellular Biology, Life Sciences South Building, Room 444, University of Arizona, Tucson, AZ 85721.** To ensure consideration, applications should be received by 1 November 1991, although applications will be accepted until the positions are filled. Candidates for the computational biology position should indicate this in their cover letter. *The University of Arizona is an Equal Opportunity/Affirmative Action Employer. Women and minorities are encouraged to apply.*

KUWAIT UNIVERSITY HEALTH SCIENCE CENTER FACULTY OF MEDICINE

Preclinical and Clinical Appointments:

Applications are invited for the following appointments in the Faculty of Medicine:

Anatomy:

- Professor and Chairman
- Professor/Associate Professors (Gross Anatomy, Embryology and Histology)

Biochemistry:

- Professor and Chairman
- Associate Professors

Microbiology:

- Associate/Assistant Professors (Mycology, Bacteriology, Virology and Molecular Biology)

Pathology:

- Associate Professor (Clinical Chemistry)

Pharmacology:

- Assistant/Associate Professors (Biochemistry of intracellular second messenger and Cardiovascular research)

Physiology:

- Assistant/Associate Professors (Neurophysiology, Cardio-vascular Physiology and Pulmonary Physiology)

Obstetrics & Gynecology:

- Professor and Chairman
- Professors (Neonatal Obstetrics and Endocrinology and Infertility)
- Associate/Assistant Professors (Oncology, Urology and General Obstetrics and Gynecology)

Medicine:

- Associate/Assistant Professors (Infectious Diseases, Respiratory, Haematology, Neurology, Endocrinology and Rheumatology)

Nuclear Medicine:

- Assistant/Associate Professor (Clinical Nuclear Medicine Physician)

Pediatrics:

- Assistant/Associate Professors (Pediatric Allergy and Clinical Immunology, Neonatology, Pulmonary Medicine, Pediatric Critical Care Medicine, Emergency Medicine, Pediatric Cardiology, Genetics and Infectious Diseases)

Psychiatry:

- Assistant/Associate Professors (Teaching and clinical services)

Radiology:

- Professor and Chairman
- Professor/Associate/Assistant Professors

Surgery:

- Assistant/Associate/Professors (General Surgery, Anaesthesia, Orthopedic Organ Transplantation, Urology and Vascular).

Requirements for Appointment:

Qualifications:

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

Experience:

Professors—14 years (4 as an Associate Professor); Associate Professors must have 9 years experience of which 4 must be as an Assistant Professor.

Conditions for Appointment:

Salaries: Total monthly salaries will be within the following scales according to qualifications and experience (1KD = 2.3 St. Pound, US\$3.45 approximately). Increments per year KD 20.

Professors:

With clinical appointments	—KD 1210-1370 (8 increments)
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Associate Professors:

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

Assistant Professors:

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

Other Allowances:

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

—Clinical allowance from the Ministry of Public Health for 10 months a year (i.e. The University Academic Year from September to end of June) for the clinical service comments as follows:

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

Other Benefits:

Conference attendance; end of service gratuity; furnished accommodation (electricity and water free of charge). Free medical treatment in Kuwait. Free annual roundtrip airtickets from country of citizenship or permanent residence for self and family of up to three dependent children; baggage and freight allowance; education fees for maximum of three children in Kuwait from elementary through high school; no taxation; currency is transferrable without restriction. 60 days paid annual leave.

Method of Application:

Curriculum vitae in duplicate which should include the names of three referees; personal particulars; copy of the relevant pages of passport; qualifications with dates; career history; teaching experience; research accomplishments and, where appropriate, clinical experience, should be sent to:

Vice Dean Administration (Recruitment Office)
Faculty of Medicine
Kuwait University
P.O. Box 24923, Safat 13110
Safat
KUWAIT

POSITIONS OPEN

ORAL PATHOLOGY

Oregon. **TENURE-TRACK FACULTY POSITION** available, Department of Oral Pathology, Oregon Health Sciences University, School of Dentistry. Duties include teaching general pathology as the course coordinator, service activities (biopsy and oral medicine) and scholarly research. Special consideration will be given to those with at least 3 years of teaching experience in the area of general pathology and to those who have funded research. Direct inquiries to: **Dr. M. H. Bartley, Department of Oral Pathology, School of Dentistry, Oregon Health Sciences University, 611 Southwest Campus Drive, Portland, OR 97201-3097.** *Oregon Health Sciences University is an Equal Opportunity Employer.*

POSTDOCTORAL POSITION. Immediately available for an **IMMUNOCHEMIST** to contribute toward development of a blood-stage malaria vaccine. Prior experience with antibody production, purification and characterization (immunoblotting, immunoprecipitation, etc.) is essential. Experience with immunotoxins or chemical modification of antibodies is desirable. Salary is competitive and commensurate with experience. Send curriculum vitae, a statement of research interests and the names and addresses of three references to: **Theodore F. Taraschi, Ph.D., Thomas Jefferson University, Department of Pathology and Cell Biology, 1020 Locust Street, Philadelphia, PA 19107.** *We are committed to a smoke-free environment. Equal Opportunity Employer.*

HARVARD/POSTDOCTORAL POSITIONS

Available immediately to study hormone- and differentiation-dependent expression of lipogenic enzyme genes. Research includes defining cis-acting DNA elements and characterization of nuclear proteins which interact with these sequences. Send curriculum vitae and names of references to: **Dr. Hei Sook Sul, Department of Nutrition, Harvard School of Public Health, 665 Huntington Avenue, Boston, MA 02115.**

POSTDOCTORAL POSITION in pharmacological modulation of protein synthesis in cultured cells. Available immediately. Primary focus on characterization of mechanisms underlying enhanced gene expression of plasminogen activators in endothelial cells after selected pharmacological agents. Techniques employed include endothelial cell cultures, measurements of individual plasminogen activators and their mRNA levels, related DNA-protein binding analysis, and in situ hybridization. Experience in molecular biology techniques highly desirable. Send curriculum vitae and names and addresses of three references to: **Dr. Thorir D. Bjornsson, Division of Clinical Pharmacology, Department of Medicine, Jefferson Medical College, 1100 Walnut Street, Philadelphia, PA 19107-5563.** *Affirmative Action/Equal Opportunity Employer.*

POSTDOCTORAL POSITION

Position available immediately for the study of the biochemistry and molecular biology of the mammalian fibrinolytic system. Projects include isolation/cloning of novel membrane receptors and construction/characterization of mutant forms of fibrinolytic inhibitors. Candidates with a recent Ph.D. and expertise in molecular techniques and receptor biochemistry are preferred. Please send curriculum vitae and names of three references to: **Douglas E. Vaughan, M.D., Center for Research in Thrombolysis, Cardiovascular Division, Brigham and Women's Hospital, 75 Francis Street, Boston, MA 02115.**

POSTDOCTORAL POSITION. Available for research on the role of the inositol phosphate cascade in visual transduction in laboratory using electrophysiological and pharmacological techniques.

Send curriculum vitae and references to: **Dr. Alan Fein, Department of Physiology, University of Connecticut Health Center, Farmington, CT 06030.**

An Affirmative Action/Equal Opportunity Employer, M/W/H.

POSTDOCTORAL POSITION

Position available immediately to study the effect of hormones on salt-stressed maize. Send curriculum vitae and three letters of reference by 11 October 1991 to: **Dr. Grant Cramer, Department of Biochemistry/200, University of Nevada, Reno, NV 89557-0107.** *Equal Opportunity Employer/Affirmative Action.*

POSITIONS OPEN

PREDOCTORAL AND POSTDOCTORAL TRAINING IN VIROLOGY AT UNIVERSITY OF CALIFORNIA LOS ANGELES (UCLA) SCHOOL OF MEDICINE

The Department of Microbiology and Immunology, UCLA School of Medicine, invites applications for training positions in virology. Research programs include the cellular and molecular basis of latency and pathogenesis of herpes simplex viruses (Jack G. Stevens), molecular biology of influenza viruses, transport and sorting of eukaryotic proteins (Debi P. Nayak), gene regulation and transformation by papilloma viruses (Felix O. Wettstein), molecular mechanism of viral persistence and immune suppression (Rafi Ahmed), molecular biology of picornaviruses and regulation of eukaryotic transcription (Asim Dasgupta), molecular genetics and pathogenesis of human retroviruses (Irvin S. Y. Chen), and molecular basis for transcriptional activation of herpesvirus genes (Lawrence T. Feldman). For predoctoral training leading to the Ph.D. degree, contact: **Dr. Asim Dasgupta** and for postdoctoral positions, contact: **Dr. Debi P. Nayak, Department of Microbiology and Immunology, UCLA School of Medicine, Los Angeles, CA 90024-1747.** Deadline for predoctoral applications for fall 1992 is 15 January 1992. *An Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL POSITIONS AT UNIVERSITY OF CALIFORNIA LOS ANGELES (UCLA)

Postdoctoral positions available for individuals with training in either cellular neurophysiology, including current clamp and voltage (patch) clamp techniques or modern neuroanatomical techniques (tract tracing, immunohistochemistry, etc.). Experiments focus on properties of brainstem motoneurons and interneurons involved with oral-motor rhythmogenesis, including underlying agonist-activated and voltage-dependent conductances, synaptic interactions and neuronal connections as well as characterization of transmitter identities of neuronal elements. Interested individuals should send a statement summarizing their research interests and current curriculum vitae and names of references to: **Scott H. Chandler, Ph.D., Brain Research Institute, UCLA, 2851 Slichter Hall, Los Angeles, CA 90024.** FAX: 1-213-825-6616. *UCLA is an Equal Opportunity/Affirmative Action Employer and women and minority candidates are encouraged to apply.*

THREE POSTDOCTORAL POSITIONS in Maize Developmental Genetics. Two positions will study defective kernel mutations [see: Sheridan and Clark, *Trends in Genetics* 3, 3-6 (1987)] and embryo-specific mutations (see Clark and Sheridan in September 1991 issue of *Plant Cell*). The third position will study mutations controlling the fate of shoot apical and axillary meristems including the shift from vegetative to reproductive growth and tassel versus ear development [see Sheridan, *Ann. Rev. Genetics* 22, 353-385 (1988)]. Candidates with experience in eukaryotic gene cloning techniques are especially encouraged to apply. Candidates should send their curriculum vitae, statement of research experience and interests, and names of three references to: **Professor William F. Sheridan, Department of Biology, University of North Dakota, Box 8238, University Station, Grand Forks, ND 58202.**

POSTDOCTORAL POSITIONS. MOLECULAR BIOLOGY. Positions are available to study the regulation of the immune response to cancer and HIV with emphasis on T cells and soluble T cell products. Starting salary will be between \$30,000 and \$40,000 depending on experience. Available immediately. Send curriculum vitae and names of three references to: **Dr. J. Kevin Steele, Scripps Clinic, 10666 North Torrey Pines Road, IMM-3, La Jolla, CA 92037.**

POSTDOCTORAL POSITION IN MOLECULAR MUTAGENESIS AND HUMAN B LYMPHOCYTES. Two positions are available beginning 1 October 1991 for Ph.D. or research-trained M.D. to study molecular mechanism of immunoglobulin hypermutation. Experience in recombinant cloning and expression systems, or DNA replication biochemistry desirable. Send curriculum vitae including names of three references to: **Dr. Jonathan Braun, CHS 13-186, University of California, Los Angeles, School of Medicine, Los Angeles, CA 90024-1732.** *An Equal Opportunity Employer.*

POSITIONS OPEN

POSTDOCTORAL POSITIONS MSU-DOE PLANT RESEARCH LABORATORY MICHIGAN STATE UNIVERSITY (MSU)

Two positions are available on or after January 1992 to study the control of mRNA stability in higher plants. Successful applicants will investigate mRNA sequences or cellular factors such as ribonucleases, that affect mRNA decay in maize, tobacco or *Arabidopsis*. Applicants should have experience in biochemistry or molecular biology. Please send curriculum vitae and the names of three references to: **Dr. Pamela J. Green, MSU-DOE Plant Research Laboratory, Michigan State University, East Lansing, MI 48824-1312.** *Michigan State University is an Affirmative Action/Equal Opportunity Employer.*

POSTDOCTORAL POSITION. Available immediately in the Oklahoma Center for Molecular Medicine (OCMM) Transgenic Animal Facility. The OCMM Transgenic Facility is a state-funded research support laboratory that is located in the biology department at the University of Tulsa, an independent, comprehensive university. The successful candidate will be involved in the operation of the Transgenic Facility as well as developing his/her own project. The primary emphasis of research in the laboratory is on the development of myelination in the CNS, but opportunities exist to collaborate with other members of the OCMM on a variety of projects. Experience in molecular biology required, and in transgenic technology and/or homologous recombination desired. Send curriculum vitae and names and telephone numbers of three references to: **Dr. N. L. Nadon, Biology Department, University of Tulsa, 600 South College Avenue, Tulsa, OK 74104.** Application deadline: 31 October 1991. *The University of Tulsa, an Equal Opportunity/Affirmative Action Employer, is committed to diversifying its faculty and staff. Members of underrepresented groups (people of color, people with disabilities, women, veterans, etc.) are strongly encouraged to apply.*

POSTDOCTORAL POSITION IN MOLECULAR VIROLOGY. Available immediately for studies of alcelaphine herpesvirus 1, which affects many ruminant species. A strong background in recombinant DNA methodology is essential. Send curriculum vitae and names of three references to: **Dr. Werner Heuschele, Director of Research, Center for Reproduction of Endangered Species, Zoological Society of San Diego, P.O. Box 551, San Diego, CA 92112-0551.** FAX: 619-557-3959. *Affirmative Action/Equal Opportunity Employer.*

POSTDOCTORAL OR VISITING SCIENTIST POSITION IN NEUROPHYSIOLOGY

Position available to study spatiotemporal patterns of neuronal activity within the rodent somatosensory cortex and related areas. The experiments make use of multiple-site electrophysiological techniques along with advanced methods of statistical analysis and network modeling. Submit brief statement of your research interests, curriculum vitae and the names of references to: **David Kleinfeld, AT&T Bell Laboratories 1C-463, Murray Hill, NJ 07974.**

POSTDOCTORAL SCHOLAR IN MOLECULAR BIOLOGY

Postdoctoral scholar positions are available to study the molecular regulation of gene expression in a host-parasite system, including analysis of parasite regulation of hormone-sensitive host genes, and the expression and mode of action of parasite regulatory mediators including these effects. One senior position as Research Associate also entails laboratory managerial responsibilities. Applicants should send curriculum vitae, description of past experience, and names of three references to: **Dr. Davy Jones, Graduate Center for Toxicology, University of Kentucky, Lexington, KY 40506.** *An Equal Opportunity/Affirmative Action Employer.*

M.D./Ph.D. FELLOWSHIPS

The Medical University of South Carolina offers stipends (\$10,200 to \$15,000) for studies leading to combined M.D./Ph.D. degrees in each of the basic biomedical sciences and molecular and cellular biology/medicine. Contact: **Director, Medical Scientist Training Program, College of Graduate Studies, MUSC, 171 Ashley Avenue, Charleston, SC 29425.**

Scientific Advisor Patents

RHÔNE-POULENC RORER, a worldwide leader in the pharmaceutical industry, seeks highly qualified Ph.D. scientists in biomedical fields interested in second career opportunities in Intellectual Property law. Demonstrated technical writing skills essential.

To qualify, you should have a Ph.D. in Biochemistry or related discipline along with 2-5 years biotechnical laboratory experience.

Rhône-Poulenc Rorer offers a highly competitive salary, excellent benefits, a highly challenging work environment, and opportunities for advancement. For consideration, please forward your resume with salary requirements to: **SA/0927, Rhône-Poulenc Rorer, P.O. Box 143, Fort Washington, PA 19034.** Equal Opportunity Employer, M/F.



RESEARCH SCIENTIST/GROUP LEADER

Natural Product Sciences, Inc. is a rapidly growing company dedicated to the development of novel pharmaceutical and agrochemical products based on natural product leads. With a strong in-house research program comprising chemistry, biology, and molecular biology and major industrial partners in both pharmaceutical and agrochemicals, Natural Product Sciences is a leader in the natural products field.

We are currently seeking a highly motivated research scientist with hands-on experience in recombinant expression using eukaryotic systems. The successful candidate will lead an interactive team focused on the challenge of developing and evaluating efficient systems for *in vitro* and *in vivo* recombinant expression and laboratory-scale purification of natural molecules. You will directly participate in an integrated research program which functions to identify and characterize novel molecules and to exploit them as leads for human therapeutic or agrochemical development. Creativity and excellent interpersonal skills are required. Experience in the biotechnology industry is preferred.

Natural Product Sciences offers competitive salaries, benefits and the opportunity for equity ownership. Our location on the western slopes of the Rocky Mountains provides an unusually beautiful and livable environment in which to pursue innovative research.



Please send curriculum vitae to:
Director of Personnel, Natural Product
Sciences, Inc., 420 Chipeta Way,
Suite 240, Salt Lake City, Utah 84108.
We are an Equal Opportunity
Employer.

NATURAL PRODUCT SCIENCES, INC.

RESEARCH SCIENTISTS, PH.D.

The Bristol-Myers Squibb Pharmaceutical Research Institute is continuing to expand our extensive research efforts in the areas of cardiovascular, infectious, oncologic and metabolic diseases. This expansion has created exceptional opportunities at our state-of-the-art research facility in Princeton, NJ.

Metabolism and Pharmacokinetics

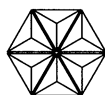
This position, located in the Drug Discovery Section, involves conducting targeted and innovative drug metabolism research studies in collaboration with medicinal chemists and pharmacologists. The scientist will play a major role in the selection of drug candidates in therapeutic areas that include various classes of cardiovascular agents (e.g., neutral endopeptidase inhibitors, cholesterol-lowering drugs, and angiotensin II receptor antagonists) and anti-infective agents (e.g., HIV and herpes).

Responsibilities include, but are not limited to, development of analytical methods for drugs and their metabolites in biologic fluids, design of pharmacokinetic studies, and elucidation of metabolic pathways in animals. Excellent written and oral communication skills are essential. Experience with *in vitro* drug metabolism systems and with Macintosh-based computer programs are desirable. The qualified individual should have a Ph.D. in Pharmaceutical Science, Biochemistry, Medicinal Chemistry, or related discipline and 0-5 years of relevant experience. Please reply to **Dept. 243A-DM**.

Cardiovascular Metabolic Disease

Responsibilities will include performing studies investigating the intermediary metabolism of lipids and carbohydrates in eukaryotic organisms. Studies will focus on the biochemistry and enzymology of cholesterol, fatty acid and carbohydrate metabolism. Investigations will evaluate basic mechanisms of control as well as the response of these pathways to genetic and pharmacologic blockade at defined sites. Candidates should possess a Ph.D. in Biochemistry and 2-5 years postdoctoral experience. Please reply to **Dept. 243B-AR**.

Please forward your resume, including Dept. Code #, to: **Bristol-Myers Squibb Pharmaceutical Research Institute, Human Resources Department, P.O. Box 4000, Princeton, NJ 08543-4000.** Equal Opportunity Employer, M/F/H/V.



Bristol-Myers Squibb Company

ESCA GENETICS CORPORATION, a public San Francisco Bay Area biotech company, is applying biotechnology to develop improved food crops, planting materials, natural flavorings and food ingredients for the food processing industry. The following outstanding opportunities are immediately available:

GROUP LEADER CORN BREEDING PROGRAM

A seasoned manager with impeccable professional credentials is needed for an established corn program. Perform research, development and commercial production of specialty corn hybrids including sweet corn, specialty starch and other food corn hybrids, and manage a diverse breeding group. Qualifications include a Ph.D. in Plant Breeding, 10+ years experience, and a record of accomplishment in corn breeding, domestic and exotic corn germ plasm, commercial corn production and management.

POTATO BREEDER

Join an interdisciplinary group working on the development and world-wide commercialization of True Potato Seed (TPS) hybrids in this senior level position. Responsibilities include breeding and TPS hybrid development with major emphasis on agronomics and production of TPS hybrids and their parental lines. A Ph.D. in Plant Breeding and 5+ years recent experience in potato breeding are required, as well as the requisite technical expertise to achieve superior independent results and the ability to effectively participate as a team member. The ability to function professionally in various parts of the world is also important.

Occasional foreign travel will be required for both positions; fluency in Spanish is a plus.

ESCA Genetics offers an excellent compensation and benefits package. For immediate consideration, send resume to: Personnel, ESCA Genetics Corporation, 830 Bransten Road, San Carlos, CA 94070.



ESCA GENETICS
CORPORATION



Eminent Scholar Transgenic Animal Biology

The Maryland Agricultural Experiment Station invites applications for a tenure track position at the full-professor level in the Department of Biological Sciences, University of Maryland Baltimore County (UMBC). This position will be partially supported through the Eminent Scholar Program of the Maryland Higher Education Commission. The successful candidate will have an established research record stressing molecular approaches to mammalian transgenic animal biology as shown by publication record, grant support and peer recognition of research accomplishments. Active involvement in research and graduate education will be required along with participation in the development of a University of Maryland System-wide transgenic biology program. Excellent opportunities are available for collaboration with scientists throughout the University of Maryland System, at NIH and at USDA Beltsville Agricultural Research Center.

Applications must include a statement of research interest, a curriculum vitae and five reference letters sent to Dr. Bryan H. Johnson, Chair; Eminent Scholar Search Committee; Maryland Agricultural Experiment Station; 1119 Symons Hall; College Park, MD 20742.

This position is available immediately. Applications must be received by November 1, 1991.

The University of Maryland System is an equal opportunity, affirmative action employer.

UNIVERSITY OF OXFORD



In association with Pembroke College UNIVERSITY LECTURERSHIP IN TISSUE BIOLOGY

Applications are invited for the above post, tenable in the Department of Human Anatomy from 1 October 1992. Stipend will be according to age on the scale £12,690 to £25,010 (interim scale). The post is open to candidates who are carrying out advanced research in any field of tissue biology, particularly where this includes interactions between cells and the controls of such interactions. The department has strong programmes of research in developmental biology, neurobiology, endocrinology and membrane transport mechanisms, and is seeking to add to these strengths and broaden them. Candidates will be required to teach in the Department's courses to preclinical students and to science students reading the Honour Schools of Physiological Sciences and of Psychology, Philosophy and Physiology. The successful candidate may be offered a tutorial Fellowship at Pembroke College and details of the duties and emoluments pertaining to the Fellowship are given in the further particulars. Further details of both the University Lecturership and College Fellowship may be obtained from Professor R. W. Guillery, Department of Human Anatomy, South Parks Road, Oxford OX1 3QX, United Kingdom to whom applications, (nine typed copies, or one from overseas applicants) with a full curriculum vitae, summary of research interests (please star five most important publications) should be sent by 31 October 1991, together with the names of three referees who have agreed to send their opinions without further request by the same date.

The University is an Equal Opportunity Employer.

HUBBLE POSTDOCTORAL FELLOWSHIPS

The Space Telescope Science Institute announces the continuation of the Hubble Fellowship Program in cooperation with astronomical institutions throughout the U.S. Contingent on funding from NASA, up to 12 new Hubble Fellows will be supported this year by grants to U.S. institutions. The program is open to scientists of any nationality who have earned their doctorates after January 1, 1989 in Astronomy, Physics, or related disciplines. The duration of a Fellowship is a total of three years, which includes an initial appointment of two years and an extension to a third year, contingent on a positive mid-term review.

The Announcement of Opportunity, including the Application Instructions, is available from the Hubble Fellowship Program Office, Space Telescope Science Institute, 3700 San Martin Drive, Baltimore, MD 21218, USA. E mail: (SPAN)6559::HFELLOWS, (BITNET) HFELLOWS@STSCI.BITNET, (INTERNET) HFELLOWS@STSCI.EDU. The application deadline is November 15, 1991. The new Hubble Fellow appointments are expected to begin on September 1, 1992. Minorities and women are strongly encouraged to apply.



EEO/AA/M/F/H/V

INSTRUCTOR or RESEARCH ASSOCIATE CELL BIOLOGIST (2 Positions)

The Department of Cell Biology, University of Medicine & Dentistry of New Jersey-School of Osteopathic Medicine invites applications for two positions at the Research Associate or Instructor level available immediately. Individuals with strong training in Cell Biology and having expertise in protein biochemistry and/or recombinant DNA techniques are especially encouraged to apply. Preference will be given to applicants with research interests focused on signal transduction mechanisms but serious consideration will be given to applicants working in other areas of cell biology. The successful applicants will work closely with a senior faculty member with the intent of developing extramurally funded research programs, complementing existing departmental research programs. Candidates must possess a PhD degree, two years of postdoctoral training, and show strong potential to generate research funding. Conversion of these positions to tenure track appointments after two years is possible. These positions offer excellent opportunities for career development in a productive multidisciplinary environment. Salary is commensurate with experience up to \$40,800. Send curriculum vitae, together with three letters of recommendation to: Dr. Richard Schimmel, Acting Assistant Dean for Basic Sciences, UMDNJ-School of Osteopathic Medicine, 401 South Central Plaza, Stratford, NJ 08084. The UMDNJ is an Affirmative Action/Equal Employment Opportunity Employer, m/f/h/v, and a member of the University Health System of New Jersey.



STERLING RESEARCH GROUP

Discover a bright future at Sterling Research Group, the worldwide pharmaceutical research and development organization of Sterling Drug Inc.



Natural Products Biology

Associate Research Scientist/Biological Chemist

We are searching for a highly motivated individual who is interested in the discovery of biologically active agents from natural product sources. The successful candidate will be responsible for conducting enzyme and immunoassays to guide the initial characterization, evaluation and isolation of bioactive natural products.

This position requires a B.S. in biology, biochemistry, or chemistry. The ideal candidate would have additional background in analytical biochemistry, enzymology and/or immunology. Familiarity with computer-assisted data analysis and database management would be highly preferred. GV-172-91



Protein Biochemistry

Research Scientist/Investigator

A position is available within the Department of Molecular Biology for a Research Scientist/Investigator who will be responsible for purifying and characterizing recombinant proteins for use in drug discovery and biophysical programs.

Ph.D. plus one or more years' postdoctoral experience or a B.S./M.S. and five plus years' industrial experience required. A strong background in classical protein purification and characterization including HPLC, FPLC, and scale-up processes is required. GV-177-91

You will discover that we offer a competitive salary and benefits package along with outstanding career opportunities. To apply, please include the department code and send your resume to: Sterling Research Group, 9 Great Valley Parkway, Malvern, PA 19355. An Equal Opportunity Employer M/F/D/V.



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RESEARCH
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Build A Future With Sterling.

IRRI

INTERNATIONAL RICE RESEARCH INSTITUTE

POSITION ANNOUNCEMENT FOR Plant Pathologist

The International Rice Research Institute (IRRI), a non-profit, donor-funded institute, undertakes research and training at its headquarters in the Philippines and collaborates with national agricultural systems worldwide. IRRI's objectives are to generate and disseminate rice-related knowledge and technology of short- and long-term environmental, social, and economic benefit and to help enhance national rice research systems. The strategy is to increase rice production efficiency and sustainability in all rice-growing environments through interdisciplinary research and to ensure the relevance of IRRI research and the complementarity of international and national research efforts through close collaboration with national programs.

Plant pathologists at IRRI focus their research on broadening the genetic base of durable resistance in rice to rice diseases in all ecosystems, and on generating disease management information and technology to complement host plant resistance. We have a strong program covering various aspects of research on rice diseases and encompassing a range of integration levels, from molecular genetics to simulation modeling.

Responsibilities

- As a member of an interdisciplinary team of plant pathologists, plant breeders, entomologists, physiologists, and agronomists, work on disease management in upland rice ecosystems. Conduct strategic research on rice blast and other plant pathogens as appropriate, with focus on durable resistance, pathogen ecology and genetics, and host-environment interactions in all ecosystems.
- Contribute to IRRI's program of degree and non-degree training.
- Participate in the Upland Rice Research Consortium and develop collaborative research with national agricultural research systems in all rice-growing countries (with emphasis on South and Southeast Asia) and with advanced laboratories conducting relevant strategic research. International travel is required.

Qualifications

- Minimum of two years post-Ph.D. research in plant pathology.
- Knowledge and work experience in the genetics of host-pathogen interactions and host plant resistance, with a background in population genetics.
- Communication skills in English required.

Benefits

Salary and perquisites are commensurate with those of similar international institutions and programs in agriculture. The person chosen for the position will live at IRRI headquarters on the campus of the University of the Philippines at Los Baños, about 60 km south of Manila.

Deadline for application

1 November 1991. Applications, with a statement of research interests, curriculum vitae, a list of publications, and the names of three referees, should be addressed to

DR. KLAUS J. LAMPE, DIRECTOR GENERAL
IRRI, P. O. BOX 933, 1099 MANILA, PHILIPPINES
Tel No. (63-2) 818-1926 • FAX: 63-2-818-2087
TELEX: 40890 RICE PM or 22456 IRI PH

CHAIR DEPARTMENT OF BIOCHEMISTRY SCHOOL OF MEDICINE AND BIOMEDICAL SCIENCES STATE UNIVERSITY OF NEW YORK AT BUFFALO

Applications and nominations are invited for the position of Professor and Chair of the Department of Biochemistry. We seek an individual who is internationally recognized for research in Biochemistry or a closely related discipline, has a successful record of extramural research support, and possesses an outstanding record of scholarly contributions. The successful applicant will have an opportunity to attract and promote the development of a first-rate faculty and to maintain and strengthen the on-going research and teaching (graduate and professional) programs of the Department. The faculty directs its own departmental graduate program and also participates in two interdepartmental graduate programs, as well as an M.D./Ph.D. program.

The Department is comprised of 18 full-time faculty with diverse research interests in biochemistry, molecular biology, and virology. The Department will expand into a new research building by the Spring of 1994, which will foster interdisciplinary relationships between departments and other research units within the University. In addition to departmental resources, there exists on the SUNY-Buffalo campus and environs an array of analytical capabilities, including DNA and peptide sequencing and Synthesis, NMR, and mass spectrometry.

Applications should include a complete resume and the names, addresses, and telephone numbers of three or more references. Please send replies by January 1, 1992 to: Dr. Ronald P. Rubin, Chair, Biochemistry Search Committee, Department of Pharmacology and Therapeutics, School of Medicine, 102 Farber Hall, State University of New York at Buffalo, Buffalo, NY 14214. SUNY-Buffalo is an Equal Opportunity/Affirmative Action Employer. Women and minorities are encouraged to apply.

POSITIONS OPEN

POSITION AVAILABLE POSTDOCTORAL FELLOW

A position is available to study the structure/function relationships of Ca^{2+} /calmodulin-dependent myosin light chain kinases. Experimental approaches include site-directed mutagenesis and construction of chimeric kinases to characterize functional domains. Additional opportunities exist for collaborative research in a multi-disciplinary training program involving characterization of the biological roles of myosin light chain kinases in cells to analyses of the three-dimensional structures of these enzymes. Previous experience with recombinant DNA methodology is desirable. Please address inquiries to: **James T. Stull, Ph.D., Department of Physiology, The University of Texas Southwestern Medical Center at Dallas, 5323 Harry Hines Boulevard, Dallas, TX 75235-9040, telephone: 214-688-6849; FAX: 214-688-2974. An Affirmative Action/Equal Opportunity Employer.**

POSTDOCTORAL FELLOW IN NEUROSCIENCE. Postdoctoral Fellowship available for Ph.D. or M.D. with prior training in neuroscience, and interest in studying neural plasticity using patch clamp, sucrose gap and other electrophysiological methods, tissue culture, confocal microscopy, immunocytochemistry, freeze fracture, and molecular biological techniques, within a multidisciplinary group. Send curriculum vitae, statement of interest, and three letters of reference to: **Stephen G. Waxman, M.D., Ph.D., Professor and Chair, Department of Neurology, Yale School of Medicine, 333 Cedar Street, New Haven, CT 06510.**

Equal Opportunity/Affirmative Action Employer.

POSTDOCTORAL FELLOWSHIP IN HEMATOLOGY/IMMUNOLOGY FRED HUTCHINSON CANCER RESEARCH CENTER

Position available immediately for 3 to 4 years for a Ph.D. or M.D. in the Transplantation Biology Department. The focus of our research is regulation of hematopoiesis by the bone marrow microenvironment. We are looking for someone with experience in molecular biology or biochemistry and an interest in developing expertise in experimental hematology. Send curriculum vitae and names of three references to: **Dr. Beverly Torok-Storb, Fred Hutchinson Cancer Research Center, M318, 1124 Columbia Street, Seattle, WA 98104. Smoke-free environment. An Equal Opportunity Employer.**

POSTDOCTORAL FELLOW. Available immediately. Funded projects to study molecular genetics of genes encoding for drug conjugating enzymes that metabolize drugs, xenobiotics and carcinogens; positive and negative regulatory elements, trans-acting factors, transgenic, knock-out and site-directed mutagenesis. Background in cellular/molecular biology, biochemistry, drug metabolism or pharmacology is required. Salary and benefits are competitive and commensurate with training. Send curriculum vitae and the names of three references to: **Tony Ah-Ng Kong, Ph.D., Division of Clinical Pharmacology, Thomas Jefferson University, 1100 Walnut Street (MOB-601), Philadelphia, PA 19107. Affirmative Action/Equal Opportunity Employer.**

POSTDOCTORAL RESEARCH ASSOCIATE

Candidate must be U.S. citizen or resident alien with Ph.D. in biochemistry and at least 2 years of experience with biochemical techniques of phosphoinositide metabolism and cytoskeletal isolation. Research involves human platelets and extensive work with radioisotopes and organic solvents. Forty hours per week, 8:00 a.m. to 5:00 p.m.; \$22,250 per year. Job order #410415. Résumés to: **Jobs and Training Division Vermont Department of Employment and Training, P.O. Box 488, Montpelier, VT 05601-0488.**

ASSISTANT/POSTDOCTORAL SCIENTIST

Position available for a creative and motivated individual, to conduct research on obstetrics/gynecology disorders. Requires B.S./M.S. with experience, or recent Ph.D. Candidate must have expertise in a wide range of techniques in molecular biology. Experience in cell biology/immunology preferred. Send résumé to: **Adeza Biomedical, 1240 Elko Drive, Sunnyvale, CA 94089. Attention: N. Murtder.**

POSITIONS OPEN

POSTDOCTORAL ASSOCIATE. To engage in research on receptor and ion channel changes and physiological and pharmacological consequences in myocardial ischemia, congestive heart failure and related cardiovascular disorders.

Responsibilities include measurement of receptors and ion channels by radioligand binding and functional approaches, cell culture, ion flux measurements, small animal surgery. Applicant will have a Ph.D. in pharmacology with experience in the above areas as well as in basic molecular biology protocols and statistical data analysis. Applications to: **David J. Triggle, School of Pharmacy, 126 Cooke Hall, State University of New York, Buffalo, NY 14260. The University is an Affirmative Action/Equal Opportunity Employer.**

SENIOR POSTDOCTORAL RESEARCH SCIENTIST

The Yeast Genome Group at McGill University invites applications for a senior postdoctoral research scientist to manage a major genome sequencing initiative. The successful applicant will manage a group of at least eight persons including postdoctoral fellows, research assistants and graduate students. Applicants should have at least 2 years of postdoctoral experience in DNA sequencing, and extensive experience with the computerized management and analysis of DNA and protein sequences.

Send curriculum vitae and the names of three referees to: **Dr. Howard Bussey, Yeast Genome Group, Department of Biology, McGill University, 1205 Avenue Doctor Penfield, Montreal, Quebec, Canada H3A 1B1.**

RESEARCH ASSOCIATE for university in central Ohio. Conducts laboratory research on neuroimmunology and Epstein-Barr virus (EBV); plans and coordinates research; develops research methodologies; performs biochemical and immunological assays including lymphocyte preparation, T3 and mitogen blastogenesis, gamma interferon titration, natural killers (NK) cytolytic assay, fluorescein-labeled immunocytochemistry (IF), enzyme-linked immunosorbent assay (ELISA), polyacrylamide electrophoresis (PAGE), Western blot, protein determination and concentration and affinity chromatography; generates monoclonal and polyclonal antibodies; maintains and develops EBV cell lines and hybridoma; soft agar cloning hybridoma and cell line; prepares virus; analyzes data. No experience required in the duties described but applicants will qualify with the following: M.S. in microbiology including one course in each of the following: virology, advanced immunology and immunochimistry, -advanced pathogenic microbiology and graduate level biochemistry and 2 years of experience as a research assistant with at least one of the 2 years in antiserum generation, ascites collection, lymphocyte preparation, Ficoll-hypaque gradient, cell fusion, hybridoma techniques, tissue culture and tissue culture medium preparation, immunodiffusion, fluorescein-labeled immunocytochemistry, ELISA, affinity chromatography, polyacrylamide electrophoresis, Western blot, soft agar cloning and protein determination and concentration. Experience may be gained before, during or after degree. Forty hours per week, 8:00 a.m. to 5:00 p.m., Monday to Friday, some evening and weekend hours required, \$27,372 per year. *Must have proof of legal authority to work permanently in the United States.* Send résumé in duplicate (no calls) to: **J. Davies, JO#1260321, Ohio Bureau of Employment Services, P.O. Box 1618, Columbus, OH 43216.**

RESEARCH ASSOCIATE. The Pennsylvania State University, Fuel Science Program. Anticipated position to conduct research on direct conversion of coals to advanced thermally stable jet fuels. Position requires Ph.D. in chemistry or related field with at least 1 year of industrial experience. Background required includes knowledge of fundamentals of coal liquefaction and design of novel catalysts for liquefaction and liquids up-grading, preferably as demonstrated by published papers in the field. Hands-on experience with modern instrumental techniques—NMR, GC/MS, FTIR—also required. Salary range: \$33,000 to \$40,000 depending on qualifications, with standard benefit package. Send résumé and names of three references by 15 October 1991 to: **Dr. Harold Schobert, Fuel Science Program, 209 Academic Projects Building, The Pennsylvania State University, University Park, PA 16802. An Equal Opportunity/Affirmative Action Employer. Women and minorities are encouraged to apply.**

POSITIONS OPEN

RESEARCH ASSOCIATE BIOMEDICAL ENGINEERING (BME) UNIVERSITY OF TENNESSEE, MEMPHIS

The Department of Biomedical Engineering, University of Tennessee, Memphis, is seeking to fill a research associate position in its Medical Imaging Research Group. The position is funded for 2 years by a research grant from the National Science Foundation aimed at studying the feasibility of performing intravenous coronary angiography using K-emission x-rays. Experiments will be performed at Brookhaven National Laboratory. Applicants must possess a doctoral degree in biomedical or electrical engineering, medical physics, or related fields, and should have experience in experimental digital imaging research. Experience with CCD TV camera systems or high power electron accelerators is desirable. Applications will be received until the position is filled; however, review of applications will begin on 1 December 1991.

The BME Department currently has nine core and joint faculty, three administrative staff, a Bioinstrumentation Division consisting of 18 staff (13 electronic technicians and machinists and 5 clerical and supervisory staff) and a recently initiated M.S. and Ph.D. graduate program. In the fall 1991, the department is scheduled to move into newly renovated space in Baptist Memorial Hospital, the nation's largest private hospital.

Applicants should submit curriculum vitae, list of publications, date of availability for employment, and the names of three references to: **Professor Herbert D. Zeman, Department of Biomedical Engineering, Nash Building, Suite 250, University of Tennessee, Memphis, TN 38163.**

Applications from women and minority candidates are encouraged. The University of Tennessee is an Equal Employment Opportunity/Affirmative Action/Title IX/Section 504/ADA Employer. Rev. 2 (4/91).

RESEARCH ASSOCIATE. Conduct advanced statistical analyses for regional forest fertilization experiments. Develop fertilization response prediction models at both stand and tree levels for western conifers. Manage and process a large database using mainframe and PC computers. Provide expertise in experiment design and special statistical analysis topics to cooperators. Assist in field data collection. Perform soil chemical and physical analyses as needed. Write and prepare scientific publications, technical reports and supporting documents. Requires Ph.D. in forestry and 2 years of experience in forest growth and yield modeling at both stand and tree levels for western conifers. M.S. research should involve forest soils, nutrition and productivity for western conifers. Also requires advanced academic background in statistics and strong ability to program in SAS. Experience in computer processing of large data sets on IBM mainframe and microcomputer. Experience with laboratory procedures, methods and equipment for chemical and physical analyses of soil samples. Position location: Moscow, Idaho. Forty hours per week. Salary: \$25,000 per year. Send résumé and transcript to: **Idaho Department of Employment, Employment and Training Programs Bureau, Job Order No. 6048354, 317 Main Street, Boise, ID 83735 no later than 27 October 1991.**

SIMS ANALYST SIMS LABORATORY MANAGER

The North Carolina State University (NCSU), Analytical Instrumentation Facility, invites applications for a **RESEARCH ASSOCIATE** to operate and manage the Ion Microscope Laboratory. This position requires a Ph.D. degree in materials engineering—related field. Applicants must have a minimum of 4 years of postdoctoral experience in surface analysis including operation of SIMS instrumentation and design of SIMS analytical strategies. The candidate must have the following: analytical laboratory management experience, a demonstrated ability to function in a mixed research/service environment, demonstrated success in proposal writing, an extensive publication record in refereed journals and/or in books, and MacIntosh computer network management expertise. *Female and minority applicants are encouraged. NCSU is an Equal Opportunity Employer.* Please submit résumé along with three letters of reference to: **Professor Phillip Russell, Box 7916, NCSU, Raleigh, NC 27695-7916. FAX: 919-515-2932. Deadline for application: 11 October 1991.**

DEVELOPMENTAL NEUROBIOLOGY

Sudden Infant Death Syndrome

The Hospital For Sick Children Research Institute, one of the largest and most active of its kind in the world, is seeking an outstanding young scientist with a Ph.D. to carry out research in developmental neurobiology as related to Sudden Infant Death Syndrome (SIDS). The appointee will be expected to collaborate closely with an established group studying SIDS and will also develop his/her own research programme. Expertise in neurotransmitter receptor localization, receptor gene expression, and growth factor regulation is preferred. The position is for an initial three-year period, with the possibility of renewal for a further three years. Send curriculum vitae, a brief description of research interests, and the names of three references before December 31, 1991.

Please forward replies to: **Dr. L. Becker,**
Division of Pathology, The Hospital For Sick
Children, 555 University Avenue, Toronto,
Ontario, Canada M5G 1X8.



**THE HOSPITAL
FOR SICK CHILDREN**

UNIVERSITY OF HONG KONG *Senior Consultant in Clinical Biochemistry*

Applications are invited for appointment to the post of Senior Consultant in the Clinical Biochemistry Unit in the University's Hospital Pathology Services, following the retirement of Dr. H. J. Lin. Candidates should possess appropriate academic and professional qualifications, and have extensive experience of hospital biochemistry and a background of research in related problems. Experience in undergraduate and postgraduate teaching, and in training of chemical pathologists and clinical biochemists would be considered an advantage. The successful candidate will be expected to take charge of the Clinical Biochemistry Unit, to provide advice and consultation to clinical staff, to be responsible for the services the unit provides in the Queen Mary Hospital (the University's main teaching hospital), and for its administration, planning and organization. The post would therefore be most appropriately filled by someone who is medically qualified, but this is not essential. The appointee may be offered an appropriate Honorary academic title. The University would prefer to make a permanent appointment, but consideration may also be given to applications for appointment on fixed or secondment terms of preferably not less than three academic years.

Annual salary (superannuable) (under review) will be within the professorial range, of which for medically qualified appointee, the minimum is HK\$933,000 and the average is HK\$1,100,400 while for non-medically qualified appointee, the minimum is HK\$620,880 and the average is HK\$768,000 (approx. US\$1-HK\$7.80 as at August 16, 1991). At current rates, salaries tax will not exceed 15% of gross income. Housing at a charge of 7.5% of salary, children's education allowances, leave, and medical benefits are provided.

Further particulars and application forms may be obtained from Appointments (39764), Association of Commonwealth Universities, 36 Gordon Square, London WC1H 0PF, UK; or from the Appointments Unit, Registry, University of Hong Kong, Hong Kong (Fax (852)-5592058; E-mail APPTUNIT@HKUVM1.HKU.HK).

Closes 25 October 1991.



**UNIVERSITY OF KENTUCKY
COLLEGE OF MEDICINE
CHAIR**

Department of Physiology and Biophysics University of Kentucky, College of Medicine A. B. Chandler Medical Center

The University of Kentucky College of Medicine is seeking applicants for the position of Chair of the Department of Physiology and Biophysics. The Department is one of six basic science departments in the College of Medicine responsible for teaching the basic principles of physiology and examining integrative and regulatory mechanisms at the systems, cellular and molecular levels. The department's faculty instruct medical, allied health and nursing students, offer courses at the undergraduate level and administer a graduate program leading to the M.S. and/or Ph.D. degree. The 18 faculty conduct individual and collaborative research as well as multidisciplinary research on the University campus that are communicated in the form of publications and oral presentations in regional, state, national and international professional meetings. We are seeking candidates with a Ph.D. or M.D. degree (or equivalent degree), an outstanding record of achievement in the fields of physiology and/or biophysics, experience in or potential for academic administration and an ability to provide strong leadership. Women and minorities are encouraged to apply. Applicants should submit a curriculum vitae, to be received not later than October 18, 1991 to:

**Emery A. Wilson, M.D., Dean
University of Kentucky, College of Medicine
A. B. Chandler Medical Center, Room MN 150
800 Rose Street
Lexington, Kentucky 40536-0084**

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



**NATIONAL ZOOLOGICAL
PARK
Smithsonian Institution**

SENIOR RESEARCH AWARDS

The National Zoological Park (NZIP) is offering SENIOR RESEARCH FELLOWSHIPS for prominent scientists to pursue a major piece of original work in their specialty, and to collaborate in research opportunities specific to zoological parks, particularly in areas which complement the NZIP's current research staff.

Applicants must be at least 6 years post-doctorate. Stipends will be commensurate with professional level and experience. Timing and duration of the Fellowships are flexible, but the appointment must be activated within a year of the award and may not exceed a total of 36 months in duration (awards may be divided into several intervals).

Areas of interest include animal behavior, conservation biology, ecology, evolutionary biology and genetics, pathology, physiological zoology and nutrition, reproductive physiology, and veterinary sciences. Field research is appropriate; however, Fellows are to be primarily based at the NZIP to maximize interactions and collaborations with NZIP staff. Individuals who have received support from or through the NZIP for a significant period during the preceding 5 years are not eligible.

Applicants must prepare a research proposal. For application procedures and information contact: **DEVRA G. KLEIMAN,**
ASSISTANT DIRECTOR FOR RESEARCH, NATIONAL
ZOOLOGICAL PARK, WASHINGTON, DC 20008.

Application Deadline is *December 1, 1991*

an Equal Opportunity Organization

The Science of Success

Syntex has earned its reputation in the pharmaceutical industry for superior and innovative research. Our strong commitment to R&D has opened new doors in patient care around the world. Currently, we have the following outstanding opportunity in our Palo Alto research headquarters.

Staff Researcher

If you have a background in physiology and biochemistry, with additional molecular biology training, this could be the opportunity for you. We're looking for a creative, innovative individual to lead a section of our Department of Cardiovascular Pharmacology in basic research on cardiovascular disease. The ideal candidate will possess a PhD in pharmacology and 3 years' related post-doctoral experience.

Syntex, located on the San Francisco Peninsula, offers a competitive compensation and relocation package which includes an incentive bonus plan. For immediate consideration, please send your resume to: Syntex, Professional Staffing, Dept. JH/AS, 3401 Hillview Avenue, Palo Alto, CA 94303. We are an equal opportunity employer.



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Since 1888, Abbott Laboratories has been a pioneer in pharmaceutical development. This year we'll commit more than \$500 million to R&D — and we'll help our scientists reach further than ever before.

ASSOCIATE SCIENTIST Immunoscience Research

As part of the Immunoscience Research Area of our Pharmaceutical Products Division, the selected candidate will be involved in the discovery of novel immunosuppressants. Duties will include conducting HPLC analysis of blood samples to measure pharmacokinetics of experimental compounds, as well as conduct studies with *in vivo* models of transplantation, immunosuppression and immunotoxicity. We require an MS in a bioscience discipline, or BS with 2+ years of research experience. Broad *in vivo* background is expected.

Abbott offers an excellent salary and benefits package including profit sharing and a stock retirement plan. We are located in an attractive suburban area approximately 30 miles north of Chicago. For consideration, please send a resume with salary history to: Patricia Handy, Corporate Placement, Dept. AS, Abbott Laboratories, One Abbott Park Rd., Abbott Park, IL 60064. Abbott is an Affirmative Action Employer/Smoke-Free Environment.

ABBOTT LABORATORIES



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STERLING RESEARCH GROUP

Discover a bright future at Sterling Research Group, the worldwide pharmaceutical research and development organization of Sterling Drug Inc.



Molecular Biology Research Investigators

We are seeking highly motivated individuals with experience in developing transgenic models of disease, in mammalian and retroviral expression systems, and in E.coli protein expression and purification. Research Investigators are expected to establish new technologies in molecular biology and also provide support to current therapeutic programs with Sterling Research Group. Qualified candidates will possess a Ph.D. in Molecular Biology or related area with at least two years' relevant postdoctoral experience.

You will discover that we offer a competitive salary and benefits package. Our Rensselaer, New York facility will be relocating to Upper Providence Township, Pennsylvania, in approximately 1993, and invites you to share in the opportunities now and in the future. Interested candidates, please send resume to: Sterling Research Group, 81 Columbia Turnpike, Rensselaer, New York 12144. Equal Opportunity Employer M/F/D/V.



Sterling Research Group

Division of Sterling Drug Inc.
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Postdoctoral Scientist Immunobiology

Genentech, a leader in the biotechnology industry, has an exceptional opportunity for a Postdoctoral Scientist within our Immunobiology department.

As a Scientist, you will study the role of adhesion molecules in leukocyte endothelial cell interaction and leukocyte recruitment and in the immunology and inflammatory process. This requires a PhD in Immunology, Cell Biology or a related field.

Genentech offers an extensive benefits package which includes fully paid dental/medical/vision coverage for you and your dependents, child care facilities and free health club membership. Send your resume to Genentech, Inc., Human Resources Dept. YSSS, 460 Point San Bruno Blvd., South San Francisco, CA 94080. We promote and actively support affirmative action and equal opportunity employment. Women and minorities are encouraged to apply.

Genentech, Inc.

Immunoconjugate Research And Development

The mission of the Sterling Drug Immunoconjugates Division is to create and sustain a successful, competitive discovery and development program aimed at creating a portfolio of novel immunoconjugates for cancer therapy. It is an excellent time to join us as we open our new facility in Sharon Hill, PA. You'll discover a creatively free research environment, state-of-the-art technology and a teamwork approach to research and development. SDIC will be expanding in the future, at all levels in the following areas:

**GENETIC ENGINEERING OF ANTIBODIES
PROTEIN CONJUGATION CHEMISTS
CELL CULTURE AND PROTEIN
PURIFICATIONS PROCESS DEVELOPMENT
QUALITY CONTROL AND ANALYTICAL ASSAYS**

You will discover that we offer an excellent salary and benefits package. Interested applicants, please indicate your area of interest and submit your resume to: Sterling Drug Inc., Attn: SDIC, 9 Great Valley Parkway, Malvern, PA 19355. Equal Opportunity Employer.



STERLING DRUG INC.

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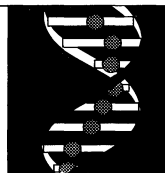
Applied Immune Sciences (AIS), located in the San Francisco Bay Area, is involved in one of the most critical technologies of our time — the fight against cancer, AIDS and other immune system diseases. As recently reported, we're pioneering new technology in cellular therapy, which has shown great promise towards boosting the disease-fighting ability of the body's immune system.

Sr. Scientist/Cellular Immunology: Requirements include PhD in Immunology or Biology, along with 5 years post-doc work and solid expertise in the mechanisms of autoimmune disease. A strong publication record is required, along with in-depth experience in tolerance induction. Knowledge of GLP a plus.

Research Associate/Cellular Immunology: Position calls for related BS, and at least 2 years lab work, including knowledge of routine tissue cultures and immunological procedures. Willingness to work with human blood products a must; GLP knowledge preferred.

Research Associate/Receptor Biology: BS required with 5+ years industrial or academic lab experience in molecular biology, biochemistry or immunology. Must be familiar with Biochemistry/Molecular Biology related techniques and instrumentation and willing to work with human blood products. PCR and cDNA cloning experience also needed.

For consideration, see us at IBEX or send your resume and salary requirements to: Professional Staffing, Applied Immune Sciences, Inc., 200 Constitution Drive, Dept. S-9/27, Menlo Park, CA 94025-1109. Principals only, please. EOE.



Research Scientists

Gilead Sciences, an innovative, rapidly growing biotechnology company, is a leader in the development of a broad new class of oligonucleotide-based pharmaceuticals for the treatment of viral diseases, cancer, and cardiovascular disease. We offer a vigorous research environment for exceptional individuals interested in joining a team of scientists committed to the development of significant new human therapeutics.

We are looking for:

Hematologist/Cardiovascular Pharmacologist with an M.D. and/or Ph.D. and an interest in thrombosis. Preferably, the candidate should have experience in drug development and the application of *in vitro* and animal models to hematologic or cardiovascular disease processes. Leadership skills are essential as the position entails supervising a group of multidisciplinary scientists devoted to anti-thrombotic drug discovery.

Molecular Biologist with a Ph.D. plus 3 to 5 years of experience, preferably in the biotechnology industry. Candidates should have experience in recombinant DNA methodologies and proven leadership skills.

Cell Biologist with a Ph.D. and a strong interest in drug evaluation and development. Preferably, candidates should have experience in intracellular macromolecular transport.

Molecular Virologist with an M.D. and/or Ph.D. and a strong background in biochemistry or molecular biology supplementing a broad knowledge of viral biology and pathogenesis. A postdoctoral fellowship plus 3 to 5 years of experience in biotechnology or the pharmaceutical industry is preferred.

Gilead Sciences offers a stimulating scientific environment with excellent salary, benefits, stock options, and location in the San Francisco Bay Area. Please send C.V. and reference information to: Jennifer Maddock, Gilead Sciences, Inc., 346 Lakeside Drive, Foster City, CA 94404. Reference this ad with your correspondence.

GILEAD
S C I E N C E S

National Institutes of Health

Post-Doctoral Positions in Molecular Biology

Two positions are available for recent Ph.D. graduates in the Section on Genomic Structure and Function, Laboratory of Biological Pharmacology, NIDDK, NIH in Bethesda, MD. One is to study the effects of triple-stranded DNA and other abnormal DNA structures *in vivo* (Dr. K. Usdin). The other is for the study of L1 elements, a group of highly repeated mobile genetic elements that are ubiquitous in mammals (Dr. A.V. Furano). Topics currently under investigation are the genetic effects, evolution and replication of these elements.

A strong background in molecular biology is required and experience with tissue culture techniques is desirable but not essential. Applicants should submit their Curriculum Vitae and three letters of reference to:

**Anthony V. Furano, M.D. or
Karen Usdin, Ph.D.**
National Institutes
of Health
Building 8, Room 203
9000 Rockville Pike
Bethesda, MD 20892



NIH is an Equal Opportunity Employer



The University Hospital

The Evans Department of Medicine, Boston University Medical Center, solicits applications for a new Fellowship Program for individuals holding an M.D. and/or Ph.D. The program is dedicated to excellence in biomolecular medicine and basic science. Areas of special expertise include:

- CELL PHYSIOLOGY
- CLINICAL SCIENCE
- DEVELOPMENTAL BIOLOGY
- GENE REGULATION
- IMMUNOLOGY
- MOLECULAR GENETICS
- TUMOR BIOLOGY
- VASCULAR BIOLOGY

Appointments will be for three years. Competitive stipends, generous supply and travel allowance, and health insurance will be provided. Applications are due Nov. 15, 1991 and may be obtained from

Dr. John Murphy
Dept. of Medicine
Boston University Medical Center
88 E. Newton St.
Boston, MA 02118

Awards will be announced Jan. 15, 1992 and may be activated immediately or until Nov. 1992.

POSITIONS OPEN

POSTDOCTORAL RESEARCH ASSOCIATE.

Position available immediately to study mechanisms of action of a novel anti-tumor agent. Background in tumor cell and molecular biology is required. Please send curriculum vitae along with names and telephone numbers of three references to: **Dr. D. Samid, Clinical Pharmacology Branch, DCT, National Cancer Institute, Building 10, Room 12N226, 9000 Rockville Pike, Bethesda, MD 20892.**

RESEARCH ASSISTANT II for northeastern Ohio nonprofit educational institution. Duties are: to conduct biochemical and immunochemical studies of nervous system proteins in animal, and human tissue using the techniques of protein purification, 1 and 2D gel electrophoresis, immunocytochemistry, quantitative immunochemistry and statistical analysis of data; work requires minor surgical procedures in animals; individuals will be responsible for setting up new techniques and should be able to solve minor problems with limited supervision. Must have M.S. in biochemistry or environmental health. In lieu of M.S. applicant may have B.S. and 2 years of experience with techniques described in job duties. One year of hands-on computer experience as verified by coursework or employer verification. No experience required in job duties but applicant's academic background must include 1 year of research using the techniques referred to in the job duties. Applicant must have one each course in biostatistics, cell biology, genetic toxicology, pathophysiology and biochemistry. Thirty-seven and a half hours per week, Monday through Friday, \$24,000 per year. *Must have proof of legal authority to work permanently in the United States.* Send résumés in duplicate (no calls) to: **R. Lechler, JO#1255748, Ohio Bureau of Employment Services, P.O. Box 1618, Columbus, OH 43216.**

ECOLOGIST POSITION. A tenure-track research/teaching position in the biology department at Marquette University to start in August 1992. The successful candidate will have postdoctoral training and is expected to establish an independent, competitively funded research program and to train M.S./Ph.D. students. We seek a microbial ecologist or an ecologist using molecular and/or cellular techniques to complement our present research programs (molecular and cellular biology and vertebrate physiology). Ecologists in other areas will be considered. Teaching responsibility is undergraduate ecology course and, in alternate spring semesters, a graduate course in his/her specialty or a seminar course. Send complete curriculum vitae, statement of research, and three letters of recommendation to: **Ms. Sandra Priegel, Biology Department, Marquette University, Milwaukee, WI 53233.** Application deadline is 1 December 1991. *Equal Employment Opportunity/Affirmative Action Employer.*

Nichols Institute's Reference and Diagnostic facilities, leading innovators in laboratory technology, are seeking the following positions:

SENIOR RESEARCH SCIENTIST. The qualified candidate should possess a Ph.D. in biological sciences, with strong research interest and experience in steroid hormonal assays and chemiluminescent technology. Must have excellent leadership and communication skills. Five years of research laboratory experience is preferred. A background with protein hormonal assays is a big plus. Will be responsible for the guidance of the research staff regarding innovative research programs.

RESEARCH SCIENTIST. Requires a Ph.D. in chemistry, biochemistry or immunochemistry; and excellent communication skills. Responsible for the investigation/feasibility of products for the Allegro-Lite technology, new technological approaches for new products, and assisting in problem-solving of all product lines.

We offer a competitive salary and benefits package. Please call or send résumé to: **Nichols Institute, Human Resources—Hazel Larsen, 33608 Ortega Highway, San Juan Capistrano, CA 92690-6130. Telephone: 1-800-NICHOLS, FAX: 714-728-4985. Equal Opportunity Employer.**

SCIENCE

can publish YOUR LOGO with your one-column line classified ad. No extra fee is assessed: you will be billed at our regular line rate for the number of lines the logo occupies. For details, call **Classified Advertising: 202-326-6555.**

POSITIONS OPEN

ASSISTANT MANAGER/ SENIOR SCIENTIFIC APPLICATIONS PROGRAMMER

The Salk Institute for Biological Studies has an immediate opening for an Assistant Systems Manager/Senior Scientific Applications Programmer. The responsibilities of this position include (1) maintaining, modifying and providing user-support for genetics analysis software and databases (GCG, Intelligenetics and miscellaneous others), (2) collaborating with researchers on programming projects, and (3) acting as a backup system manager for the Institute's VAX cluster/ethernet network and Iris 310 workstation.

Requires knowledge of VMS, Fortran, and C and 2 years of experience with VAX operations/system management. UNIX experience is a plus. Familiarity with the genetics software packages and algorithms is a must. Knowledge of molecular biology is desired.

Competitive salary and excellent benefits are offered. Interested candidates should send résumé, salary history, and two references to:

**The Salk Institute
Human Resources/AMO
P.O. Box 85800
San Diego, CA 92186-5800**

*Equal Employment Opportunity, M/F/H/V.
Minorities encouraged to apply.*

FISH NUTRITIONIST/AQUACULTURIST

The U.S. Fish and Wildlife Service, Longview, Washington, seeks a specialist in fish nutrition and aquaculture to perform research and development work on feeds and culturing methods for anadromous fishes. The incumbent also serves as the Assistant Director of a facility which produces 1.5 million Pacific salmon smolts each year. Salary range: \$37,294 to \$48,481. Call: **Julie Swanberg at 503-231-6136** for application procedures. Application period: 1 October 1991 to 31 October 1991.

GYNECOLOGIC ONCOLOGIST UNIVERSITY OF TENNESSEE MEMPHIS, TENNESSEE

Faculty position for gynecologic oncologist. Candidate should be Board-eligible or Board-certified in gynecologic oncology. Responsibilities include patient care, research and teaching, with opportunities to pursue own initiatives. An excellent professional opportunity. Interested candidates please send curriculum vitae to:

**Guy J. Photopoulos, M.D.
Associate Professor and Director
Division of Gynecologic Oncology
Department of Obstetrics and Gynecology
University of Tennessee
853 Jefferson Avenue
Memphis, TN 38103**

The University of Tennessee, Memphis, is an Equal Employment Opportunity/Affirmative Action/Title IX/Section 504 Employer/ADA Employer.

MARINE ECOLOGIST

The California Coastal Commission is seeking to hire a scientist to oversee a long-term marine resource mitigation program, consisting primarily of the design, construction, and monitoring of a 150-acre wetlands restoration project and 300-acre artificial reef project. The position will be located in San Francisco at the coastal commission's headquarters office.

Responsibilities include coordinating and overseeing all aspects of the mitigation program. Early tasks include working with engineers and biologists on project designs and designing a long-term sampling program to determine whether the mitigation projects meet specified performance standards. After monitoring has begun, tasks will include evaluating contractor reports, providing guidance on scientific issues, and working with a scientific advisory panel and Southern California Edison to resolve problems in the implementation of the mitigation projects.

You must have a doctorate in marine biology, ecology or a related field, and preferably postdoctoral or other professional experience. Preference will be given to candidates with strong analytical and statistical skills.

Competitive salary, commensurate with experience. Please send curriculum vitae and names and telephone numbers of three references to: **Susan Hansch, California Coastal Commission, 45 Fremont Street, Suite 2000, San Francisco, CA 94105. Women and minorities are encouraged to apply.**

POSITIONS OPEN

MOLECULAR CYTOGENETICIST

The Coriell Institute for Medical Research is seeking a Ph.D. with experience in molecular genetics and cytogenetics with interest in gene mapping or physical mapping. The successful candidate is expected to develop an active, independent research program and to collaborate with the Coriell Cell Repositories, molecular biology and cytogenetics groups responsible for the characterization of human/rodent somatic cell hybrids and regional mapping panels. The position is open for immediate occupancy.

Candidates should submit curriculum vitae, summary of research interest, and the names of three references to:

Brian Kaiser, Director of Personnel
Coriell Institute for Medical Research
401 Haddon Avenue, Camden, NJ 08103

An Affirmative Action/Equal Opportunity Employer.

MOLECULAR NEUROBIOLOGY

Postdoctoral or research associate position at Harvard Medical School, Mailman Research Center, available for a Ph.D. scientist with background and/or interest in molecular biology and biochemistry. Apply molecular biological methods to questions of synaptogenesis and neuronal degeneration relevant to Alzheimer's disease and CNS injury. Utilize major brain bank as well as animal model of neuronal degeneration.

Please send curriculum vitae and the names of three references to: **Dr. S. Bursztajn, McLean Hospital, Mailman Research Center, 115 Mill Street, Belmont, MA 02178.** *An Equal Opportunity Employer.*

ORGANIC CHEMIST

BioGenex is currently seeking a dedicated scientist with a degree in organic chemistry. Experience in the synthesis of nucleic acids and oligonucleotides and production of phosphoramidites is preferable. Position requires research and development of new products and processes as well as supervisory responsibilities.

BioGenex Laboratories is a leader in the development, manufacture, marketing and worldwide distribution of diagnostic products for the cell pathology market using immunological and DNA-based technology. BioGenex is an innovator in the cellular diagnostics market, having developed over 200 superior products for tumor and infectious disease diagnosis. Appearing twice (1988 and 1990) on the Inc. 500 list of the 500 fastest growing, small, private companies, BioGenex continues to expand at an accelerated rate.

BioGenex offers a highly competitive salary and commission package, comprehensive training, and excellent benefits. For confidential consideration, please send résumé and salary history to:

BioGenex Laboratories
Attention: Human Resources Department
4600 Norris Canyon Road
San Ramon, CA 94583

RESEARCH SCIENTIST. Lead research in synthesis and evaluation of new polymer-based heterogeneous catalyst for monomer synthesis. Provide chemical and engineering expertise on a multi-departmental team scaling up new proprietary monomer. Coordinate joint company/academic program to develop novel group of acrylate monomers and provide engineering and process development for program. Exploratory searches for new chemistries to make acrylate or methacrylate monomers. Detailed mechanistic investigations. Utilize statistical methods for process optimization. Utilize homogeneous catalyst to promote reaction and monomer process. Requirements: Ph.D. (ABD) organic and organometallic chemistry and 2 years of experience. Background in inorganic and organometallic chemistry, polymer science and engineering and appropriate chemical engineering and material science background including inert atmosphere synthesis techniques, spectroscopic methods development, physical inorganic and organic measurement and synthesis techniques. Background in reactor design and process control and ability to perform molecular orbital calculating. MacIntosh and IBM computer system background. Must have excellent academic, research and publication background and good communication skills and *proof of lawful ability to work in the United States.* Forty hours per week; \$50,000 per year; résumé or curriculum vitae to: **Philadelphia Job Bank, 444 North 3rd Street, 3rd Floor, Philadelphia, PA 19123, JO #4382595.**

UNIVERSITY OF SOUTHERN CALIFORNIA SCHOOL OF MEDICINE DEAN

The University invites applications and nominations for the position of Dean of the School of Medicine.

Established in 1885 and located on the University's 30-acre Health Sciences Campus seven miles from the University Park campus, the School of Medicine enrolls 580 students in the M.D. program and 175 Ph.D. students in the basic sciences. It has 25 clinical and basic science departments with a full-time faculty of 850 and a voluntary faculty of approximately 3,100. The USC School of Medicine ranks 16th nationally in federal research grants and contracts. It has an annual operating budget of approximately \$200 million. In support of its academic mission and commitment to teaching, research, and patient care, the University in cooperation with National Medical Enterprises has just opened the USC University Hospital, a private 275-bed medical facility. Including this new medical center, the USC faculty provide sophisticated teaching at facilities that include nearly 2500 hospital beds. The hospitals include the Norris Cancer Hospital, the Doheny Eye Hospital, Childrens Hospital of Los Angeles, and the Los Angeles County/USC Medical Center—a resource matched by few medical schools in the nation. The School is also affiliated with a network of 12 additional hospitals throughout Southern California.

The Dean is the academic leader and chief administrative officer of the School and reports to the Provost. The Dean is responsible for fiscal planning and management; short-term and strategic planning; faculty recruitment; and fostering excellence in educational, clinical and research programs. The Dean is also responsible for the direction of the School's development effort.

The Search Committee seeks an experienced medical educator with a distinguished record of research, teaching, and service appropriate for the appointment at senior faculty rank and extensive experience in effective academic administration. A demonstrated knowledge of fiscal management within the complex field of health care is essential as is a leadership style that facilitates collaboration.

Letters of nomination and application should include the candidate's curriculum vitae, names, addresses and telephone numbers of three references and should be sent to: Dr. Edward L. Schneider, Chair, School of Medicine Dean Search Committee, in care of the Provost's Office, LAS II-204, MC 4019, University of Southern California, Los Angeles, CA 90089-4019. Review of the applications will begin immediately and will continue until the position is filled.

Affirmative action/equal opportunity employer



SAINT MICHAEL'S COLLEGE

ASSISTANT PROFESSOR BIOLOGY DEPARTMENT

Applications are invited for a tenure track position for a Microbial geneticist. The twelve hour per semester teaching load includes a fall Microbiology course with lab, a spring Genetics course with lab, as well as non-major courses, lectures and labs in General Biology. Responsibilities include maintenance of an ongoing research program as well as supervision of undergraduate research projects. Applicant must possess a Ph.D. Undergraduate teaching experience is desirable. Please send curriculum vitae, statements of teaching goals and objectives, research interests and needs, a brief outline for the Microbiology and Genetics courses as well as three letters of reference to the Human Resources Office, Saint Michael's College, Winooski Park, Colchester, VT 05439. Position begins September 1992. Review of applications will begin November 1, 1991.

**Equal Opportunity/
Affirmative Action Employer**

INSTITUTE OF HUMAN GENETICS University of Minnesota Medical School

The Institute of Human Genetics invites applications for one 12-month annually renewable position as a Research Associate to serve as a research scientist and teacher in a research laboratory, beginning 01/01/92. Research being conducted in this laboratory involves papillomaviruses and its relationship to human and animal malignancies. The responsibilities of this position will include performing research; assisting with the writing of grants, under the supervision of the Institute's Director, for the acquisition of equipment and in support of research; developing methods and techniques appropriate to the functioning of the laboratory; teaching laboratory methods and other research-related techniques which include lectures to students and staff. Candidates with a PhD in Biochemistry, Microbiology, or related fields; plus at least 1 year postdoctoral experience in techniques of molecular biology and virology, including tissue culture and isolation and analysis of RNA, DNA, and proteins, will be considered for this position. Teaching experience is desirable. Please send curriculum vitae which reflects effectiveness in publishing in peer-reviewed journals, a detailed description of relevant experience, and 3 letters of recommendation to: **Ronald S. Ostrow, PhD, University of Minnesota Medical School, Institute of Human Genetics, Box 206 UMHC, Harvard Street at East River Road, Minneapolis, MN 55455.** The last date for receipt of applications is 11/15/91. *The University of Minnesota is an Equal Opportunity Educator and Employer.*

POSITIONS OPEN

COLUMBIA UNIVERSITY DEPARTMENT OF BIOLOGICAL SCIENCES

OPERATOR of the Molecular Biology Core Instrumentation Facility. To set up an automated DNA sequencing facility and to maintain and operate that facility as well as a DNA synthesizer, 2-D densitometer, Phosphorimager, and nucleic acid/protein sequence manipulation software. Manual or automated DNA sequencing experience essential. Ph.D. desired but other qualified applicants will be considered. Send résumé to: **Lawrence Chasin, Ph.D., 912 Fairchild Building, Columbia University, New York, NY 10027. Columbia University is an Affirmative Action/Equal Opportunity Employer.**

RESEARCH CHEMIST. Lead research in synthesis and physical characterization of inhibitors for methacrylate polymers. Design processing for scale-up of commercial production of inhibitors. Lead research to understand mechanism of inhibition. Inhibitor screening studies, polymer analysis and consultation to support monomer plant. Seek to improve monomers quality and operation safety by preventing premature polymerization of methacrylate monomers. Determine mechanisms that cause polymerization and find effective methods to suppress reactions. Requirements: Ph.D. organic chemistry and 2 years of experience including background in organic-metallics involving organic synthesis and polymer chemistry. Background in free radical chemistry asymmetric synthesis determination of reaction mechanism. Background in organic instrumental analysis techniques including NMR, GC, HPLC, MS, DSC, GPC and VPO spectroscopic methods. Excellent academic publication background and *proof of legal ability to work in the United States*. Forty hours per week; \$51,000 per year; curriculum vitae or résumé to: **Philadelphia Job Bank, 444 North 3rd Street, 3rd Floor, Philadelphia, PA 19123, JO #4382596.**

RESEARCH SCIENTIST T-CV SURGERY

Faculty position for M.D. or Ph.D. to develop and direct research laboratory dedicated to a broad range of problems in cardiothoracic surgery. Involves close working relationship with group of academic surgeons, whose research interests include: animal models of complex congenital heart disease, myocardial protection, ventricular assist devices, skeletal muscle, cardiac assist, and cardiac and pulmonary transplantation. Requires strong background in cardiovascular physiology and experience with small and large animals. Inquiries with curriculum vitae and name of three references to: **Chairman, Department of Surgery, University of Louisville, Louisville, KY 40292. An Affirmative/Action Equal Opportunity Employer. Cut off date is 18 October 1991.**

The University of California, San Diego, Department of Pathology seeks up to five **SURGICAL PATHOLOGISTS** for appointment at University of California, San Diego Medical Center, effective 1 July 1992. Candidates should be either Board-certified or Board-eligible in anatomic pathology and should either possess or be able to obtain a State of California medical license. Since these appointments will be made in the clinical professor series, candidate should be committed to clinical service, teaching, and scholarly activity. Rank will be commensurate with experience. Salary will be consistent with established University of California, San Diego, pay-scales. Interested individuals should submit curriculum vitae and names of five references by 28 October 1991 to: **University of California, San Diego, David N. Bailey, M.D., Chairman, Department of Pathology, La Jolla, CA 92093-0612. Affirmative Action/Equal Opportunity Employer.**

University of Wisconsin-Madison. The Department of Psychiatry is seeking an academically oriented **SENIOR PSYCHIATRIST** to act as Chief of the Psychiatry Service at the Veteran's Administration Hospital. This individual would have important administrative duties in the Department of Psychiatry and would be expected to establish his/her independent research program which could involve basic and/or clinical research. Candidate will be involved in the teaching of residents and medical students and will be expected to obtain outside grant support for his/her research. Send curriculum vitae and cover letter to: **Dr. Ned Kalin, Chairman, Department of Psychiatry D6/251B, University of Wisconsin Medical School, 600 Highland Avenue, Madison, WI 53792. The University of Wisconsin is an Equal Opportunity/Affirmative Action Employer.**

POSITIONS OPEN



MICROBIOLOGIST/SOIL SCIENTIST. USDA/ARS Crop Protection Research Unit, Urbana, Illinois. Permanent, full time. Successful candidate will develop an innovative research program to develop strategies that reduce movement of pesticides to groundwater. Emphasis will focus on soil microbiology in one or more of the following areas: (1) biological and environmental factors affecting microbial degradation of pesticides in root rhizospheres, (2) production and/or activity of pesticides-degrading enzymes in soils, (3) field management practices to minimize pesticides in soil and groundwater (4) isolation and distribution of specific pesticide-degrading organisms in soils, and (5) development and validation of microbially based pesticide movement and degradation models. Candidates must possess knowledge of: (A) soil microbiology in order to conduct research on the interaction of microorganisms and pesticides; and (B) chemistry and biochemistry necessary to quantitate pesticide reactions in soils. Professional experience and/or directly related education required. Ph.D. desirable. U.S. citizenship required. Salary commensurate with experience GS-11/12/13 (\$31,116 to \$57,650). For information, contact: **L. M. Wax, 217-333-4424.** For application procedures and forms, call **301-344-1542.** Applications must be marked **1N076** and must be postmarked by 5 December 1991. Incomplete applications will not receive consideration. *An Equal Opportunity Employer.*

MOLECULAR BIOLOGIST to maintain laboratory housing small equipment for molecular biology and consult with active cell biology research group on molecular biologic approaches to problems. Spend 35 to 50% time for core activities, 50 to 65% time for own or collaborative research efforts. Rich collaborative environment; research group focuses on airway epithelial cell biology, cystic fibrosis. Academic rank commensurate with achievement and experience. Contact: **P. B. Davis, Pediatric Pulmonary Division, Rainbow Babies and Childrens Hospital, 2101 Adelbert Road, Cleveland, OH 44106. Case Western Reserve University is an Equal Opportunity/Affirmative Action Employer. Women and minorities are encouraged to apply.**

MEETINGS

NIDCD ANNIVERSARY LECTURE THE NATIONAL INSTITUTE ON DEAFNESS AND OTHER COMMUNICATION DISORDERS NATIONAL INSTITUTES OF HEALTH

The NIDCD proudly presents the NIDCD Third Anniversary Lecture: "Language Deficits in Aphasia: A Window into the Mind." This lecture, presented by **Sheila E. Blumstein, Ph.D.,** Dean of the College and Professor of Cognitive and Linguistic Sciences, Brown University, will be held Friday, 18 October 1991 at 10:30 a.m. in the Lecture Hall of The Cloister/Mary Woodward Lasker Center on the campus of the National Institutes of Health in Bethesda, Maryland. Previous Lectures in this series include: 1989—**Dr. Peter J. Daltos,** of Northwestern University, "Cochlear Neurobiology: Why the Excitement?" and 1990—**Dr. Thomas V. Getchell** of the University of Kentucky College of Medicine, "The Molecular Neurobiology of Olfactory Reception." For reservations and further information please contact: **Ms. Diana Brown, Social and Scientific Systems, 7101 Wisconsin Avenue, Bethesda, MD 20814. Telephone: 301-986-4870; FAX: 301-913-0351.**

BOTULINUM AND TETANUS NEUROTOXINS INTERNATIONAL CONFERENCE NEUROTRANSMISSION AND BIOMEDICAL ASPECTS, 11 TO 13 MAY 1992, MADISON

Assess the two neurotoxins for their genetics, structures, mechanisms of action, the diseases they cause and the therapeutic uses of botulinum neurotoxin. Describe the frontiers of research the neurotoxins may be used to explore the uncharted areas of neurobiology and medicine. Lectures and posters are to be published as a proceedings. Please contact: **B. R. DasGupta, University of Wisconsin, 1925 Willow Drive, Madison, WI 53706. Telephone: 608-263-6806; FAX: 608-263-1114.**

POSITIONS OPEN

SENIOR RESEARCH INVESTIGATOR to design, synthesize, purify and characterize complex organic molecules having potential biological activity as agents for treatment of cardiovascular diseases; utilize asymmetric synthesis of complex molecules to prepare enantioselectively pure drugs; establish a research program to follow up existing leads and to discover new leads; function as member of an interdisciplinary team of chemists and biologists; supervise and coordinate the activity of one or more research associates, as necessary; and provide input as necessary for patent filings. Applicants must possess a Ph.D. degree in organic chemistry plus 2 year of experience in job offered or 1 year as postdoctoral research fellow and/or research assistant. Applicants must have conducted research leading to the development of new enantioselective versions of synthetic processes such as the Diels-Alder, aldol and carbonyl allylation reactions as applied to the construction of key intermediates for the synthesis of drugs. Forty hours, Monday to Friday, 8:00 a.m. to 4:30 p.m.; \$47,000 per annum. Send résumé to: **Missouri Department of Labor and Industrial Relations, Division of Employment Security, 505 Washington, St. Louis, MO 63101, Attention: Mrs. Jimmie Gaston, Job Order #499803. An Employer-Paid Ad.**

National Oceanic and Atmospheric Administration's (NOAA) Air Resources Laboratory in Research Triangle Park, North Carolina, is seeking a **SUPERVISOR** for their Human Exposure Modeling Branch to lead and supply technical guidance for research on the development, evaluation and application of analytical human exposure models. Must formulate mathematical models, conduct field studies, provide consultation and supervise staff members. Minimum requirements are a bachelor's degree in physical science and 1 year of high caliber, related professional experience. For details contact the **Department of Commerce, NOAA, Eastern Administrative Support Center, Norfolk, VA 23510. Attention: Ms. Beedie or call 804-441-6548 or FAX: 441-3049. Closes 15 November 1991. An Equal Opportunity Employer.**

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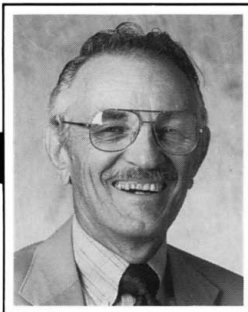
\$10.00 a base for the first 15 bases, \$7.50 for each additional base. No additional charges.
Research Genetics

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The Fifth Annual Discoverers Awards - 1991

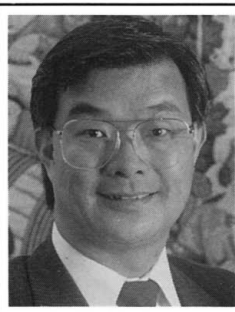
We honor these exceptional scientists whose significant pharmaceutical discoveries have greatly benefited our quality of life.



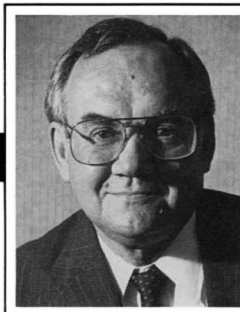
Ross C. Terrell, Ph.D.
(Anaquest)
Ethrane & Forane - Anesthetics



Gideon Goldstein, M.D., Ph.D. (IRI)
& Patrick Kung, Ph.D. (T Cell Sciences)
Orthoclone OKT3 Monoclonal antibody



Hans-Jurgen Hess (Pfizer)
Prazosin (Minipress)
High blood pressure control



Four Who Have Touched The Lives Of Millions

The world's most widely used anesthetics. An antibody used in 60% of kidney transplant rejections. The first widely used drug that reduced blood pressure by a new mechanism — selective alpha-blockade. These important medical discoveries share one aspect . . . development by this year's award winning scientists in America's pharmaceutical research company laboratories.

In 1961, Dr. Ross C. Terrell took up a formidable challenge . . . create an anesthetic, without early inhalation agents' disadvantages. An organic chemist in what is now the Anaquest division of BOC Health Care Inc., Dr. Terrell determined that only a fluorinated ether would have the volatile, nonflammable properties he desired without producing cardiac arrhythmias. He and his staff prepared hundreds of compounds before synthesizing Ethrane. Subsequent efforts brought the discovery of Forane. To date, Ethrane and Forane have been used in several hundred million surgeries.

In the late 1970s about half of all kidney transplants failed . . . even with immunosuppressive therapy. Dr. Gideon Goldstein and Dr. Patrick Kung of Johnson & Johnson's Ortho Pharmaceutical Corporation created a

series of "monoclonal" antibody to determine whether therapy actually reached white blood cells that attacked donated kidneys. They found that one antibody, OKT3, cleared white blood cells from the bloodstream and reversed rejection. OKT3 is now used in almost 60% of kidney transplant rejections.

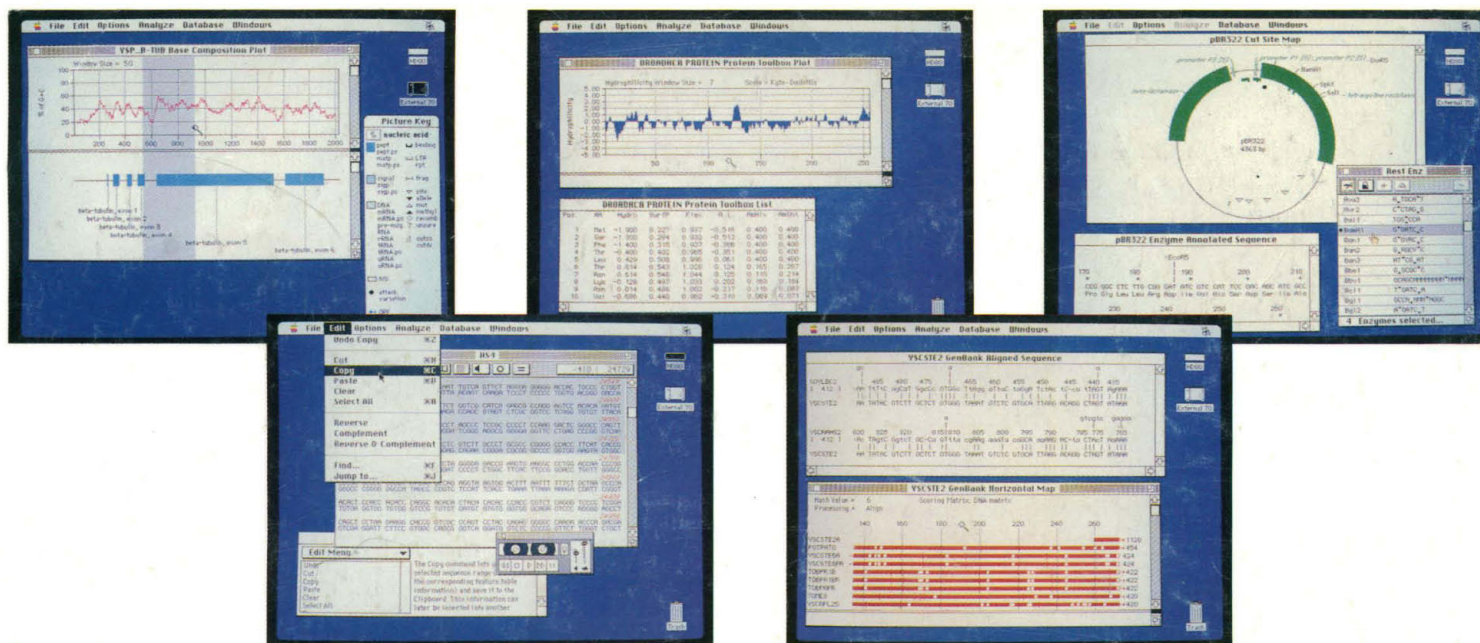
In 1963, when Dr. Hans-Jurgen Hess of Pfizer Central Research began work on antihypertensive agents, the existing drugs for lowering blood pressure frequently displayed unwanted side effects, or stopped working as patients developed tolerance. Seeking an alternative therapy, Dr. Hess developed prazosin, the first of a new class of antihypertensive agents, which lowers blood pressure by selectively blocking receptors on smooth muscle cells of blood vessels. Since Dr. Hess's discovery, prazosin (Minipress) became a leading agent for treatment of high blood pressure.

These outstanding contributions underscore the important discoveries made by scientists in pharmaceutical research company laboratories across America. Indeed, in 1991, America's pharmaceutical manufacturers will spend over \$9 billion on new drug research and development in their commitment to a better quality of life.

Pharmaceutical Manufacturers Association

1100 Fifteenth Street, N.W., Washington, D.C. 20005

America's Pharmaceutical Research Companies



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