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The Ubiquity of Chaos

Edited by Saul Krasner

The discovery of disordered, chaotic solutions to deterministic laws of nature has ignited widespread interest in the study of nonlinear dynamics. While such solutions should be predictable in principle, a certain nonlinearity in the laws governing them makes them so sensitive to initial conditions that classical predictability is impossible. Now, with the advent of sufficient computer power, it has been found that behind the apparent randomness lies great beauty and structural symmetry.

This volume presents results of recent investigations and applications of chaos mathematics by authors working in such diverse areas as physiology and medicine, economics, world affairs, fluid and celestial mechanics, and quantum systems. It is essential reading for anyone wishing to delve into the wide range of fields touched by the ubiquity of chaos.

Contents:

Chaotic Explosions in Simple Dynamical Systems — *Robert L. Devaney*

Dynamical Characterization of Brain Electrical Activity — *Paul E. Rapp, Theodore R. Bashore, Irwin D. Zimmerman, Jacques M. Martinerie, Alfonso M. Albano, and Alistair I. Mees*

Sudden Death Is Not Chaos — *Ary Goldberger and David R. Rigney*

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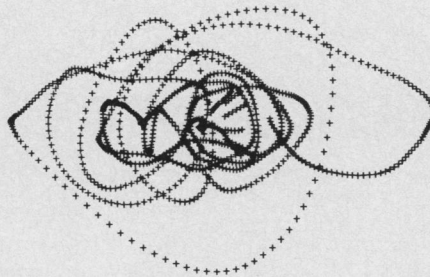
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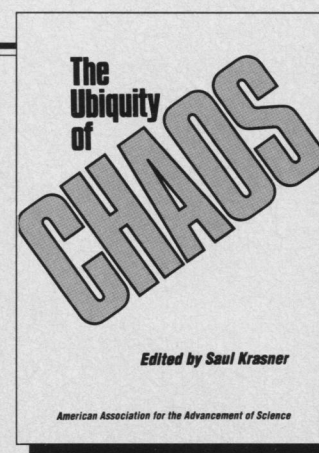
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A geometrical reconstruction of a human EEG signal, displaying its underlying fractal structure, from the chapter, "Dynamical Characterization of Brain Electrical Activity," by P.E. Rapp et al. Reprinted with permission from *Brain Topography* 2, 99 (1989), published by Human Sciences Press.



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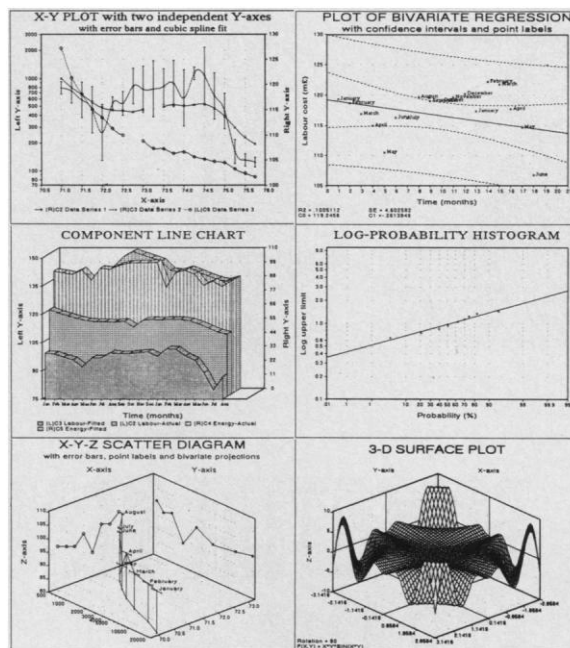
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PURPOSE	Fellows will spend one year as a member of the staff of a Congressman or of a Congressional committee, thereby contributing an assessment of the technical aspects of public policy issues to the political process.
QUALITIES SOUGHT IN APPLICANTS	Prospective Fellows are expected to have demonstrated competence in some area of physics, have a background in science and technology, and have a strong interest and some experience in applying scientific knowledge toward the solution of social problems. Candidates are expected to be articulate and literate, willing to work on a variety of problems with a variety of people and to have some experience in or be willing to learn the governmental process.
TERM OF APPOINTMENT	Fellows serve for one year, beginning 1 September 1991. APS Fellows will join the Fellows selected by other scientific and engineering societies in Washington in September for a two-week orientation program organized by the American Association for the Advancement of Science. During the orientation, Fellows meet Senators, Representatives, and Congressional committee staff members, visit a number of government agencies, and receive detailed information about opportunities in Congressional offices. The choice of an assignment is unrestricted and reserved to the Fellows.
STIPEND ALLOWANCES	The maximum fellowship stipend is \$40,000. An appropriate allowance is made for vouchers relocation expenses and for vouchers travel expenses incurred during the fellowship year.
APPLICATION PROCEDURE	Applicants should submit a letter of intent and a resume and arrange to have three letters of reference sent directly to the program administrator. Candidates should include in the letter of intent a statement which tells why they have applied to the program and a brief description of their public service experience. Letters of reference should be solicited from people who can discuss not only the candidate's competence as a physicist but also the candidate's education and experience which would make the candidate particularly qualified to serve in a Congressional office. Completed applications, including all letters of reference, must be received by 15 February 1991.
FOR FURTHER INFORMATION	Please Contact: Dr. Mary L. Shoaf, Administrator Congressional Scientist Fellowship Program The American Physical Society 335 East 45 Street New York, New York 10017 (215) 793-1629 or (212) 682-7341

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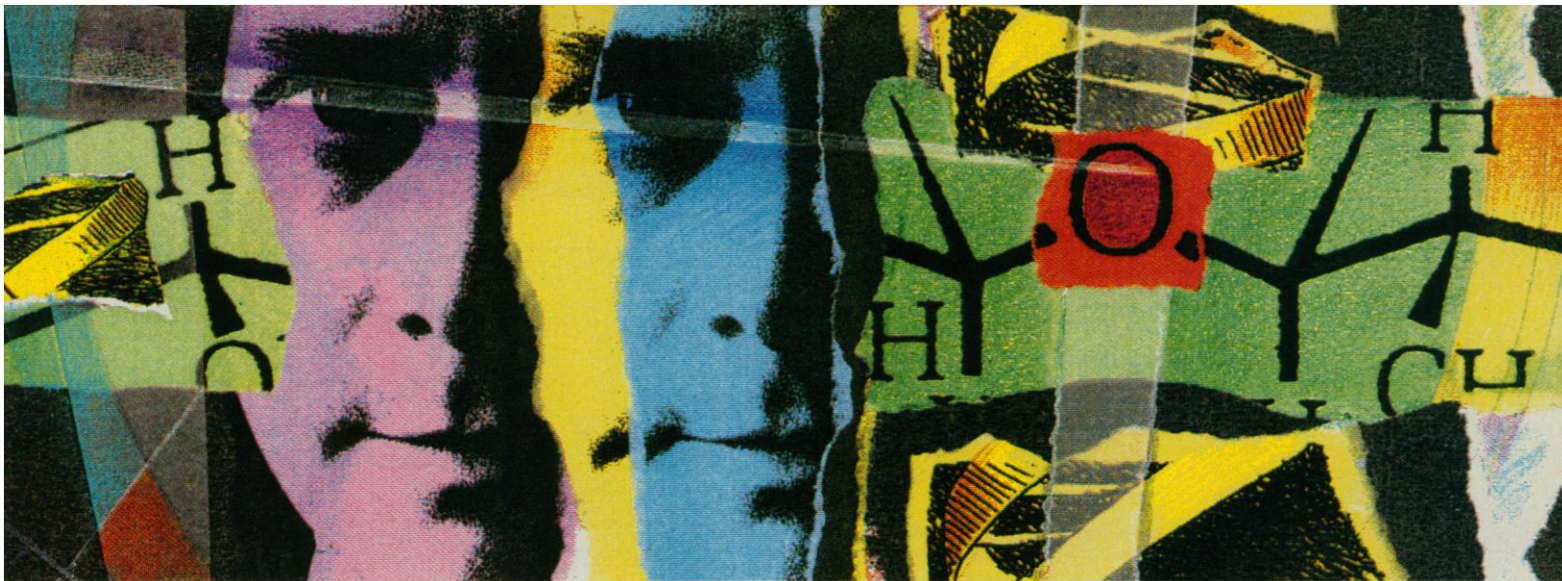
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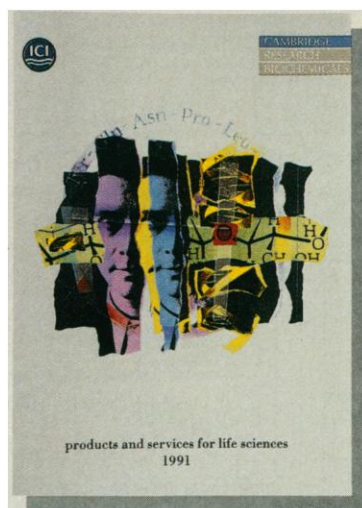
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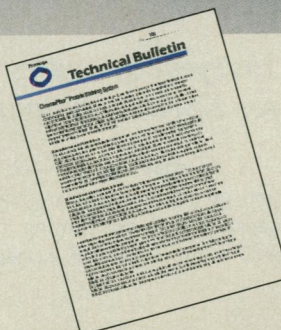
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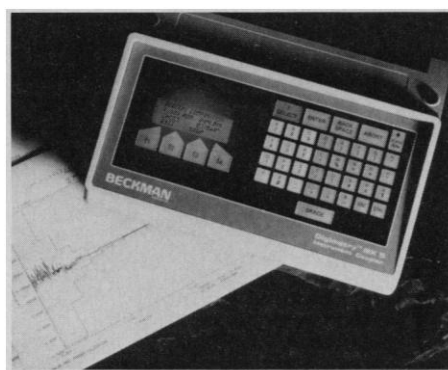
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and matching it to an appropriate converter input range, the MK5CVX continually adjusts its range to minimize error. The instrument features a 20-character by four-line liquid crystal display that allows the operator to monitor chromatographic information such as file name, title, run time, and millivolt output. Beckman Instruments. Circle 576.

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Enzyme Kinetics Capability for Spectrophotometer

A software module for the HP 8452A general purpose spectrophotometer adds the capability of performing multicell enzyme assays and multicell enzyme kinetics mea-

surements to the previous single-cell capability. The speed and precision of diode-array spectroscopy are particularly suitable for kinetics measurements. The new software, HP 89531A, enables routine enzyme assays to be made with precision, reliability, and productivity not obtainable with conventional spectroscopy. An optional multicell transport makes possible the collection of data on up to seven samples simultaneously. Hewlett-Packard. Circle 438.

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A *Laboratory Products Catalog* contains 16 pages of constant temperature baths and circulators, dry heat baths, programmable temperature cyclers, hybridizers, density gradient columns, biological stirrers, bioreactors, fluidized solids baths, and temperature calibrators. Techné. Circle 456.

Smart Buys on Electronic and Computer Related Parts and Components is a catalog of products at below factory-outlet prices. The 40-page catalog is full of products such as integrated circuits, switches and connectors, power supplies, rechargeable batteries, fans, blowers, monitors, disk drives, add-on boards, mice, modems, and complete computer systems. American Design Components. Circle 457.

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Fisher Safety Products Reference Manual is a 208-page, comprehensive offering of some 2000 products. The 13 sections describe respirators, gloves, hearing protection, eye protection, head protection, apparel, spill control, hazardous material storage, fire protection, industrial hygiene, showers and eye-baths, training and compliance materials, and signage. Fisher Scientific. Circle 468.

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COGNITIVE NEUROSCIENTIST. The Department of Psychology and Center for Cognitive Science of the Ohio State University anticipate a position in cognitive neuroscience at the level of **ASSISTANT PROFESSOR** (excellent senior candidates may apply). Applicants should have an established research program in the neurophysiological/cellular correlates of learning, memory, or information processing. Candidates must interface with a university-wide neuroscience Ph.D. program and the Center for Cognitive Science. Applicants should submit curriculum vitae, representative reprints, and three letters of reference to: **Dr. Martin F. Sarter, Cognitive Neuroscience Search Committee, Department of Psychology, 48 Townshend Hall, Ohio State University, Columbus, OH 43210** by 15 January 1991. *Ohio State is an Equal Opportunity Employer.*

DEPARTMENT OF GEOLOGY UNIVERSITY OF TORONTO ISOTOPE GEOLOGIST

Applications are invited for a tenure-track position in the field of isotope geochemistry, applied primarily to environmental earth sciences. Requirements include a Ph.D. degree or equivalent and established ability in research. Teaching is required at an advanced level in the field of specialty and in other areas of geology at a more general level.

The appointment is at the **ASSISTANT PROFESSOR** level and will begin in July 1991. Salary commensurate with experience and qualifications. Present (1990-91) salary range for this level is \$35,000 to \$59,500.

This is one of two positions being advertised, the other being in the field of environmental earth sciences. The department now occupies a new building in the Earth Sciences Centre on the Downtown campus with a "clean" analytical laboratory. The university has allocated \$400,000 from the 1990-91 budget to help with the purchase of analytical equipment. In addition to an existing stable isotope mass spectrometer in the department, there is a tandem accelerator mass spectrometer laboratory at IsoTrace in the physics department.

Letters of application, together with a résumé containing a description of current and proposed research activities, should be sent to: **Professor John Westgate, Chairman, Department of Geology, Earth Sciences Centre, University of Toronto, 22 Russell Street, Toronto, Ontario, Canada, M5S 3B1.** FAX: 416-978-3938.

Applicants should also arrange for letters of reference from three referees to be sent directly to the same address by the closing date for applications, 1 March 1991.

The University of Toronto encourages both women and men to apply.

POSITIONS OPEN

ASSISTANT PROFESSOR THERAPEUTIC RADIOLOGY/ RADIATION ONCOLOGY FULL TIME, TENURE TRACK

Requirements: M.D. and Board-certified or Board-eligible in therapeutic radiology/radiation oncology. Post residency, academic experience, and experience and training in interstitial radiation therapy. Pediatric oncology experience desirable. Must be interested and experienced in academic research, writing, and teaching. This position entails patient care responsibilities. Salary open to negotiation depending upon experience. Apply to: **Search Committee, Department of Therapeutic Radiology, Box 494 University of Minnesota Hospital and Clinic, Harvard Street at East River Road, Minneapolis, MN 55455** before 1 March 1991.

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

DEVELOPMENTAL PSYCHOBIOLOGIST. The Department of Psychology at Michigan State University is seeking outstanding applicants to fill an anticipated tenure-stream position at the rank of **ASSISTANT PROFESSOR** effective 1 September 1991. We seek a basic scientist in the area of developmental psychology who has demonstrated the potential to be a highly productive scholar and effective teacher in our undergraduate and graduate programs. Candidates with an interest in behavioral neuroscience are especially encouraged to apply. Interested persons should submit their curriculum vitae and letters of reference to: **Professor Antonio Nunez, Department of Psychology, Michigan State University, East Lansing, MI 48824-1117.** Minority candidates are especially encouraged to apply. We are an Equal Opportunity/Affirmative Action Employer.

PLANT ECOLOGY/ ENVIRONMENTAL PLANT BIOLOGY

The Department of Biology, West Virginia University, invites applications for a tenure-track position at the **ASSISTANT PROFESSOR** level for individuals interested in global environmental change and its effects on individuals, populations, communities, or ecosystems. Development of an externally funded, productive research program is expected. Ph.D. required. Send curriculum vitae, statement of research interests, and names/addresses of three references by 11 January 1991 to: **Dr. James B. McGraw, Search Committee Chair, Department of Biology, West Virginia University, Morgantown, WV 26506-6057.** West Virginia University is an Equal Opportunity/Affirmative Action Institution. Women and minorities are encouraged to apply.

ASSISTANT PROFESSOR, LIMNOLOGY. Tenure-track position available 1 July 1991, subject to budgetary confirmation. Ph.D. and strong commitment to research and teaching required. Duties include teaching limnology (aquatic ecology) and research on the ecology of inland waters. Send résumé, names of three referees, and statement of research and teaching interests by 1 February 1991 to: **R. J. F. Smith, Biology Department, University of Saskatchewan, Saskatoon, Saskatchewan, Canada S7N 0W0.** Telephone: 306-966-4400. FAX: 306-966-4461. Electronic mail: **SMITHR@SASK.USASK.CA.** In accordance with Canadian immigration requirements, priority will be given to Canadian citizens and permanent residents. The University of Saskatchewan is committed to the principle of Employment Equity.

ASSISTANT PROFESSOR INVERTEBRATE PALEOBIOLOGY AND/OR MARINE MICROPALAEONTOLOGY

The Department of Earth and Planetary Sciences at Harvard University seeks to fill a position in the area of invertebrate paleobiology and/or marine micropaleontology at the assistant professor level. The incumbent will be expected to develop a strong research program in this subject area and to teach at the undergraduate and graduate levels in the areas of paleobiology and stratigraphy. Applicants should send a statement of research interests and curriculum vitae, and arrange for three letters of reference to be sent to: **Professor James J. McCarthy, Chair, Paleobiology Search Committee, MCZ, Harvard University, 26 Oxford Street, Cambridge, MA 02138.** All materials should be received by 9 January 1990. Applications from women and minorities are especially encouraged.

POSITIONS OPEN



UNIVERSITY OF MANITOBA FACULTY OF DENTISTRY

ASSISTANT PROFESSOR

Applications are invited for a term position at the rank of assistant professor beginning 1 April 1991 in the Department of Oral Biology, Faculty of Dentistry, University of Manitoba. The department is responsible for teaching basic biological sciences, together with related areas in dentistry, to undergraduate, graduate, and dental hygiene students. Oral biology has active M.Sc. and Ph.D. programs and members of the department conduct research into connective tissue, mechanisms of secretion, endocrine function, salivary physiology, and microbial ecology and metabolism. Applicants should have a Ph.D. degree and be trained in microbial molecular biology and have a good knowledge of anaerobic microbiology and metabolism. The successful applicant will initially be expected to develop an active research program in aspects of the molecular biology of oral anaerobic bacteria, ideally with an emphasis on cell surface structure. Salary commensurate with qualifications and experience.

The University of Manitoba encourages applications from qualified women and men, including members of visible minorities, aboriginal people, and persons with disabilities. The university provides a smoke-free work environment. Priority consideration will be given to Canadian citizens and permanent residents.

Applicants should submit their curriculum vitae and an outline of their research goals and arrange for three letters of reference to be sent to: **Dr. G. H. Bowden, Professor and Head, Department of Oral Biology, Faculty of Dentistry, University of Manitoba, 780 Bannatyne Avenue, Winnipeg, Manitoba, Canada R3E 0W2.** Deadline for applications is 1 February 1991.

The Department of Physical Education at the University of California, Berkeley is seeking to fill a tenure-track position at the **ASSISTANT PROFESSOR** (nontenured) level, effective fall of 1991, in the area defined below. The appointee will be expected to establish and maintain independent research programs in her/his area of specialty. Applicants must have Ph.D. degree and relevant postdoctoral training or comparable experience.

A specialist to investigate the nature, extent, and role of fitness and health, physical activities, and sport in contemporary human cultures and societies. Applicants should have sufficient breadth to interact with faculty of a department whose research extends from exercise biochemistry to the history of health, physical activity, and sport.

Application procedures: Submit a letter of application and current curriculum vitae, and names of five references by 15 February 1991 to:

**Professor Roberta J. Park, Chair
Department of Physical Education
200 Hearst Gymnasium
University of California
Berkeley, CA 94720**

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

ASSISTANT PROFESSORS, BIOLOGY. Three tenure-track positions starting 25 August 1991. Teaching experience desirable. (i) **GENERAL BIOLOGIST** to teach course for nonmajors and coordinate audiotutorial laboratory. Doctorate required. Teach using computer-assisted instruction, grant-writing experience, an interest in teacher preparation, and a specialty to complement current faculty desirable. (ii) Broadly trained **CELL BIOLOGIST** to teach cell biology, animal histology, and vertebrate embryology, as well as biology for nonmajors. Doctorate preferred, A.B.D. considered. TEM experience preferred. (iii) Broadly trained **ECOLOGIST** to teach general ecology and plant taxonomy, as well as courses for nonmajors. Doctorate required. The department has modern equipment for centrifugation, microscopy, tissue culture, and electrophoresis. Send letter of application, curriculum vitae, all graduate/undergraduate transcripts, and three letters of recommendation by 31 January 1991 to: **William Brunkhorst, Biology Department, University of Wisconsin-Whitewater, Whitewater, WI 53190.** State clearly position for which applying. Equal Opportunity/Affirmative Action Employer.

POSITIONS OPEN

ANIMAL PHYSIOLOGIST. The Department of Biology at Swarthmore College invites applications for a 2-year faculty position, at the **ASSISTANT PROFESSOR** level, beginning September 1991. We seek applicants with a Ph.D. in animal physiology who have strong interests in research and undergraduate teaching. Teaching includes an intermediate course in comparative structure/function that includes vertebrates, an advanced course in an area of specialty, and participation in introductory biology. Interested individuals should submit: (i) curriculum vitae, (ii) three letters of recommendation, and (iii) a statement of teaching and research interests by 15 January 1991 to: **Dr. Jacob Weiner, Chair, Department of Biology, Swarthmore College, 500 College Avenue, Swarthmore, PA 19081-1397.** Minority candidates are encouraged to apply. Swarthmore College is an Equal Opportunity Employer.

MOLECULAR/CELL BIOLOGY

ASSISTANT PROFESSOR. Molecular/cell biologist. Tenure-track position at Earlham College to begin June or September 1991. Ph.D., teaching excellence, and research involving undergraduates expected. Teaching areas: molecular biology, developmental and cell biology. Department known for curricular innovation, quality teaching, and high proportion of majors going on to Ph.D.'s. Excellent teaching and research facilities. Summer research support. Earlham continues to build a vigorous academic community that reflects the gender and racial diversity of the society at large. We invite and encourage applications from African-Americans and women. Send curriculum vitae, teaching and research philosophy statement, transcripts, and three recommendations to: **Dr. Jerome Woolpy, Box 187-A, Earlham College, Richmond, IN 47374.** Review begins 15 January 1991. Equal Opportunity/Affirmative Action Employer.

UNIVERSITY OF SOUTH CAROLINA (USC) USC COASTAL CAROLINA COLLEGE WETLANDS ECOLOGIST

The School of Natural and Applied Sciences at USC Coastal Carolina College is seeking an **ASSISTANT PROFESSOR.** Full-time tenure-track position available 16 August 1991. Ph.D. required. Preference given to candidates with teaching experience, and research interests in wetlands processes or environmental and aquatic toxicology. Responsibilities include teaching introductory biology, microbiology for biology majors and pre-health professionals. There is the possibility of developing an appropriate upper level course. The successful candidate is expected to develop a research program which includes undergraduate majors. USC Coastal Carolina College, a 4-year campus in the University of South Carolina System, is located 9 miles west of Myrtle Beach. Each applicant should submit a letter of application, curriculum vitae, and names and phone numbers of three references to: **Dr. Janis W. Chesson, Assistant Chancellor for Human Resources and Affirmative Action, USC Coastal Carolina College, P. O. Box 1954, Conway, SC 29526.** Screening of applications will begin immediately and will continue until position is filled. USC Coastal Carolina College is an Affirmative Action/Equal Opportunity Employer.

IMMUNOLOGY/MICROBIOLOGY

The Department of Biology, University of St. Thomas, invites applications for a full-time, tenure-track position in immunology/microbiology. The appointment will be made at the **ASSISTANT PROFESSOR** level, effective September 1991. Responsibilities will include teaching upper-division courses for majors in microbiology and immunology, some laboratory teaching in general (nonmajors) and/or introductory (majors) biology, and establishing a vigorous research program involving undergraduate students. St. Thomas is a coeducational, Catholic liberal arts college committed to the total development of the individual student. The successful candidate will have a Ph.D. and a strong commitment to teaching at the undergraduate level and in a liberal-arts context. Postdoctoral teaching and research experience are preferred. Send letter of application, brief statements of teaching philosophy and research plans, and curriculum vitae, and have three letters of recommendation sent directly to: **Ms. Penny M. Pease, Mail #4050, University of St. Thomas, 2115 Summit Avenue, St. Paul, MN 55105-1096.** All materials must be received by 4 January 1991. The University of St. Thomas is an Equal Opportunity/Affirmative Action Employer.

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Immunex Corporation, a leading biotechnology company focused on the research, development, marketing and manufacturing of immunological therapeutic products, is seeking qualified candidates to join our Research and Development Group in the new position of Scientific Programming Manager.

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IMMUNEX CORPORATION Attn: Human Resources Dept.
51 University Street, Seattle, WA 98101. Fax: (206) 587-0606

Equal Opportunity Employer

ENDOWED PROFESSORSHIP IN ECOLOGY

ARIZONA STATE UNIVERSITY

The Department of Zoology solicits applications for the ULLMAN PROFESSORSHIP IN ECOLOGY, with emphasis in the field of Conservation Biology. Applicants should have established reputations for scholarly research, teaching, and public service. Appointment will be at the tenured, full professor level, with an annual research stipend. Submit a letter of application, curriculum vitae, and names and addresses of three references to:

Dr. W. L. Minckley, Search Committee Chair
Virginia M. Ullman Professorship
Department of Zoology
Arizona State University
Tempe, Arizona 85287-1501
Telephone 602-965-3571

Application deadline is January 15, 1991, or the 15th of each month thereafter until filled.

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ARIZONA STATE UNIVERSITY



RESEARCH DIRECTOR

EISAI LONDON RESEARCH LABORATORIES LIMITED

Over £50 million is being invested during the next 15 years by Eisai, a major Japanese pharmaceutical company, to build a new research laboratory within the campus of University College London. Planned to open in the Autumn of 1992, the Eisai London Research Laboratories (ELL) will carry out research in the neuroscience area, with emphasis on the molecular and cell biology of neurodegenerative disorders. Applications for the Research Director are now invited.

Applicants must be neuroscientists who have demonstrated their ability to carry out innovative research and have experience of team leadership and management in either an academic or industrial environment. The successful candidate, who will be chosen in consultation with the Scientific Advisory Board (Professors G Burnstock, E Barnard, D Brown and M Raff), will have a major role in the establishment of the research laboratories and thereafter will organize and lead his/her own research group and three others, each to be headed by senior scientists, and will liaise with company research groups internationally.

University College London was chosen as the site for this research centre because of its strength in the Neurosciences and integration of the ELL scientific staff into the academic research community will be encouraged at all levels. The Research Director will have an honorary appointment with an academic department at the appropriate level and be expected to continue to publish research and contribute to international meetings.

The starting salary will be individually negotiable within fairly wide limits and will reflect the seniority of this position. There will also be the usual package of benefits expected of a major company, including assistance with relocation.

Further details are available on request. Applications, including a comprehensive curriculum vitae, to reach: Mr Y Tsuchiya, Eisai London Research Laboratories Ltd., Darwin Building, University College London, Gower Street, London WC1E 6BT, by 20th December.

POSITIONS OPEN

Applications are invited for anatomist/physiologist (one position), water quality/limnologist (two positions) **ASSISTANT PROFESSOR**, tenure-track faculty. Candidates should have a Ph.D., evidence of excellence in teaching, and willingness to develop a research program involving undergraduate- and master's-level students. Submit curriculum vitae, description of teaching and research interests, names of at least three references, and undergraduate and graduate transcripts by 15 January 1991 to: **Dr. Robert S. Maples, Department of Biological and Environmental Sciences, McNeese State University, Lake Charles, LA 70609.** *An Affirmative Action/Equal Opportunity Employer.*

BIOLOGY: ASSISTANT PROFESSOR. West Chester University's Department of Biology seeks applicants for a tenure-track assistant professor to teach undergraduate courses in human anatomy and physiology (nonmajors), introductory cell physiology, general introductory biology, and graduate courses. Ph.D. in physiology or related fields; an active research program is expected. The department is particularly interested in candidates with strengths in animal physiology at the cell or organismal level. Send letter of application, curriculum vitae, all college transcripts, and at least three letters of reference postmarked by 28 January 1991 to: **Dr. Frank Fish, Department of Biology, West Chester University, West Chester, PA 19383.** *Affirmative Action/Equal Opportunity Employer. Women and minorities are encouraged to apply.*

UNIVERSITY OF MINNESOTA, MORRIS ECOLOGIST

ASSISTANT PROFESSOR, tenure track, at the University of Minnesota, Morris, beginning 16 September 1991. Candidates would be expected to (i) teach lecture and laboratories in the areas of general ecology, population ecology, and advanced botany, (ii) share in the teaching of introductory courses in biology, and (iii) participate periodically in the teaching of a one-quarter interdisciplinary course common to all freshmen. Candidates should have completed a Ph.D. by 16 September 1991 and have at least 2 years of teaching experience (graduate TA is acceptable), and should demonstrate the promise of excellence in teaching as well as being able to establish a research program in field ecology that can involve undergraduate students. Candidates should submit an application by 15 January 1991, including résumé, transcripts, a statement of teaching and research interests, and three letters of reference to: **Dr. James M. Olson, Chair, Division of Science and Mathematics, University of Minnesota-Morris, Morris, MN 56267.** *The University of Minnesota is an Equal Opportunity Educator and Employer, and specifically invites and encourages applications from women and minorities.*

MOLECULAR OR DEVELOPMENTAL BIOLOGY

The University of Calgary Faculty of Medicine invites applications for faculty positions at the **ASSISTANT PROFESSOR** level or higher. Qualifications include a Ph.D. and/or M.D., a minimum of 2 years of postdoctoral experience, and a proven record of excellence in research in the general area of eukaryotic gene regulation and the molecular biology of development.

The selected candidates must compete successfully for salary and establishment funding by application to the Alberta Heritage Foundation for Medical Research, and will have 75% of time protected for research. Rank and remuneration will be appropriate for qualifications and experience.

Please arrange to have three letters of reference sent directly, and please submit detailed curriculum vitae, a synopsis of research interests, and two reprints of recent publications, by 1 February 1991, to:

Dr. Gordon H. Dixon
Chairman, Search Committee
Department of Medical Biochemistry
The University of Calgary
3330 Hospital Drive, N.W.
Calgary, Alberta, Canada T2N 4N1

In accordance with Canadian immigration requirements, priority will be given to Canadian citizens and permanent residents of Canada. The University of Calgary has an Employment Equity Program and encourages applications from all qualified candidates, including women, aboriginal people, visible minorities, and people with disabilities.

POSITIONS OPEN

GENETICIST. The Department of Biology, University of North Carolina, Chapel Hill, seeks a geneticist investigating problems at the cellular or molecular level. The appointment will be effective 1 July 1991 at the level of **ASSISTANT, ASSOCIATE, OR FULL PROFESSOR.** The department anticipates expansion in this area including the recently advertised position for a developmental geneticist/developmental biologist. Applicants should send curriculum vitae, a statement of research interests and four letters of recommendation by 31 January 1991:

Chairman, Genetics Search
Department of Biology
University of North Carolina
Chapel Hill, NC 27599-3280

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

DEPARTMENT OF GEOLOGY UNIVERSITY OF TORONTO ENVIRONMENTAL EARTH SCIENTIST

The University of Toronto Geology Department plans to enhance its commitment and resources in the area of environmental earth sciences. Two tenure-track positions are now being offered in this area; one in isotope geochemistry (advertised separately), and one in the broad area of environmental earth sciences. Applications are invited for this second position, which could have any of a number of areas of emphasis, such as organic hydrochemistry, sedimentary/low temperature geochemistry, physical, biological, or chemical processes in sedimentary environments, surface chemistry, or biogeochemical applications. However, applications from scientists in any area who feel they can contribute to research and teaching in the environmental earth sciences will be considered. Requirements include a Ph.D. degree or equivalent and established ability in research. Teaching at an advanced level in the field of specialization and at a more general level in other areas of geology is also required.

The appointment is at the **ASSISTANT PROFESSOR** level and will begin in July 1991. Salary commensurate with experience and qualifications. Present (1990-91) salary range for this level is \$35,000 to \$59,500.

Letters of application, together with a résumé containing a description of current and proposed research activities, should be sent to: **Professor John Westgate, Chairman, Department of Geology, Earth Sciences Centre, University of Toronto, 22 Russell Street, Toronto, Ontario, Canada M5S 3B1.** FAX: 416-978-3938. Applicants should also arrange for letters of reference from three referees to be sent directly to the same address by the closing date, March 1991.

The University of Toronto encourages both women and men to apply.

In accordance with Canadian immigration requirements, this advertisement is directed to qualified Canadian citizens and permanent residents (landed immigrants) of Canada.

Tenure-track **ASSISTANT/ASSOCIATE PROFESSOR POSITIONS.** Must have Ph.D. requirements in a discipline of biology completed by 1 September 1991. Cell physiologist: Must have strong background in molecular cell biology and training and research experience in plant cell physiology and/or plant molecular biology. Duties: teaching general biology, senior level cellular physiology, and graduate level courses; supervising graduate student research. Biologist: Must have college teaching experience. Duties: teaching undergraduate courses in general biology for teacher preparation program, general education, and biology majors; teaching upper division and graduate courses in applicant's area of specialization as needed; coordinating teacher preparation program; supervising graduate research. Preference given to applicants with experience teaching K-12 or working in teacher preparation programs and with training in evolutionary biology, biometrics, or computer applications in biology. Submit résumés, all transcripts, and names of three references to: **Chair, Department of Biological Sciences, California State University, Sacramento, CA 95819-6077.** Closing date: 23 January 1991.

The department is committed to improving faculty diversity. Women, underrepresented ethnic minorities, disabled individuals, and Vietnam-era veterans are encouraged to apply. Affirmative Action/Equal Opportunity Employer.

POSITIONS OPEN



MOLECULAR BIOLOGIST

The Institute of Chemical Toxicology, Wayne State University, is seeking to fill tenure-track faculty positions at the **ASSOCIATE/FULL PROFESSOR** level in the area of eukaryotic molecular biology. Preference will be given to applicants interested in regulation of gene expression to include those with experience in oncogenes, growth factors, retroviruses, and in the molecular/cellular effects of toxic substances and carcinogens (e.g., DNA repair). Applicants in other areas of eukaryotic molecular biology will be given serious consideration. The Institute of Chemical Toxicology offers a research-intensive environment and faculty are expected to develop vigorous, independent, extramurally funded research programs. Excellent new laboratories, equipment, support facilities, and generous start-up funds are available. Candidates should have a Ph.D., M.D., or D.V.M. degree and a strong track record in research. Send curriculum vitae and a brief description of research interests to:

Dr. Raymond F. Novak
Institute of Chemical Toxicology
Wayne State University
2727 Second Avenue, Room 4000
Detroit, MI 48201

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

DEVELOPMENTAL PSYCHOLOGIST. The Colorado College seeks applications for a tenure-track **ASSISTANT/ASSOCIATE PROFESSORSHIP** beginning fall 1991. Applicants should have a Ph.D. in psychology and a commitment to undergraduate teaching and research. Teaching responsibilities include human development, research design, and courses in the general psychology curriculum. All candidates must have an active interest in research on human development. The Colorado College is a private liberal arts institution which is committed to excellence in teaching and research. Salary is competitive. Applicants should send curriculum vitae, a statement of research interest, and three letters of recommendation to: **J. Horner, Search Committee, Department of Psychology, The Colorado College, Colorado Springs, CO 80903.** Application deadline: 28 January 1991. *The College is an Equal Opportunity Employer and strongly encourages women and minorities to apply.*

GENETICIST AND MEDICAL MICROBIOLOGIST

The Biology and Microbiology Department at the University of Wisconsin-Oshkosh is seeking applicants for two entry level tenure-track **ASSISTANT PROFESSOR** positions, geneticist and medical microbiologist, beginning 1 September 1991.

• **GENETICIST:** Teaching responsibilities in basic genetics and share teaching of introductory biology. Ph.D. in the area of eukaryotic genetics required. Postdoctoral and teaching experience desirable. Candidate is expected to develop a research program, supervise master's theses, and pursue extramural funding. Candidate may develop a course in area of interest.

• **MEDICAL MICROBIOLOGIST:** Teaching responsibilities include medical microbiology and immunology. Ph.D. in microbiology with specialty in medical microbiology and strong background in immunology is required. Candidate will maintain a close liaison with medical technology program. Postdoctoral and teaching experience desirable. Candidate is expected to develop a research program, supervise master's theses, and pursue extramural funding.

The university has a unique Faculty Development Program for limited funding of research and to provide matching funds for extramural grants. Screening of applicants begins 15 January 1991 and will continue until the position is filled. Send letter of application, résumé, three current letters of recommendation, and official transcripts to: **M. A. Rouf, Chair, Department of Biology and Microbiology, University of Wisconsin-Oshkosh, Oshkosh, WI 54901.** *The University of Wisconsin-Oshkosh is an Affirmative Action/Equal Opportunity Employer.*

THE UNIVERSITY OF CHICAGO

PLANT MOLECULAR BIOLOGY

The Department of Molecular Genetics and Cell Biology invites applications for new faculty positions in the field of plant molecular biology at the assistant professor level, however exceptional candidates at any level will be considered. We are especially interested in candidates using molecular genetic approaches to understanding plant development, but the quality of the research program will be the most important consideration. Please submit application and include three letters of recommendation by January 31, 1991 to:

Dr. Anthony P. Mahowald
Chairman
Department of Molecular Genetics
& Cell Biology

THE UNIVERSITY OF CHICAGO

920 E. 58th Street
Chicago, IL 60637
(312) 702-1620

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EXECUTIVE OFFICER COUNCIL ON UNDERGRADUATE RESEARCH

Applicants, nominations or inquiries are invited for the position of Executive Officer of the Council on Undergraduate Research. CUR is a national society dedicated to the advancement of scientific research by students and faculty at primarily undergraduate colleges and universities. Membership is available and open to anyone with such an interest. CUR is currently organized into biology, chemistry, geology, mathematical sciences, physics/astronomy and at-large sections governed by 122 Councilors elected by the membership. CUR publishes a quarterly newsletter and directories of research at undergraduate institutions, holds semi-annual conferences for science faculty, administrators, and representatives of federal funding agencies and private foundations, sponsors undergraduate summer research fellowships, and provides consultants to undergraduate science departments. The Executive Officer will coordinate the activities of the volunteer councilors, administer all CUR programs, and maintain liaisons with other scientific organizations. Candidates should have both organizational talent and experience with scientific research at primarily undergraduate institutions. The initial appointment is for a three year term, renewable after review. The salary is competitive with academic salaries at professional levels. For further information, write to Professor Stuart B. Crampton, President, Council on Undergraduate Research, Department of Physics, Williams College, Williamstown, MA 01267.

Senior Scientist Junior Scientist Postdoctoral Fellow

The Molecular Pharmacology and Biochemistry Department is seeking three individuals with B.S., M.S., or Ph.D. degrees or equivalent to join a multidisciplinary research team studying the structure-function relationships of therapeutically important receptors and signal transduction systems. Candidate should have a strong background in cloning and recombinant DNA techniques, protein expression and mutagenesis, or biochemical and pharmacological characterization of membrane proteins. An interest in endocrine and CNS biochemistry and a demonstrated ability for creative and independent basic research are desirable.

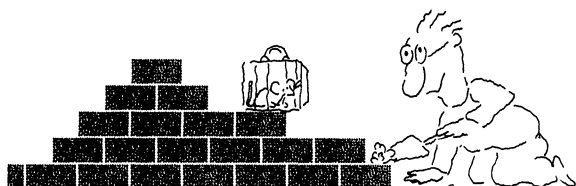
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Faculty Positions In

MOLECULAR NEUROBIOLOGY

Applications are invited for tenure track faculty positions at the Assistant Professor level. Successful candidates will occupy new laboratories on the neurobiology floor of the Ohio State Biotechnology Center and hold an academic appointment in the College of Biological Sciences, Medicine or Pharmacy. Applicants should demonstrate exceptional potential to develop strong research programs that apply recombinant DNA methodology to address significant problems in neurobiology. The Ohio State University has made a major commitment to establish an outstanding interdisciplinary program in molecular neurobiology that is reflected by the quality research facilities and highly competitive start-up funds and salary that accompany these faculty positions. The Ohio State University is the flagship institution of the State higher education system. It is located in Columbus, the state capital, a growing, yet highly affordable metropolitan area of about 1.3 million people that was recently named by Newsweek magazine as one of the country's top 10 cities.

Applicants should submit a curriculum vitae, statement of research plan and names, addresses, and telephone numbers of three references by January 15, 1991 to: **Dr.**

Anthony Young, Chairperson,
Molecular Neurobiology
Search Committee, Ohio State
Biotechnology Center, 207
Rightmire Hall, 1060 Carmack
Rd., Columbus, OH 43210. The Ohio State University is an Equal Opportunity/Affirmative Action Employer.

**THE
OHIO
STATE
UNIVERSITY**

POSITIONS OPEN

ASSISTANT PROFESSOR MICROBIAL GENETICS

The Division of Biology at Kansas State University (KSU) has a tenure-track position available at the assistant professor level effective August 1991. Applications are invited from investigators with postdoctoral experience in microbial genetics. The division has a strong research program in microbiology and genetics, excellent facilities, and a distinguished faculty with several millions of dollars in extramural grants. The successful candidate will be expected to establish a vigorous and creative scholarly program, and to participate in our undergraduate and graduate instruction. Candidates should apply by 7 January 1991 by submitting curriculum vitae, a brief description of future research plans, and having three letters of reference to:

Terry C. Johnson, Director
Division of Biology, Ackert Hall
Kansas State University
Manhattan, KS 66506-4901

KSU is an Equal Opportunity/Affirmative Action Employer.

ASSISTANT/ASSOCIATE PROFESSOR. The Institute for Toxicology, School of Pharmacy, University of Southern California. Applicants who have an ongoing research program in free-radical biology or chemistry with active interests in molecular biology and/or neuropharmacology as well as a strong commitment to teaching are sought for a tenure track position available 1 July 1991. Complete curriculum vitae and the names of three references should be submitted by 15 February 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.*

ASSISTANT OR ASSOCIATE PROFESSOR DEPARTMENT OF GEOGRAPHY AND EARTH RESOURCES

Half-teaching, half-research position assistant or associate professor jointly in the Department of Geography and Earth Resources and the Ecology Center at Utah State University. Tenure-track, academic year position, Ph.D. in meteorology or closely related field, established record of scholarship in meso-scale meteorology. Conduct research linking the atmosphere to surface hydrologic and biosphere processes at various scales, collaborate with people working in these areas, help develop a multidisciplinary weather research lab, develop own research program in applied meteorology, and teach two or three specialty courses. Send curriculum vitae and names of four referees to: **Ted J. Alsop, Chair Search Committee, Department of Geography and Earth Resources, Utah State University, Logan, UT 84322-5240.** Deadline 1 January 1991 or until suitable candidate is found. *Utah State University is an Affirmative Action/Equal Opportunity Employer.*

WATERSHED EXTENSION SPECIALIST. Department of Geography, Utah State University (USU) invites applications for a tenure-track position as an extension specialist and **ASSISTANT PROFESSOR** in watershed science. The successful candidate will also be a member of the interdepartmental Watershed Science Unit in the College of Natural Resources. We are interested in candidates with expertise in surface water quality and riparian area management and who have broad backgrounds in natural resources management. The successful applicant will be expected to provide technical assistance to county and state extension specialists, federal agency personnel, watershed user groups, and public land managers, and publish in suitable extension outlets. The position in suitable extension outlets. The position is a 12-month appointment with 75% extension and 25% teaching and research. Applicants must be willing to travel extensively. Ph.D. required with at least one degree in watershed management, or a closely allied field such as physical geography, range management, forest science, fisheries, or wildlife science. Send a letter of application, résumé, transcripts, and have three letters of recommendation sent to: **Dr. Michael P. O'Neill, Extension Watershed Specialist Chair, Department of Geography, Utah State University, Logan, UT 84322-5420.** The application deadline is 31 January 1991 or until a suitable candidate is found. *USU is an Affirmative Action/Equal Opportunity and Immigration Reform and Control Act Employer.*

POSITIONS OPEN



Wayne State University

TOXICOLOGIST

The Institute of Chemical Toxicology, Wayne State University, which occupies approximately 30,000 square feet of renovated laboratory space, invites applications/nominations for tenure-track faculty positions at the **ASSOCIATE/FULL PROFESSOR** level. Preference will be given to candidates having a strong background in areas related to respiratory toxicology or immunotoxicology. Excellent applicants in other areas of toxicology will be given serious consideration. The successful applicants will be expected to develop vigorous, independent, extramurally funded research programs. Excellent new laboratories, equipment, support facilities, and generous start-up funds are available. Candidates should have a Ph.D., M.D., or D.V.M. degree and a strong track record in research. Send curriculum vitae and a brief description of research interests to:

Dr. Raymond F. Novak, Director
Institute of Chemical Toxicology
Wayne State University
2727 Second Avenue, Room 4000
Detroit, MI 48201

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

MOLECULAR DEVELOPMENTAL BIOLOGY

The Department of Cell Biology and Neuroanatomy at the University of Minnesota is seeking highly qualified candidates for a position in molecular developmental biology of eukaryotes. Appointment can be either at the **ASSISTANT PROFESSOR** (tenure track; requires involvement in quality research accepted or published in peer-reviewed journals) or **ASSOCIATE PROFESSOR** (tenured; requires professional distinction in research and writing and effectiveness in teaching and advising) level. Applicants must have a relevant graduate degree (Ph.D. and/or M.D. or equivalent foreign degree) with at least 2 years of productive postdoctoral experience. It is expected that the successful candidate will complement and extend existing research strengths in the department. Current focuses in the department include cell and molecular biology of cytoskeleton and membranes, and cellular developmental neurobiology. Required teaching will be in the medical/dental school curriculum. Training of graduate students and postdoctoral fellows, as well as teaching at the graduate level is expected.

Applications (to be received no later than 18 January 1991) containing current curriculum vitae, a statement of research goals, three letters of assessment, and any other relevant information should be sent to: **Developmental Biology Search Committee, Department of Cell Biology and Neuroanatomy, 4-135 Jackson Hall, 321 Church Street S.E., Minneapolis, MN 55455.**

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

ASSISTANT/ASSOCIATE PROFESSOR IMMUNOLOGY

The Department of Microbiology and Immunology, University of North Dakota (UND) School of Medicine, invites applications and nominations for a full-time, 12-month, tenure-track position at the rank of assistant or associate professor. Candidates should have a Ph.D. and postdoctoral experience with a strong background in immunology. The appointee is expected to develop a competitive research program, teach medical immunology, and actively participate in the training of graduate students.

Applicants with a commitment to both research and teaching should send a letter of application, curriculum vitae, a statement of research and career objectives, and the names, addresses, and telephone numbers of three references from whom the applicant has requested letters to: **Dr. James J. Kelleher, Chairman, Department of Microbiology and Immunology, School of Medicine, University of North Dakota, Grand Forks, ND 58202.**

Review of applications will begin in January 1991 and continue until an appointment is made.

UND is an Equal Opportunity/Affirmative Action Employer.

POSITIONS OPEN

MATHEMATICAL STATISTICIAN

To develop design of finite element model of human brain and skull, and design algorithms for solving equivalent dipole models and conduct simulation studies. Candidate must have Ph.D. degree in mathematical statistics or related field and working knowledge of UNIX. Experience with electromagnetic theory would be helpful. Please send résumé to: **Box 135, SCIENCE.**

ASSISTANT/ASSOCIATE PROFESSOR (tenure track). Two positions available starting with 1991-92 academic year: (i) vertebrate developmental biology; (ii) invertebrate zoology/marine biology. For both positions earned Ph.D. required; evidence of a strong commitment to teaching and research. *Affirmative Action candidates are strongly encouraged to apply.* Rank and salary commensurate with qualifications and experience. Applicants should submit cover letter, detailed résumé, transcripts, and three current reference letters by 31 January 1991 to: **Dr. V. L. Holland, Chair, Biological Sciences Department, California Polytechnic State University, San Luis Obispo, CA 93407.** Telephone: 805-756-2789. *Affirmative Action/Equal Opportunity Employer.*

ASSISTANT/ASSOCIATE PROFESSOR. Department of Veterinary Pathology, School of Veterinary Medicine, Louisiana State University (LSU), invites applications for a tenure-track faculty position in experimental pathology. Applicants should have experience in pathology at molecular and cellular level. Ph.D. degree is required. D.V.M. and pathology board desirable. Primary duties: development of an independently funded research program and graduate instruction. Salary commensurate with qualifications. Hire date is 1 July 1991. Application deadline is 1 March 1991, or until suitable candidate is selected. Applicants submit: curriculum vitae, names of three references, summary of current research activities, to: **Dr. H. W. Casey, Head, Department of Veterinary Pathology, Louisiana State University, Baton Rouge, LA 70803.** *LSU is an Equal Opportunity/Affirmative Action Employer.*

YESHIVA UNIVERSITY DEPARTMENT OF CHEMISTRY

The small, selective liberal arts colleges of Yeshiva University seek a tenure-track **ASSISTANT/ASSOCIATE PROFESSOR** starting in fall 1991. Teaching load is 12 hours/semester in general chemistry for majors and nonmajors, physical chemistry, advanced inorganic chemistry, and related laboratories. Rank and salary commensurate with background and experience. Qualifications: Ph.D., postdoctoral college teaching, and research experience with a record of excellence, and a commitment to undergraduate teaching and research. Send letter, curriculum vitae, and have three letters of reference sent to: **Professor Carl Feit, Chemistry Search Committee, Yeshiva College, New York, NY 10033.** *Equal Opportunity Employer.*

ASSISTANT/ASSOCIATE PROFESSOR INFECTIOUS DISEASES

The ID Section at Hospital of the University of Pennsylvania has openings for assistant and associate professors who are Board-certified/Board-eligible in ID. Applicants must have excellent capabilities in basic science research. Qualified individuals with interests in all ID-related areas of investigation are invited to apply. Particular emphasis in recruiting will be placed on individuals experienced in herpesviruses, retrovirology, and bacterial pathogenesis. Clinical responsibilities include conducting attending rounds in ID and Internal Medicine for a total of 2 to 3 months yearly. Send curriculum vitae to: **Harvey Friedman, M.D., Chief, Infectious Diseases, 536 Johnson Pavilion, University of Pennsylvania, Philadelphia, PA 19104-6073.** *Equal Opportunity/Affirmative Action Employer.*

The Department of Pediatrics at the University of Michigan is seeking a Board-eligible-certified **PEDIATRIC CARDIOLOGIST.** Duties include patient care, teaching, and research activities. *The University of Michigan is an Equal Opportunity/Affirmative Action Employer.* If interested, please send curriculum vitae to: **Annon Rosenthal, M.D., Director, Pediatric Cardiology Division, F 1310Z, C. S. Mott Children's Hospital, Box 0204, 1500 East Medical Center Drive, Ann Arbor, MI 48109-0204.**



**Our ideas created
an industry.
Yours will expand it.**

Applied Biosystems, a major supplier of systems and tools for biotechnology research, is having a remarkable impact on the advancement of scientific knowledge. As we grow, so does our need for top talent to join our team. Consider these opportunities in our expanding San Jose facility.

SCIENTIFIC/RESEARCH OPPORTUNITIES

Biochemical Scientist—Work in innovative R&D group engaged in developing capillary electrophoresis applications. PhD in Biochemistry or related discipline and up to 6 years of post-doctoral experience. Protein analysis preferred. Ref. #0748.

Scientist—Organic chemistry expertise in consumables development. MS/PhD plus 2–5 years of industrial experience including derivitization and modification of organic and inorganic surfaces, devising crosslinking methods of polymers, as well as overseeing scale-up of these processes. Ref. #0760.

Associate Scientist/HPLC—Instrument development. BS/MS in Chemistry/Biochemistry with minimum of 4 years of hands-on biochemistry-related HPLC experience. Ref. #0749.

Associate Scientist/HPEC—Develop protein separation methods using gel electrophoresis. PhD with 1–3 years of post-doctoral experience (or an MS with 5 years of experience) with extensive background in protein electrophoresis and purification. Ref. #0747.

Research Associate—BS in Chemistry/Chemical Engineering and up to 3 years of industrial experience. Devise and execute chemical and functional experiments on bioseparations products. Ref. #0759.

We offer a competitive salary and generous benefits package. For these San Jose positions, please send your resume, indicating Reference Code, to: Applied Biosystems, Inc., Human Resources, 850 Lincoln Centre Drive, Foster City, CA 94404. We are an equal opportunity employer.



Molecular Biologists

Du Pont Merck Pharmaceuticals has 2 challenging openings in the Molecular Biology Department in its Receptor Biology Group.

Molecular Biology Scientist

Candidate must have experience in a full range of recombinant DNA techniques to perform research on the cloning, expression and structure-function relationships of cellular receptors. The successful candidate should also possess an MS degree in Molecular Biology, Biology or Biochemistry with three or more years of laboratory experience and a demonstrated ability to conduct independent research. Experience with protein electrophoresis, immunochemical techniques and tissue culture is helpful. Exceptionally qualified candidates with BS degrees will also be considered.

Postdoctoral Visiting Scientist

Candidate will focus on purification, cloning, structure-function relationships and signal transduction mechanisms of cellular receptors. Applicants should have a PhD in Biochemistry, Immunology or Molecular Biology and publications dealing with receptor isolation, cloning and/or functional analysis. The appointment is for a period of one year, renewable for a second year upon mutual agreement.

Consider an innovative company that has strong concern for both its employees and our environment. Consider Du Pont. You'll find a stimulating environment at our Wilmington, Delaware location which offers a wide range of academic, cultural and recreational activities. Qualified candidates for both positions should send a curriculum vitae and three letters of recommendation, indicating position of interest to: Du Pont Human Resources, Room PSS-0031, Wilmington, DE 19898.



*An Equal Opportunity
Employer*

POSITIONS OPEN

MOLECULAR BIOLOGY

The Institute of Arctic Biology and the Department of Biology and Wildlife have an opening for a tenure-track position in molecular biology at the **ASSISTANT OR ASSOCIATE PROFESSOR** level commencing 1 August 1991. Applicants should have an earned Ph.D. in an appropriate discipline and postdoctoral research experience. This position is part of an expanding program in biochemistry and molecular biology at the University of Alaska Fairbanks. The successful candidate will be expected to establish a vigorous, independent research program in eukaryotic gene regulation that will attract outside funding. Teaching responsibilities include one graduate-level course in eukaryotic gene regulation and one undergraduate biology course per year. The program will provide significant start-up funds. Please submit a letter of application, curriculum vitae, statement of research and teaching interests, relevant reprints, and three letters of reference by 15 January 1991 to: **Molecular Biology Search Committee, Dr. John W. Keller, Chair, Institute of Arctic Biology, University of Alaska Fairbanks, Fairbanks, AK 99775-0180. Women and minorities are specifically encouraged to apply. The University of Alaska Fairbanks is an Equal Opportunity/Affirmative Action Employer.**

PROFESSOR AND CHAIR, DIVISION OF ENTOMOLOGY. A 50% administration (15 faculty) and 50% research/graduate education position, arthropods of agricultural importance. Requires Ph.D. in entomology or related field; U.S. citizen or permanent resident. Deadline for receiving applications and supporting material is 4 February 1991 or may be extended until a qualified candidate is selected. Contact: **J. P. McCaffrey, Division Chair Search Committee, Department of Plant, Soil, and Entomological Services, University of Idaho, Moscow, ID 83843. Telephone: 208-885-6277. An Equal Opportunity/Affirmative Action Employer.**

DEPARTMENTAL CHAIR. The Department of Biological Sciences at the University of Alabama in Huntsville (UAH) seeks a chairperson with research expertise in microbiology; particularly immunology or other fields complementary to biotechnology. We seek candidates with strong skills in the administration of developing programs as we are proposing a biotechnology Ph.D. to add to our B.S. and M.S. programs. The university is a regional institution committed to high academic standards and has close ties to NASA's Marshall Space Flight Center and Alabama A&M University. We anticipate appointment at the senior associate or full professor level. Send curriculum vitae, a statement of research interests, selected reprints, and the names and addresses of three referees by 1 February 1991 to: **Biology Search Committee, Office of the Dean, College of Science, University of Alabama in Huntsville, Huntsville, AL 35899.**

Women and minority candidates are strongly encouraged to apply. UAH is an Affirmative Action/Equal Opportunity Employer.

CHAIRPERSON. Department of Pathology. The Albert Einstein College of Medicine and Montefiore Medical Center seek a physician-scientist to chair their Department of Pathology. The chairperson of this unified department must provide leadership to a research-oriented faculty, to the teaching of medical and graduate students, residents and fellows, and to clinical activities in anatomic pathology at four teaching hospitals. Applications and nominations should be sent to: **Dr. Dominick Purpura, Dean, Pathology Search Committee, Attention: Sara Briller, Office of the Executive, AECOM, Belfer Building, Room 302, Jack and Pearl Resnick Campus, 1300 Morris Park Avenue, Bronx, NY 10461. Equal Opportunity Employer.**

CYTOGENETICIST. Vivigen Laboratory, located in scenic Santa Fe, has an opening for an ABMG Board-certified or Board-eligible cytogenetics **LABORATORY DIRECTOR**. Applicants should hold a Ph.D. or M.D. degree with a strong interest in clinical service. This position offers an excellent salary and benefits package. Send curriculum vitae and three references to:

**Kirk Aleck, M.D.
Vivigen, Inc.
2000 Vivigen Way
Santa Fe, NM 87505**

POSITIONS OPEN

CHAIRPERSON, PHYSIOLOGY. The Medical College of Pennsylvania invites applications and nominations for the position of Chairperson, Department of Physiology.

The department has recently been formed and has been targeted for significant expansion in personnel and space. This is an excellent opportunity for a leading scientist to develop a nationally recognized research and training program. The medical college seeks a distinguished educator with an established record of scientific productivity and ability to secure external funding, along with excellence as a teacher and leader. Cell or membrane physiology and molecular biology are areas of particular interest. A letter of interest or nomination, curriculum vitae, and the names of at least three references should be sent to: **Alan S. Bellack, Ph.D., Chair, Physiology Search Committee, Department of Psychiatry, The Medical College of Pennsylvania, 3200 Henry Avenue, Philadelphia, PA 19129. Equal Opportunity/Affirmative Action Employer.**

NEUROBIOLOGY/CELL BIOLOGY

Applications are invited for two tenure-track or tenured positions at **ASSISTANT TO FULL PROFESSOR** levels. Available 1 September 1991. Candidates should have a Ph.D., M.D., or equivalent degree, and have demonstrated ability to conduct independent research and attract extramural funding. All areas of specialization are encouraged to apply, although special consideration will be given to those interested in cellular developmental biology, membrane structure and function, neural plasticity, and regeneration. The candidates will be expected to participate in team teaching of tissue biology or neuroanatomy to medical students. Applicants should submit curriculum vitae, a brief statement of research interests, representative reprints, and names of three references by 31 January 1991 to: **Dr. George D. Pappas, Search Committee, Department of Anatomy and Cell Biology, University of Illinois, College of Medicine at Chicago, P.O. Box 6998 (M/C 512), Chicago, IL 60680.**

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

CHAIRPERSON

Department of Physiology, School of Medicine, University of North Dakota. We invite applications from individuals holding a Ph.D. and/or M.D. degree with an outstanding record of extramurally funded research, a strong teaching record, and enthusiasm for medical student and graduate student education. We are seeking candidates from a wide spectrum of disciplines and research areas within physiology. In addition to several strong programs in cellular and molecular biology in the medical school, opportunities exist for interactions with the U.S. Department of Agriculture Human Nutrition Laboratory and with various aspects of aerospace sciences. The salary for the position will be competitive. Review of applications will begin 15 February 1991 and continue until the position is filled. Interested applicants should send curriculum vitae, a summary of research goals, and at least three letters of reference to: **Dr. Edward C. Carlson, Physiology Search Committee Chair, Department of Anatomy and Cell Biology, School of Medicine, University of North Dakota, Grand Forks, ND 58202.**

The university is an Equal Opportunity/Affirmative Action Employer.

FACULTY POSITIONS BIOMEDICAL ENGINEERING

The University of Southern California invites applications for tenure-track faculty positions in the areas of bioinstrumentation/bioelectronics; biosensors; cardiovascular, neural, and neuromuscular systems; medical imaging and signal processing; cellular bioengineering; or laser applications in medicine. Duties will include both teaching and research. Rank and salary will be commensurate with qualifications. Candidates must have a Ph.D. and/or M.D. degree and an established research record.

Send curriculum vitae and the names of five references to:

**Vasilis Z. Marmarelis, Chairman
Department of Biomedical Engineering
University of Southern California
Los Angeles, CA 90089-1451**

An Equal Opportunity/Affirmative Action Employer.

POSITIONS OPEN

VICE CHANCELLOR FOR ACADEMIC ADMINISTRATION UNIVERSITY OF MINNESOTA, DULUTH

The University of Minnesota, Duluth, invites nominations and applications for the position of vice chancellor for academic administration.

The position: The vice chancellor for academic administration exercises broad decision-making authority over the instructional program. Five school and college deans report to the academic vice chancellor, who provides leadership for the campus's academic administrative governing and policy-development body. As senior officer in charge of staffing the instructional program, the academic vice chancellor plays a significant role in the recruitment, retention, tenure, and promotion of faculty. The vice chancellor has discretion over the instructional budget.

The successful applicant should have an earned doctorate, J.D., or M.F.A. from an accredited institution; a strong record of teaching, research, and scholarly publication; and administrative experience with an understanding of budgetary planning. The candidate must also have a commitment to Affirmative Action, affirmative educational opportunities, and cultural diversity; to the mission of a public comprehensive university; and to shared governance. A minimum of 5 years of professional experience is required. The candidate must qualify for a professorship with tenure at the time of administrative appointment. Nominations are encouraged. Applications should be received and postmarked no later than 1 February 1991. The position is available in mid-summer of 1991. Salary is dependent on qualifications and experience. *Women and ethnic minorities are especially encouraged to apply.*

A complete application includes the following: a letter of interest; curriculum vitae, and five letters of reference. All letters of reference should be received by 15 February 1991. Please send nominations and applications to:

**Francis Guldbrandsen, Ph.D., D.Sc., Chair
Search Committee for Vice Chancellor
for Academic Administration
University of Minnesota, Duluth
Department of Instructional Science
221 Bohannon Hall, 10 University Drive
Duluth, MN 55812**

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

CHEMISTS—ENGINEERS PHYSICISTS—MATHEMATICIANS OPERATIONS RESEARCH SPECIALISTS INTERNATIONAL RELATIONS SPECIALISTS STATISTICIANS—ECONOMISTS GEOPHYSICISTS

This is an opportunity for scholars in these and other related disciplines to use their expertise to help the Arms Control and Disarmament Agency (ACDA) accomplish its mission of negotiating and implementing arms control treaties that will increase world security. During the 1991-92 academic year scholars could participate in such ACDA activities as devising treaty provisions that permit adequate treaty verification, evaluating data relating to compliance with treaties in force, evaluating the effect of treaty proposals on the strategic and conventional military balance, interagency discussions on arms control policy, and international negotiations on arms control treaties.

Visiting scholars must be citizens of the United States and on the faculty of a recognized institution of higher learning. For information, telephone: 202-647-4695 or write to: **Foster Fellow Visiting Scholars Program, Operations Research, Room 5726, ACDA, 320 21st Street, N.W., Washington, DC 20451.** Applications deadline is 31 January 1991.

**William C. Foster Fellows Visiting Scholars Program
U.S. Arms Control and Disarmament Agency
An Equal Opportunity Employer.**

TOXICOLOGIST/PATHOLOGIST

Large international drug company seeks a toxicologist/pathologist to manage its southern European laboratory. Drug industry or contract research industry experience required at a management level as are substantial scientific/professional credentials. Attractive salary, fringe benefits, and career development prospects are available. **Box 140, SCIENCE.**

POSITIONS OPEN

FACULTY FOR EUROPE AND ASIA

The University of Maryland anticipates openings for faculty to teach undergraduate science courses on U.S. military bases overseas. Requirements include the Ph.D. or two master's degrees, recent college teaching experience, U.S. citizenship, and competence to teach in two of the following fields: astronomy, biology, chemistry, computer studies, geology, mathematics, and physics. Renewable annual appointments begin August 1991. Frequent travel and the cost of schooling make these positions difficult for those with children. Send résumé to: **Dr. Ralph E. Millis, The University of Maryland University College, College Park, MD 20742-1642.** *Affirmative Action/Equal Opportunity Employer.*

FACULTY POSITION IN PLANT PHYSIOLOGICAL ECOLOGY SAINT MARY'S COLLEGE OF CALIFORNIA

Applicants are invited for a tenure-track position at the **ASSISTANT PROFESSOR** level to begin with the 1991-92 academic year. Qualifications include Ph.D. with a broad background in biology and research specialization in plant physiological ecology. Applicants must demonstrate excellence in teaching and commitment to an active research program involving undergraduates. Teaching responsibilities include plant physiology, general ecology, and introductory biology.

Saint Mary's College is a Catholic coeducational liberal arts college of over 3600 students (2100 undergraduates) located in the San Francisco Bay Area. We seek faculty with a solid liberal arts background who evidence a love of ideas, strong scholarship, and dedicated service. Send curriculum vitae, statement of teaching and research goals, transcripts (undergraduate and graduate), and three letters of recommendation to: **Dr. J. F. Lester, Department of Biology, P.O. Box 4507, Saint Mary's College, Moraga, CA 94575.** Consideration of completed applications will begin 4 January 1991 and continue until the position is filled.

Committed to diversity and an Equal Opportunity Employer, the college encourages women, people of color, disabled individuals, veterans, and Christian Brothers to apply.

THE RESEARCH INSTITUTE OF SCRIPPS CLINIC

Ph.D. Programs

■Macromolecular and Cellular Structure and Chemistry

■Chemistry

The Research Institute of Scripps Clinic will admit 5-10 highly qualified students for the fall of 1991 to begin studies for a Ph.D. program integrating cellular biology, structure and chemistry, and 5-10 students for a new Ph.D. program in chemistry.

Candidates for these programs must have earned a bachelor's degree and have a strong background in biology and/or chemistry. Qualified applicants will be asked to visit the Research Institute for an interview. Financial support will be provided to all accepted students.

Individuals interested in applying to either graduate program should send a letter describing their scientific interests and goals, as well as a resume of their educational background to:

Dean of Graduate Studies, MB6
The Research Institute of Scripps Clinic
10666 North Torrey Pines Road
La Jolla, CA 92037

These graduate programs are authorized by the California State Department of Education.

An Equal Opportunity Employer

 **SCRIPPS CLINIC**
AND RESEARCH FOUNDATION

POSITIONS OPEN

FACULTY POSITIONS IN DEVELOPMENTAL BIOLOGY

The Department of Biology at the University of Virginia invites applications from candidates who use molecular, cellular, and/or genetic approaches to study fundamental problems relevant to developmental biology. Areas of interest include, but are not limited to, gene regulation, cell-cell interactions, signal transduction, and protein-nucleic acid interactions. We anticipate that two tenure-track appointments will be made, one of which will be at the **ASSOCIATE OR FULL PROFESSOR** level. Applications should include curriculum vitae, description of research experience and future research plans, copies of recent publications, and three letters of reference. Send to: **Dr. Michael Wormington, Chair, Developmental Biology Search Committee, Department of Biology, University of Virginia, Charlottesville, VA 22901.** Applications will be reviewed beginning 1 January 1991 and will be considered until the positions are filled. *Equal Opportunity/Affirmative Action Employer.*

VISION SCIENTIST DEPARTMENT OF OPHTHALMOLOGY UNIVERSITY OF WASHINGTON SCHOOL OF MEDICINE SEATTLE, WASHINGTON

Applications are invited for a **FACULTY POSITION** in vision research to join a team of established investigators with primary interests in retinal morphology, biochemistry, development, and disease. Preference will be given to candidates with expertise in molecular and/or cell biology who have demonstrated research potential and a record of extramural funding. Candidates should possess a Ph.D. or M.D., an interest in eye diseases, ability and interest in teaching, and desire to collaborate with both basic scientists and clinicians. Submit curriculum vitae, three references, and a letter describing research interests, accomplishments, and teaching experience before 1 February 1991 to: **Dr. Richard Mills, Department of Ophthalmology, RJ-10, University of Washington, Seattle, WA 98195.** *The University of Washington is an Equal Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

FACULTY POSITION ENDOCRINOLOGY DIVISION DEPARTMENT OF MEDICINE MEDICAL UNIVERSITY OF SOUTH CAROLINA

This is a tenure-track position for a physician who is Board-certified in internal medicine and in endocrinology. Prerequisites are training in thyroid and molecular biology. Please submit your curriculum vitae, research interests, and three references to: **John A. Colwell, M.D., Ph.D., Director, Endocrinology Division, Medical University of South Carolina, Charleston, SC 29425.** *This institution is an Equal Opportunity/Affirmative Action Employer.*

THE UNIVERSITY OF CHICAGO IMMUNOLOGIST

The Committee on Immunology and the Department of Surgery of the University of Chicago are seeking applicants for at least two **FACULTY POSITIONS** (one junior and one senior position). We are committed to developing strong programs in the molecular aspects of the immunology and transplantation. We are seeking outstanding individuals who are using the approaches of molecular biology or cell physiology to examine basic mechanisms of antigen recognition, cell signaling events, or regulation of transplant rejection. Existing related research programs in the Committee on Immunology and The Department of Surgery include molecular and genetic aspects of T lymphocyte activation and regulation, modulation of transplantation rejection responses, and the structural aspects of T cell receptor/MHC antigen recognition. Candidates should have sufficient research experience to demonstrate both significant accomplishment and outstanding promise.

Letters of application, including curriculum vitae, bibliography, a brief statement indicating research interests, and the names of three references, should be sent to: **Dr. Jeffrey A. Bluestone, Chairman, Committee on Immunology, The University of Chicago, Box 424, 5841 South Maryland Avenue, Chicago, IL 60637.**

An Equal Opportunity Employer.

UNIQUE CAREER CHANGE OPPORTUNITY

Ph.D.s & Doctoral Professionals

The College of Osteopathic Medicine and Surgery in Des Moines, Iowa, offers an accelerated three-year program leading to the Doctor of Osteopathy (D.O.) degree. Doctors of Osteopathy are fully licensed physicians who practice all aspects of medicine in every state.

Your doctoral degree in biological sciences or medical sciences qualifies you to be considered for admission to this accelerated program.

The Graduate Professional Education Program (GPEP) features:

- Three years of didactic and clinical training.
- Significant reduction in total tuition and living costs compared to standard four-year medical programs.
- Financial assistance to qualified students.
- Self-paced learning through independent study.

For more information and an application contact:

Admissions Office — GPEP Program
**University of Osteopathic Medicine
and Health Sciences**
3200 Grand Avenue
Des Moines, IA 50312
(515) 271-1452

National Heart, Lung, and Blood Institute (NHLBI)

National Institutes of Health

POSTDOCTORAL AND TENURE TRACK POSITIONS

are available in the Laboratory of Molecular Cardiology to study the function, regulation and expression of contractile proteins in muscle and nonmuscle cells. This laboratory is composed of two groups, that of Dr. Robert S. Adelstein and that of Dr. James R. Sellers.

We presently have vacancies available for two positions:

Postdoctoral Fellow - we are seeking a candidate to study the interaction of smooth muscle and nonmuscle myosin with actin.

Senior Postdoctoral Fellow - we are seeking someone with at least three years of postdoctoral experience in the techniques of molecular genetics who is interested in applying these techniques to the study of the contractile proteins or related proteins.

Interested candidates should forward a current C.V. and bibliography along with names and addresses of three references to either **Dr. Sellers** or **Dr. Adelstein** at: **Laboratory of Molecular Cardiology, National Institutes of Health, Building 10, Room 8N-202, 9000 Rockville Pike, Bethesda, MD 20892, Telephone (301) 496-1865, Fax (301) 402-1542.**

NIH is an Equal Opportunity Employer

POSITIONS OPEN

FACULTY POSITION IN CELL BIOLOGY

The Department of Anatomy and Cell Biology and the Center for Reproductive Sciences at Columbia University, College of Physicians and Surgeons, jointly invite applications for a tenure-track position at the **ASSISTANT PROFESSOR** level. The applicant should have considerable promise and demonstrated achievement in cell biological research relevant to development and/or reproduction. Areas of particular interest include mechanisms of growth factor action, differentiation, and pattern formation. The successful applicant will be expected to establish an outstanding, extramurally funded research program and to contribute to the cell biological education of medical and graduate students. Candidates for this position should send curriculum vitae and a description of their proposed research program, and should arrange to have three letters of recommendation sent to: **Faculty Search Committee, Department of Anatomy and Cell Biology, Columbia University, College of Physicians and Surgeons, 630 West 168th Street, New York, NY 10032. Columbia University is an Affirmative Action Employer.**

FACULTY POSITION IN MOLECULAR GENETICS. The Department of Immunology/Microbiology at Rush Medical College invites applications for a faculty position in molecular genetics. Applicants must hold a Ph.D. and have postdoctoral training. Preference will be given to applicants in viral or bacterial genetics, but strong applicants in other areas of molecular genetics will also be considered. The department includes an active graduate program and vigorous research groups in molecular virology, immunology, and a developing focus on Borrelia. The college is part of a large teaching hospital/medical center. Salary and academic rank will be dependent upon experience and qualifications. Please send résumé with a description of research interests and three letters of recommendation by 1 March 1991 to:

Mark Peebles, Ph.D.
Head, Recruiting Committee
Department of Immunology/Microbiology
Rush Medical College
1653 West Congress Parkway
Chicago, IL 60612

Rush is an Equal Opportunity/Affirmative Action Employer.

TENURE-TRACK FACULTY POSITIONS

The Zoology Department of Oklahoma State University anticipates replacing two retiring faculty beginning August 1991. Ph.D. required; postdoctoral experience preferred. The department emphasizes environmental toxicology and fisheries and wildlife ecology and has a commitment to instructional excellence.

• **VERTEBRATE PHYSIOLOGIST** with research expertise in an area such as toxicology; teach mammalian physiology.

• **GENERAL BIOLOGY COORDINATOR** to teach one section each semester, coordinate laboratory and honors, and generate external funding for innovative instructional developments.

Contact: **Dr. Jerry Wilhm, Department of Zoology, Oklahoma State University, Stillwater, OK 74078 (405-744-5555)** for more information. To apply, submit a letter describing research and teaching interests, résumé, and transcripts. Request three references to send letters. Application deadline: 1 February 1991.

FACULTY APPOINTMENTS IN MOLECULAR CELL BIOLOGY

The Department of Cell Biology, University of New Mexico, is seeking two independent investigators working on problems related to basic cancer research; for example, cellular differentiation, growth control, or viral or chemical oncogenesis. Candidates for these tenure-track appointments are expected to show evidence of originality and the ability to establish an effective and competitive research program that is commensurate with either assistant or associate level appointments. Candidates should send curriculum vitae, a brief description of research plans, and the names of three references to: **Nicholas A. Matwiyoff, Ph.D., Chair, Department of Cell Biology, University of New Mexico School of Medicine, Albuquerque, NM 87131.** Closing date for receipt of applications is 4 February 1991. *The University of New Mexico is an Affirmative Action/Equal Opportunity Employer.*

POSITIONS OPEN

Carnegie Mellon International Peace and Security: Candidates with strong backgrounds in engineering or the physical sciences are sought for a tenure-track **FACULTY POSITION** in the Department of Engineering and Public Policy (and perhaps a second technical department) to teach and do research on problems in arms control and international security policy in which technical issues are of central importance. Send résumé, references, and sample papers to: **Professor Granger Morgan, Head, EPP, Carnegie Mellon, Pittsburgh, PA 15213.**

FACULTY POSITIONS BIOCHEMISTRY/MOLECULAR BIOLOGY MEHARRY MEDICAL COLLEGE

Faculty positions are available in 1991 in the Department of Biochemistry at the level of **ASSISTANT OR ASSOCIATE PROFESSOR** for qualified candidates in the following areas: molecular biology of eukaryotic systems, membrane biochemistry or molecular biology of signal transduction, and regulatory aspects of cellular and/or metabolic biochemistry. Successful applicants will be expected to develop and/or maintain a funded research program of high quality, to participate in the graduate and professional (medical, dental, and allied health) school teaching programs of the department, and to interact with institutional programs in neuroscience and cell/molecular biology. Applicants should send curriculum vitae, names of four individuals who may be contacted for reference, and a summary of potential research projects to: **Ifenayi J. Arinze, Ph.D., Chairman, Department of Biochemistry, Meharry Medical College, Nashville, TN 37208. Meharry College is an Equal Opportunity/Affirmative Action Employer.**

FACULTY POSITIONS. Department of Molecular Pharmacology. Candidates are invited to apply for positions at the level of **ASSISTANT PROFESSOR**. We are seeking individuals with a record of excellence in research who will apply skills in biochemistry, molecular biology, genetics, and cell biology to solve problems relevant to molecular pharmacology. An essential requirement is an innovative research program that complements programs within the department and the medical school. Research areas of interest to the department include: mechanisms of hormone, oncogene, growth factor and neurotransmitter actions; regulation of gene expression and differentiation; molecular basis of disease; structure, function and regulation of receptors and channels; second messengers and protein phosphorylation; posttranslational modification and intracellular targeting. Candidates should submit curriculum vitae and a statement of research interests, goals, and plans. Letters from three references should be submitted on behalf of the candidates. All materials should be sent to: **Ms. Anna Cioffi, Administrator, Department of Molecular Pharmacology, Albert Einstein College of Medicine, Jack and Pearl Resnick Campus, 1300 Morris Park Avenue, Bronx, NY 10461. Equal Opportunity Employer.**

FACULTY POSITIONS BIOCHEMISTRY AND MOLECULAR BIOLOGY

Applications are invited for tenure-track positions in the Department of Biochemistry at the rank of **ASSISTANT OR ASSOCIATE PROFESSOR**. We seek exceptional candidates having excellent training and records of accomplishments at the postdoctoral level in the area of eukaryotic molecular biology. Preference will be given to scientists who demonstrate the potential to develop vigorous research programs focusing upon animals or humans. Excellent support facilities for the molecular and life sciences are available to all Purdue faculty.

The individuals selected for these positions will participate in the instructional program of the department which encompasses undergraduate, graduate, and medical curricula.

Curriculum vitae, names and addresses of three individuals who can supply letters of reference, and a two-page summary of research interests are required for an application. The screening of applications will continue until the positions are filled.

Biochemistry Search Committee
Department of Biochemistry
Purdue University
West Lafayette, IN 47907-6799

Purdue University is an Affirmative Action/Equal Opportunity Employer.

POSITIONS OPEN

CASTLETON STATE COLLEGE PHYSICAL SCIENTIST

The Department of Natural Science at Castleton State College (CSC) seeks applications for a **TENURE-TRACK POSITION** in the physical sciences to commence September 1991. Rank and salary based on degrees and experience. Excellent fringe benefits. Applicants with the ability to teach a variety of physical science courses including general chemistry and geology will be given preference. Excellence in teaching is a primary qualification. The ideal candidate will be a dynamic educator with a Ph.D. in chemistry or geology. Starting date is 22 August 1991. Send letter of application, résumé, and three letters of reference to: **Andy Raiford, c/o Dr. Joseph T. Mark, Academic Dean's Office, Castleton State College, Castleton, VT 05735.** Review of applications will begin on 15 January 1991.

CSC is an Affirmative Action/Equal Opportunity Employer.

FACULTY POSITIONS COLLEGE OF PUBLIC HEALTH

The College of Public Health of the University of Oklahoma is embarking on an expanded mission and seeks to recruit the following faculty members:

- Biostatistics and epidemiology (two positions)
- Health administration (health policy)
- Social sciences and health behavior
- Environmental health (occupational)
- Associate Dean of the College

A statement of interest and curriculum vitae should be submitted by 31 January 1991, to:

Bailus Walker, Jr., Ph.D., M.P.H.
Dean, College of Public Health
Health Sciences Center
P.O. Box 26901
Oklahoma City, OK 73190
Telephone: 405-271-2232

An Equal Opportunity/Affirmative Action Employer.

FACULTY POSITIONS AVAILABLE IN GENETICS

The Department of Molecular Genetics, Biochemistry, and Microbiology is committed to a major expansion of its faculty, currently numbering 26 full-time members. We currently have strong research programs in a variety of areas, and are the lead department in an NHLBI-sponsored Program of Excellence in Molecular Biology of the Heart and Lung. One of our openings is for a human geneticist. The appointment can be at any level and generous space and start-up funds will be provided. The department has a strong and active graduate program, and maintains core facilities in cell culture, DNA synthesis and sequencing, and production of transgenic mice. All of these factors contribute to an excellent research atmosphere.

Interested applicants should submit curriculum vitae, brief description of anticipated research, and the names of three qualified references to:

Jerry B. Lingrel, Ph.D.
Professor and Chair
Department of Molecular Genetics,
Biochemistry, and Microbiology
University of Cincinnati College of Medicine
231 Bethesda Avenue
Cincinnati, OH 45267-0524

TENURE-TRACK BIOLOGY INSTRUCTOR

Mansfield University, Mansfield, Pennsylvania, invites applications for a tenure-track biology instructor. The master's degree is preferred, with college teaching experience in microbiology, general biology, and human anatomy and physiology. Responsibilities are primarily teaching of undergraduate laboratories, secondarily lecturing in introductory biology. An additional responsibility includes assisting in the preparation of microbiology laboratories. Salary commensurate with education and experience. Position begins fall semester 1991. Interested applicants should submit a letter of intent, résumé, transcripts, and three current (1989-90) letters of recommendation to: **Position F-94, Human Resources Department, G-1 Alumni Hall, Mansfield University, Mansfield, PA 16933.** Deadline date (postmark) for materials is 15 February 1991. Please refer to **Position F-94. Mansfield University is an Affirmative Action Employer and encourages the applications of women, minorities, and the handicapped.**

POSTDOCTORAL POSITION

Merck Sharp & Dohme Research Laboratories is offering a postdoctoral position in the department of Genetic and Cellular Toxicology.

Applicants should have a background in molecular biology and genetics, preferably with an interest in cytogenetics. The department has a staff of about 40, including 15 doctoral level, with 5 post-docs. Current studies are in: basic research in mechanisms of malignancy and altered gene expression, including molecular analysis of mutation and DNA arrangements in tumors; molecular and cytogenetic studies of mechanisms of DNA damage and chromosome aberrations, and development of test systems for safety evaluation of drug candidates.

Excellent salary and benefit programs accompany this position at our West Point Laboratories 25 miles northwest of Philadelphia.

Please send curriculum vitae with cover letter to:

Personnel Manager

Ad #C-37

Research Personnel, WP42-2

**Merck Sharp & Dohme Research Laboratories
West Point, PA 19486**

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Merck & Co., Inc.



**R.W. JOHNSON
PHARMACEUTICAL
RESEARCH
INSTITUTE**

Postdoctoral Fellows

The R. W. Johnson Pharmaceutical Research Institute in La Jolla, CA has openings for two-year appointments for Postdoctoral Scientists with an option for renewal.

Positions will be available in the Exploratory Research Group as well as in the Vascular Biology Group. Positions in Exploratory Research require a strong molecular biology background with an interest in novel expression systems for discovering important epitopes, ligands and receptors. Positions in Vascular Biology involve the study of integrin structure/function relationships.

The R. W. Johnson Pharmaceutical Research Institute is part of the Johnson & Johnson family of companies and offers a competitive salary and benefits package. Please send your resume to:

Ms. Patricia Fagan

**R. W. Johnson Pharmaceutical Research Institute
4245 Sorrento Valley Blvd.
San Diego, CA 92121**

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RESEARCH SCIENTISTS

Natural Product Sciences, Inc. is a rapidly growing company developing 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 pharmaceuticals and agrochemicals, Natural Product Sciences is a leader in the natural products field.

As part of the continuing expansion of its research efforts, NPS now has openings at both the Associate (B.A./M.S.) and Senior Scientist (Ph.D.) levels. We are specifically looking for highly motivated scientists with experience in one or more of the following areas:

MOLECULAR BIOLOGY—Expression cloning using *Xenopus* oocytes; construction of genomic libraries; expression in prokaryotic and eukaryotic systems.

CELL PHYSIOLOGY—Assessment of receptor-dependent transmembrane signaling mechanisms and intracellular signals.

BIOCHEMISTRY—Production and use of monoclonal antibodies for receptor isolation.

CELL BIOLOGY—Measurement of intracellular ions in single cells using fluorimetric indicators; tissue culture; immunohistochemistry.

ELECTROPHYSIOLOGY—Extracellular and intracellular recording in brain slices and/or patch-clamp.

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

Please send curriculum vitae and names and addresses of three references to: Director of Personnel, Natural Product Sciences, Inc., 420 Chipeta Way, Salt Lake City, Utah 84108. Natural Product Sciences is an equal opportunity employer.



NATURAL PRODUCT SCIENCES, INC.

POSITIONS OPEN

FACULTY POSITIONS IN ENVIRONMENTAL ENGINEERING

Colorado School of Mines Department of Environmental Sciences and Engineering invites applications for tenure-track positions at the **ASSISTANT PROFESSOR** rank with an anticipated start date of August 1991. Areas of specialization are open but individuals whose research interests are in hazardous/industrial waste treatment or in the transport and fate of contaminants are especially encouraged to apply.

Successful applicants must possess a Ph.D. in environmental engineering or a related engineering field and a commitment to graduate level teaching and research. Professional registration and academic or industrial experience are desirable.

The selection process will continue until such time as positions are filled. Applicants should submit a résumé, academic transcripts, examples of research output, and the names and addresses of three references to:

**Colorado School of Mines
Environmental Sciences Search Committee
P.O. Box 69
Golden, CO 80402**

*An Equal Opportunity/Affirmative Action Employer.
Minorities and females are encouraged to apply.*

Full-time, tenure-track **FACULTY POSITION**. The University of Alaska Anchorage (UAA) invites applications from persons holding a Ph.D. in biology, specializing in an area of ecosystem biology complementary with existing faculty physiological/ecosystem plant ecological research in tundra and taiga. The ideal candidate will be an excellent teacher, conduct outstanding, externally funded research related to global-change issues, and have skills in remote sensing data analysis. Teaching duties will include introductory biology courses and development of upper division and graduate course(s) in the area of expertise. The Department of Biological Sciences consists of 12 faculty and offers bachelor's and master's degree programs. Review of applications will begin 16 February 1991 and continue until the position is filled. Submit a letter of application, curriculum vitae, and statement of teaching, research, and career goals along with three letters of recommendation to: **UAA Personnel Services, 3890 University Lake Drive, Anchorage, AK 99508**. UAA is an Affirmative Action/Equal Opportunity Employer and Educational Institution. Must be eligible for employment under the Immigration Reform and Control Act of 1986.

AQUATIC ECOLOGIST

A new tenure-track position is available at the University of Oklahoma (OU) Biological Station (70% research, 20% teaching). The successful candidate will establish a strong funded research program in residence at Lake Texoma. A completed Ph.D. is required. Postdoctoral research experience, strong quantitative skills, publications, and ability to attract research funding are desirable. Preference will be for lentic research, with focus on reservoir limnology, microbial ecology, or plankton ecology.

Submit curriculum vitae, reprints, description of research interests, and four letters of recommendation. Screening will begin 1 January 1991 and continue until the position is filled. *Women and minority candidates are encouraged to apply.* Send applications to: **Dr. W. J. Matthews, Search Committee, Biological Station, HC-71 Box 205, Kingston, OK 73439**. Telephone: 1-405-564-2463.

The University of Oklahoma is an Equal Opportunity/Affirmative Action Employer. OU has a policy of being responsive to the needs of dual-career couples.

POSTDOCTORAL POSITION. Available immediately to study the role of central peptides, amino acids, and other possible transmitters in the central control of baroreflex activity. The research will also involve collaboration in the area of molecular biology to incorporate genetic involvement in the direct or indirect control of blood pressure regulation. Experience in neuro- or electrophysiology is desirable. Salary range is \$20,000 to \$25,000 annually and is guaranteed for 2 years. *Federal law requires proper documentation of identity and employability at the time of employment.* Send résumé and three letters of recommendation to: **Dr. W. R. Wooles, Chairman, Department of Pharmacology, School of Medicine, East Carolina University, Greenville, NC 27858**. Affirmative Action/Equal Opportunity Employer.

POSITIONS OPEN

POSTDOCTORAL POSITION. To join in analysis of available yeast mutants blocked in mRNA export. Background in bacterial or yeast molecular genetics desirable. Send curriculum vitae, two recommendations, and transcripts to: **A. M. Tartakoff, Pathology, Case Western Reserve University School of Medicine, 2085 Adelbert Road, Cleveland, OH 44106**.

POSTDOCTORAL POSITION PROTEIN NMR SPECTROSCOPY

A postdoctoral position in the NMR laboratory of the Control Division of the Upjohn Company is available immediately. Applicants should possess a Ph.D. in chemistry with experience in the application of modern NMR techniques to problems of protein structure. Current projects involve: (i) The use of two-, three, and four dimensional homo- and heteronuclear NMR spectroscopy to analyze protein structures and dynamics; (ii) Structure determinations of protein fragments and their interactions with proteins; and (iii) Studies of protein stability and function using single amino acid mutants. Laboratory staff includes three scientists, two analysts, and an electronics specialist. The laboratory is equipped with Bruker AM-500, AM-400, and solids imaging 200 MHz spectrometers, a Varian XL-400 spectrometer, a quenched-flow apparatus, Silicon Graphics 200 and personal IRIS computers, and an Evans and Sutherland PS300 attached to a micro VAXII. We also have access to a Bruker AMX-600 spectrometer on site. Salary will be highly competitive. Please send curriculum vitae including the names of three references to: **The Upjohn Company, Attention: Eldon Ulrich, Position Number 5722-CB, 7000 Portage Road, Kalamazoo, MI 49001**, or FAX: 616-329-5525. Please refer to: **Position Number 5722-CB** in all correspondence. *An Equal Opportunity Employer, M/F.*

POSTDOCTORAL POSITION. In molecular neurobiology to study the structure and function of nicotinic acetylcholine receptors from muscles and neurons and the autoimmune response to muscle receptors in myasthenia gravis. Candidates should have experience in molecular genetics. Send curriculum vitae and the names, addresses, and telephone numbers of three references to: **Dr. Jon Lindstrom, University of Pennsylvania School of Medicine, 503 Clinical Research Building, 422 Curie Boulevard, Philadelphia, PA 19104-6140**. FAX: 215-573-2028. *Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL POSITIONS AVAILABLE IMMEDIATELY

In cellular, subcellular, and molecular physiology and biophysics, including cardiovascular, vascular smooth muscle, endothelial cells, electrophysiology, neurophysiology, contractile mechanisms, renal, transport, thrombosis mechanisms, reproductive endocrinology. *Applicants must be U.S. citizens or permanent residents.* Send résumé to:

**Dr. Nicholas Sperelakis, Chairman
Department of Physiology and Biophysics
College of Medicine
University of Cincinnati
Cincinnati, OH 45267-0576**

POSTDOCTORAL POSITION

Available immediately to study systemic and CNS pharmacokinetics and pharmacodynamics of opioid analgesics and analgesic enhancers. A variety of projects are planned or under way in normal volunteers, cancer patients, and laboratory animals (molecular and behavioral studies). Applicants must have a recent Ph.D. with graduate training in pharmacokinetics, drug metabolism, or neuropharmacology. Research experience with HPLC and GC-MS analyses and receptor binding assays is desirable. Salary commensurate with NIH guidelines. Smoke-free environment. Please send curriculum vitae and names of three references to: **Harlan Hill, Ph.D., Division of Clinical Research, AB-122, Fred Hutchinson Cancer Research Center, 1124 Columbia Street, Seattle, WA 98104**. *An Equal Opportunity Employer.*

POSITIONS OPEN

POSTDOCTORAL POSITION. At Oak Ridge National Laboratory (ORNL) available to develop (i) methods to use stable isotopes in DNA sequencing and (ii) an associated method, very high resolution gel electrophoresis. Background in physical or analytical chemistry preferred. For position information: **K. Bruce Jacobson of ORNL at: 615-574-1204**; for application material: **Postgraduate Research Program, Science/Engineering Education Division, Oak Ridge Associated Universities, P.O. Box 117, Oak Ridge, TN 37831-0117**. Telephone: 615-576-3456.

POSTDOCTORAL POSITION. Available to study cognitive-neuromotor effects of psychotropic drugs. Involves assessment of relationship of pharmacodynamics to pharmacokinetics. Background in drug analysis desirable. Send curriculum vitae and names of three references to: **Everett H. Ellinwood, Jr., M.D., Box 3870, Duke University Medical Center, Durham, NC 27710**. *Duke University is an Equal Opportunity/Affirmative Action Employer.*

Case Western Reserve University (CWRU) School of Medicine is offering NIH-sponsored **POSTDOCTORAL TRAINING** in AIDS research to qualified M.D. or Ph.D. candidates. Basic research training is available in the biochemistry, epidemiology, molecular biology, immunology, and pathogenesis of retroviral diseases and opportunistic infections. Clinical training for certification in infectious diseases would also be available to M.D. trainees. *Positions available to U.S. citizens or permanent residents beginning July 1991.* Interested applicants should write to: **Deborah Ferrato, Case Western Reserve University, Division of Infectious Diseases, 2109 Adelbert Road, Cleveland, OH 44106**. *CWRU is an Equal Opportunity Employer.*

POSTDOCTORAL POSITION

Available September/October 1991. Research involves the utilization of tissue culture model systems in the study of nutrition and atherosclerosis with emphasis in the role of nutrients on biochemical mechanisms of vascular endothelial cell function, injury and protection. Experience/background in lipid biochemistry and cell culture is desirable. Send curriculum vitae, statement of research goals and expertise, names/telephone numbers of three references to: **Dr. Bernhard Hennig, Cell Nutrition Group, Department of Nutrition and Food Science, 212 Funkhouser Boulevard, University of Kentucky, Lexington, KY 40506-0054**.

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ENVIRONMENTAL TOXICOLOGY TRAINING UNIVERSITY OF WISCONSIN-MADISON

POSTDOCTORAL POSITIONS available, funded from an NIEHS training grant or from research grants:

- **Adnan Elfarra**: Bioactivation of nephrotoxicants/carcinogens
- **Michael Gould**: Oncogene/suppressor gene in mammary carcinogenesis
- **Colin Jefcoate**: Gene expression of P-450s
- **Charles Kasper**: Regulation of enzymes responsible for carcinogen activation
- **Michael Pariza**: Anticarcinogenic activity of dietary linoleic acid derivatives
- **Richard Peterson**: Testicular toxicity mechanisms of perfluorinated acids
- **Henry Pitot**: Mechanisms of chemically induced liver cancer
- **Alan Poland**: Cloning and structure-function relationship of the Ah receptor
- **Catherine Reznikoff**: Genetic alterations in human bladder cancers
- **Frank Siegel**: Regulation of glutathione S-transferases
- **James Tracy**: Prodrug activation in parasites

GRADUATE TRAINING is also available in these laboratories and others representing neuro-, genetic- and immuno-toxicology.

Applicants should submit curriculum vitae and a letter identifying the laboratory of interest to:

**Professor Colin R. Jefcoate, Director
Environmental Toxicology Center
309 Infirmary, 1300 University Avenue
University of Wisconsin
Madison, WI 53706
Telephone: 608-263-4580**

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BS/MS Scientists

Solve the equation for success—in Molecular Genetics.

Pfizer Inc., a dynamic leader in the healthcare industry, is committed to continuing its remarkable growth in research. Our Molecular Genetics Research Department currently has openings for Research Scientists in the following areas:

Image Analysis/ Molecular Pharmacology

Requires a computer science-oriented Biologist to analyze and interpret experiments examining the effects of potential therapeutic agents on metabolic pathways in various mammalian cells. You will analyze images obtained from radio-labelled two-dimensional gels using dedicated software packages. A BS in Biology with proficiency in UNIX-based computers, UNIX system administration and statistical analysis is desirable. You must also be experienced with electrophoresis computer analysis software and possess strong oral/written communication skills.

Protein Biochemistry

You will join a group of highly motivated researchers developing biotechnology applications for the advancement of drug discovery and medicinal research programs. A BS or MS in Biochemistry or related discipline is required plus 1-2 years of laboratory research experience in Protein Chemistry. HPLC/ FPLC experience in protein isolation/ characterization and familiarity with computer interfaced instrumentation are essential. Must be willing to develop expertise in one or more of the following areas: Structural Analysis, Receptor Binding Assays and/or Immunochemical Assays.

Gene Cloning/Molecular Biology

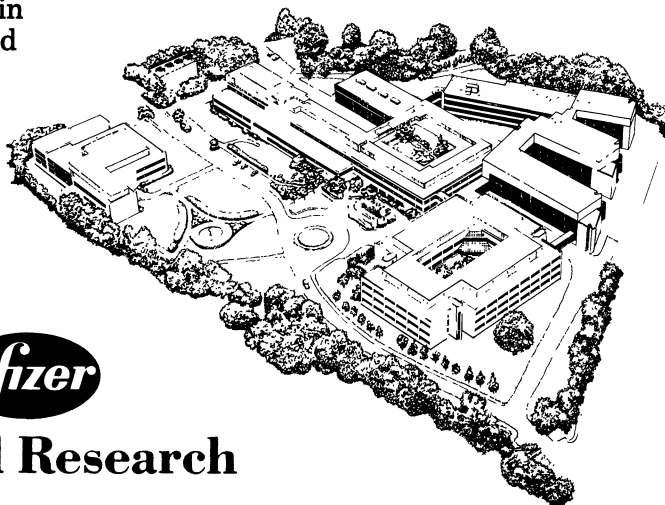
You will help construct cDNA libraries and use innovative screening strategies to identify novel genes. These positions require a blend of skills and experience in contemporary molecular biology techniques (mRNA isolation, cDNA preparation, PCR technology); experience in differential and expression cloning is desirable. At least two years laboratory work is essential.

Transgenic Technology

Pfizer is developing a transgenic animal group and seeks candidates with proven experience in various techniques for generating transgenic mice. A background in transgenic animal production is required, and knowledge of embryonal stem cell technology is desirable.

We offer competitive salaries and a full range of benefits including medical and dental insurance, paid holidays and vacations, educational assistance, savings, investment and pension plans, relocation assistance and more.

To learn how you can be part of the future at Pfizer, send your resume with indication of area desired, to: **Kym Goddu, Employee Resources, Pfizer Inc, Central Research Division, Eastern Point Road, Groton, CT 06340.** An equal opportunity employer.



Central Research

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POSITIONS OPEN

POSTDOCTORAL POSITION, NEUROBIOLOGY. Study cellular mechanisms of axonal sprouting in mammalian neurosecretory cells. Opportunities also exist for collaborative research on characterization of novel neurosecretory proteins. Available 1 March 1991; \$23,500. Screening begins 15 January 1991 and will continue until hire is made. Send letter of inquiry to: **Dr. Charles M. Paden, Biology Department, Montana State University, Bozeman, MT 59717-0346. Veterans preference. Affirmative Action/Equal Opportunity Employer.**

ENVIRONMENTAL PATHOLOGY/TOXICOLOGY. NRSA-supported POSTDOCTORAL POSITIONS available in 15 research laboratories. Emphasis on cellular and molecular effects (mutagenesis, neurotoxicity, biotransformation) of toxic chemicals (especially trace metals, aromatic hydrocarbons, ozone respiratory epithelial injury) and behavioral teratology. Inquiries: **Dr. N. K. Mottet, Program Director, Department of Pathology, SM-30, University of Washington, Seattle, WA 98195. NRSA requires U.S. citizenship or permanent residency. An Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL ASSOCIATE

Seek Ph.D. holder in animal behavior, ecology, or related field to undertake collaborative research on animal feeding behavior, including design and performance of experiments, data analysis, and report writing. Requires general computer aptitude and programming. Prefer laboratory studies experience in feeding behavior. Apply by 11 January 1991 with letter of application and résumé to: **Dr. D. W. Stephens, University of Nebraska-Lincoln, School of Biological Sciences, Lincoln, NE 68588-0118. Affirmative Action/Equal Opportunity Employer.**

A POSTDOCTORAL RESEARCH POSITION will be available to study the electrophysiology and molecular biology of potassium channels. Research projects will involve the characterization of ATP-sensitive K⁺ channels in excitable and non-excitable systems. Opportunities will be available to participate in molecular cloning and expression of a variety of K⁺ channels. A strong background in electrophysiology is desired. Send curriculum vitae and names of three references to: **Dr. Deborah J. Nelson, Department of Neurology, University of Chicago Pritzker School of Medicine, 5841 South Maryland, Chicago, IL 60637. Equal Opportunity Employer.**

POSTDOCTORAL FELLOW DEPARTMENT OF SURGERY UNIVERSITY OF WISCONSIN-MADISON

The University of Wisconsin-Madison Medical School, Department of Surgery, has a postdoctoral position available to study the immunobiology of endocrine cell transplantation. Candidates must have experience in cell culture, immunochemical techniques, protein chemistry, and cell biology. Molecular biology techniques desirable. Send curriculum vitae and three letters of recommendation to:

**Debra A. Hullett, Ph.D.
Department of Surgery
University Hospital and Clinics
Room H4/769 CSC, 600 Highland Avenue
Madison, WI 53792**

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

POSTDOCTORAL POSITION IN MARINE NATURAL PRODUCT CHEMISTRY

POSTDOCTORAL RESEARCH ASSOCIATE. Position available July/August to isolate and structurally define novel anticancer natural products from marine microalgae. Expertise in HPLC, 2D-NMR, and MS methodology is essential; experience with marine biology and in vitro bioassay systems desirable. Ph.D. in natural products chemistry or other appropriate field of chemistry is required. Send curriculum vitae, statement of research interests and names/addresses of three references by 1 January 1991, or until the position has been filled to: **Dr. William H. Gerwick, College of Pharmacy, Oregon State University, Corvallis, OR 97331. Oregon State University is an Affirmative Action/Equal Opportunity Employer and complies with Section 504 of the Rehabilitation Act of 1973. Oregon State University has a policy of being responsive to the needs of dual-career couples.**

POSITIONS OPEN

POSTDOCTORAL POSITION. Available to study the molecular biology of winter dysentery coronavirus and immunity to these viruses in cattle. Relevant experience in immunology and training in molecular virology including monoclonal antibodies and nucleic acid hybridization and cloning is desired.

Send résumé and three reference letters to: **Dr. Linda Saif, Food Animal Health Research Program, Ohio Agricultural Research and Development Center, Ohio State University, Wooster, OH 44691.**

POSTDOCTORAL FELLOWSHIPS

The Cellular and Molecular Biology Group in the Life Sciences Division of the Los Alamos National Laboratory is seeking postdoctoral fellows to perform basic cellular and molecular biological research in the Pulmonary Biology and Toxicology Program. Current ongoing areas of research in this program include: mechanisms of acute lung injury, mechanisms of lung repair and pulmonary fibrogenesis, and lung defense mechanisms with emphasis on pulmonary macrophages and pulmonary macrophage subpopulations. Individuals with a strong background in pulmonary cell biology and/or molecular biology are encouraged to apply. Applicants should have received their doctoral degree within the past 3 years. Postdoctoral appointments are for 1 year, renewable for a second year. The salary range is \$34,920 to \$36,780 per year. *United States citizenship is required.* Applicants must also be eligible for a Q Security Clearance. For further information, contact: **Bruce E. Lehnert, Ph.D., Pulmonary Biology/Toxicology Section Leader, Cellular and Molecular Biology Group (LS-4), Life Sciences Division, MS M888, Los Alamos National Laboratory, Los Alamos, NM 87545. Telephone: 505-667-2753.** To formally apply, please send curriculum vitae, a letter describing research interests, employment application, three letters of reference, and graduate and undergraduate transcripts to: **Ronnie Cohen, MS P280, Human Resources Development Division, PD 90-080, Los Alamos National Laboratory, Los Alamos, NM 87545.** For employment applications, call: **505-667-0872.** *Los Alamos is an Affirmative Action/Equal Opportunity Employer.*

POSTDOCTORAL SCIENCE TEACHING FELLOW. The Center for Critical Inquiry in the Liberal Arts, an interdisciplinary center of teaching, scholarship, and faculty development, seeks a postdoctoral teaching fellow for a new program of Freshman Seminars in Natural Science. Applicants trained in any of the natural sciences are eligible. The seminar program aims to encourage the study of science by engaging freshmen in the process of scientific inquiry. Candidates should have a background in research and a strong interest in applying their research experience to the improvement of undergraduate science teaching. Position starts August 1991; review of applications will begin 15 January 1991. *Women and minorities strongly encouraged to apply.* Send letter of application, curriculum vitae, and three letters of reference to: **Timothy D. Johnston, Director, Center for Critical Inquiry, 100 Foust Building, University of North Carolina at Greensboro, Greensboro, NC 27412-5001. Affirmative Action/Equal Opportunity Employer.**

AMERICAN MUSEUM OF NATURAL HISTORY FELLOWSHIPS AND GRANTS

Fellowships: Research/museum fellowships are available to postdoctoral researchers and established scholars starting in summer and fall 1991. Areas include vertebrate and invertebrate zoology, paleozoology, anthropology, mineral sciences, and the field of museum education as it relates to natural history museums or planetariums. Deadline for applications, including Chapman Fellowships (ornithology), is 15 January 1991.

Grants: Research grants are available to advanced predoctoral candidates and recent postdoctoral researchers in the fields of zoology and paleontology. Awards range from \$200 to \$1000. Deadline dates vary for each grant program:

- Frank M. Chapman (ornithology), 15 January 1991.
- Theodore Roosevelt (North American fauna), 15 February 1991.
- Lerner-Gray (marine zoology), 15 March 1991.

Request information booklet and application forms from: **The Office of Grants and Fellowships, Department H, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024.**

POSITIONS OPEN

A limited number of **POSTDOCTORAL FELLOWSHIPS** are available in 1991; selections will be made 15 April 1991 for research in marine sciences, aquaculture, coastal and environmental sciences, biomedical marine research, and ocean engineering. Stipends are \$22,540 for the annual appointment. Specify area of interest with request for information brochure and application packet from: **Kathy Morton, Postdoctoral Program, Harbor Branch Institution, Inc., 5600 Old Dixie Highway, Fort Pierce, FL 34946. An Equal Opportunity Employer.**

A **POSTDOCTORAL FELLOW** position is available immediately for 2 years to conduct research on the molecular mechanisms of cholinergic deficit and abnormal membrane fluidity in aging and Alzheimer's disease. Preference will be given to individual with experience in molecular biology and protein chemistry or monoclonal antibody production. Applicants must have a Ph.D. or M.D. degree. Please send curriculum vitae with statement of research interest and three letters of references to: **Dr. Frank Peng, Department of Pathology, University of Missouri-Kansas City School of Medicine, Truman Medical Center, 2301 Holmes Street, Kansas City, MO 64108. University of Missouri-Kansas City is an Equal Opportunity Employer.**

POSTDOCTORAL FELLOW RESEARCH ASSOCIATE

Available immediately. To work on molecular mechanisms of steroid hormone action. Experience with molecular biological techniques desirable but not necessary. Projects include characterization of receptor-positive cell mutants and use of an enriched library of glucocorticoid-responsive genes to study lymphocytes. Send curriculum vitae, cover letter, and three references to: **Robert W. Harrison, M.D., University of Arkansas for Medical Sciences, Division of Endocrinology, 4301 West Markham, Slot 587, Little Rock, AR 72207.**



UNIVERSITY OF MANITOBA DEPARTMENT OF MEDICAL MICROBIOLOGY RESEARCH ASSOCIATE

Position available immediately in the Department of Medical Microbiology, Faculty of Medicine, to develop monoclonal antibodies against recombinant proteins of HIV. A Ph.D. in biology or immunology with experience in virology, immunology, or molecular biology is required. The position is funded for 2 years.

The University of Manitoba encourages applications from qualified women and men, including members of visible minorities, aboriginal people, and persons with disabilities. The university provides a smoke-free environment. Priority consideration will be given to Canadian citizens and permanent residents.

Send curriculum vitae and names of three references to: **Dr. Magdy Dawood, Department of Medical Microbiology, Faculty of Medicine, University of Manitoba, 730 Williams Avenue, Winnipeg, Manitoba, Canada R3E 0W3.**

POSTDOCTORAL RESEARCH ASSOCIATE/FELLOW. Position available immediately for neurobiologist to study gene expression and regulation of serine proteases and their inhibitors (serpins) in neural development (see NATO ASI Series No. 191, *Serine Proteases and their Serpin Inhibitors in the Nervous System: Regulation in Development and Degenerative and Malignant Disease*, B. W. Festoff, Ed., Plenum, 1990). Experience in cell culture, mouse genetics, molecular biology, and protein chemistry essential. Send curriculum vitae and letter of research interest along with names, addresses, and telephone numbers of three references to: **Dr. Barry W. Festoff, Neurobiology Research Laboratory (151), University of Kansas at the Kansas City VA Medical Center, 4801 Linwood Boulevard, Kansas City, MO 64128. Telephone: 816-861-4700, ext. 3530. FAX: 816-861-1110. An Equal Opportunity Employer.**

BIOCHEMIST/MICROBIOLOGIST. To lead project purifying and studying bacterial hydrogenase. Experience in hydrogenases, protein purification, microbial techniques, metalloproteins, or enzyme immobilization desirable. Salary commensurate with experience; good possibility for permanent position at government-funded biomedical research institute. Send curriculum vitae to: **Dr. A. L. Harabin, Naval Medical Research Institute, Mail Stop 38, Bethesda, MD 20889-5055.**

BE A SCIENCE JOURNALIST FOR A SUMMER!

The American Association for the Advancement of Science (AAAS) invites students in the natural and social sciences and engineering to apply for the 1991 **MASS MEDIA SCIENCE AND ENGINEERING FELLOWS PROGRAM**. Students majoring in English, journalism, or other nontechnical fields are not eligible for these fellowships.

Fellows work as reporters, researchers, production assistants, and script consultants for 10 weeks during the summer at host television and radio stations, newspapers and news magazines across the country. Fellows have an opportunity to (1) observe and participate in the process by which events and ideas become news, (2) increase their understanding of editorial decision making, (3) enhance the media's coverage of science-related issues, and (4) develop skill in conveying to the public a better understanding of and appreciation for science and technology.

Fellows receive a \$350 weekly stipend and have all travel expenses paid. Deadline for receipt of applications is **February 1, 1991**. *Minorities and persons with disabilities are especially encouraged to apply.*

For information and application, write:

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

MacARTHUR FOUNDATION POSTDOCTORAL TRAINEESHIPS IN AGING

The MacArthur Foundation Research Program on Successful Aging invites applications from graduates of advanced degree programs to conduct research on a collaborative interdisciplinary study of aging in seven sites.

Trainees will work with a team of investigators working on longitudinal studies of elderly and will have a unique opportunity to be a part of interdisciplinary gerontologic research. While most trainees will be based in laboratories of investigators leading population-based studies, there is also an interest in applicants with a biological or physiological orientation who will serve as liaison between these studies and other more clinically-oriented and basic biological studies that are part of the research program.

The focus of the studies is on the maintenance of physical and cognitive functioning in a psychosocial and physiologic context and on developing new interdisciplinary approaches to larger issues in health and aging.

Positions are available for M.D.'s or Ph.D.'s with an interest in aging, physiology, neuropsychology, endocrinology, epidemiology, basic biological sciences, biostatistics, psychology, psychiatry, sociology or related fields. Positions are available at the University of Southern California, University of California at Irvine, Mt. Sinai Medical Center in New York, Yale University, the University of Michigan, The Karolinska University in Sweden, and Pennsylvania State University.

Emphasis will be placed on candidates' abilities to work in an interdisciplinary setting. Positions are available for terms of 1 or 2 years.

Salaries range up to \$40,000, commensurate with qualifications and university policy.

Submit curriculum vitae, publications, names of three references, preferences for a specific site and a 2-page statement, including areas of expertise and future research plans to:

Deadline for Applications to be received is January 30, 1991

Lisa F. Berkman, Ph.D.
Department of Epidemiology
Yale School of Medicine
60 College Street
New Haven, Connecticut 06510

Affirmative Action Employer

IMMUNEX®

STAFF SCIENTISTS Gene Therapy

Immunex Research & Development Corporation, a Seattle-based biopharmaceutical company committed to research and development of human therapeutic products, is currently recruiting for two Staff Scientists in the Gene Therapy Group.

The successful candidates will have a background in virology, gene transfer and expression or somatic cell genetics and will join a multidisciplinary team developing new techniques for the treatment of acquired and hereditary genetic diseases using gene therapy.

Investigators with interest in novel approaches to gene transfer/expression in hematopoietic, lymphoid or hepatic cells are particularly encouraged to apply. A Ph.D. in Genetics, Virology or Molecular Biology is required, preferably with relevant post doctoral experience. Good communication skills and the ability to work effectively in a collaborative environment are essential.

Immunex Research and Development Corporation offers excellent opportunities for career development as well as competitive salaries and an excellent benefits package. For consideration, please submit C.V., names of three references, and a list of publications to:

**IMMUNEX CORPORATION Attn: Human Resources Dept.
51 University Street, Seattle, WA 98101.**

Equal Opportunity Employer.

MEDICAL EPIDEMIOLOGIST

The March of Dimes/California Birth Defects Monitoring Program (MOD/CBDMP) has an opening for a Medical Epidemiologist, located in the San Francisco Bay Area.

The Medical Epidemiologist is primarily responsible for independently conducting epidemiologic studies of congenital anomalies. Also, acts as principal investigator in developing and directing epidemiological studies about congenital anomalies and works within a group comprised of other epidemiologists, providing consultation and serving as a resource in the areas of reproductive biology and medicine.

Candidates should have an M.D. degree, be licensed to practice medicine in California, have completed residency in pediatrics, internal medicine & family practice, and be board eligible. Training in epidemiology and experience in conducting epidemiological research studies are required. Genetics training is preferred.

MOD/CBDMP offers a highly professional atmosphere with ample program resources to conduct epidemiological research. Base salary range is \$66,200-\$82,700 plus an outstanding choice of fringe benefits and generous personal leave policy. Salary may also be augmented by up to 20% if the applicant can secure grant support.

Qualified individuals may submit curriculum vitae and three professional references by February 1, 1991 to:

**John A. Harris, M.D., M.P.H., Chief
MOD/CBDMP
5900 Hollis Street, Suite A
Emeryville, CA 94608**

Equal Opportunity Employer



POSITIONS OPEN

POSTDOCTORAL RESEARCH OPPORTUNITY. Available now. Join a successful research program pursuing molecular mechanisms of cell-specific gene expression and tumorigenesis. Transgenic technologies and in vitro approaches are currently employed. This position offers an excellent research environment in a most livable city; requires a strong background in molecular biology and commitment to research. Send curriculum vitae and names of three references to: **Dr. Terry Van Dyke, University of Pittsburgh, Biological Sciences, 278 Crawford Hall, Pittsburgh, PA 15260. Equal Opportunity Employer.**

POSTDOCTORAL RESEARCH ASSOCIATE. Seek Ph.D. in molecular biology to clone, express, and sequence genes from *Brucella abortus* as part of a research group funded through both USDA and state agencies. Experience in recombinant DNA and protein purification essential as well as an interest in immunology as pertains to subunit vaccine development. Successful candidate will be expected to learn T lymphocyte culture and cytokine bioassay techniques. Must be highly self-motivated, able to design/conduct independent research and collaborate with other personnel. Support for competitive salary and supplies are available for up to 3 years dependent on satisfactory progress. Send letter of experience and interests, curriculum vitae, and three references complete with address and telephone numbers to: **Dr. John H. Wyckoff III, Department of Veterinary Parasitology, Microbiology, and Public Health, College of Veterinary Medicine, Oklahoma State University, Stillwater, OK 74078-0353. Telephone: 405-744-8176. FAX: 405-744-5275.** Applications will be accepted through 1 February 1991, or until a suitable candidate has been identified. Applicant must comply with I.R.C.A. regulations. *Oklahoma State University is an Affirmative Action/Equal Opportunity Employer.*

TWO MOLECULAR PATHOLOGY RESEARCH ASSOCIATE POSITIONS. Experience in molecular biology is essential. One to study roles of adhesion molecules, retinoic acid, and homeoproteins in congenital malformation using limb development as a model; the other to study regulation and roles of adhesion molecules in wound healing. Send curriculum vitae before 21 December 1990 to: **C.-M. Chuong, M.D., Ph.D., Department of Pathology, HMR 204, University of Southern California, 2011 Zonal Avenue, Los Angeles, CA 90033.**

RESEARCH ASSOCIATE

Position available for qualified individual with desire to originate research project involving the development of recombinant single-chain antibodies and/or recombinant antibody-fused tumor targeting agents. Individual should have background in molecular biology and immunogenetics with experience in cDNA library construction, cDNA sequencing in plasmid or phage vector, manipulation of bacterial expression vectors, purification of fusion proteins, and assessment of antibody binding activity. Experience in PCR cloning also desirable. Individual will be responsible for project initiation and integration with ongoing research efforts aimed at the development of novel antibodies vs. tumor-associated mucins utilizing traditional hybridoma technology. Send curriculum vitae and names and addresses of three references to: **David Gold, Ph.D., Center for Molecular Medicine and Immunology, One Bruce Street, Newark, NJ 07103.**

RESEARCH ASSOCIATE. Cardiology for Medical Care and Research Center in northeastern Ohio. To compare new methods of assessing cardiac output in patients at rest and during bicycle ergometry and pacing conditions, collect and interpret data, prepare findings for publication, and instruct residents and medical students in cardiology. Must have M.D. or Ph.D. degree (if foreign degree, must be equivalent to U.S. degree) and 1 year of experience in the job described or 1 year of experience as an instructor/researcher. Related occupation must include 1 year of experience conducting trials related to hemodynamic assessments and heart failure and 1 year of experience in cardiac catheterization laboratory, interpreting echodoppler exams, ECG's, and pacemakers. Must have published two articles on cardiology in an international journal. Forty hours per week, 9 a.m. to 5 p.m.; \$28,400 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#1255634, Ohio Bureau of Employment Services, P.O. Box 1618, Columbus, OH 43216.**

POSITIONS OPEN

RESEARCH ASSOCIATE (POSTDOCTORAL). Physical studies of the interaction of carcinogens and mutagens with chromatin and/or nucleosomes. Work will be done collaboratively in the laboratories of Dr. K. E. van Holde and Dr. E. W. Small in the Department of Biochemistry and Biophysics, Oregon State University (OSU), Corvallis. Starting date: around 1 February 1991. A Ph.D. or equivalent experience in chemistry, biochemistry, or related field is required; research experience involving physical studies of DNA and/or chromatin is desired. Salary range: \$19,000 to \$22,000. Send complete curriculum vitae and request three letters of reference be sent to: **Dr. K. E. van Holde, Department of Biochemistry and Biophysics, OSU, Weniger 535, Corvallis, OR 97331-6503.** Applications accepted through 1 January 1991. *OSU is an Affirmative Action/Equal Opportunity Employer and complies with Section 504 of the Rehabilitation Act of 1973. OSU is sensitive to the needs of dual-career couples.*

TECHNOLOGY TRANSFER ASSOCIATE

A leader in the transfer of university-originated technology is seeking to fill a position in its Life Sciences Group. Candidates should have a Ph.D. in either molecular biology, microbiology, biochemistry, or a related field and broad industrial experience in technology assessment, financial analysis, product planning, and marketing.

The business involves evaluating invention disclosures, determining appropriate commercialization strategies, coordinating patent prosecution, and undertaking the selected approach to marketing the technology.

Competitive compensation package. Send résumé and salary requirements in confidence to: **Director, Life Sciences Group, Research Corporation Technologies, 6840 East Broadway Boulevard, Tucson, AZ 85710-2815.**

University of California, Irvine (UCI), College of Medicine, Obstetrics and Gynecology, **ASSISTANT RESEARCHER** (Ph.D.) in Division of Reproductive Endocrinology and Infertility. Extensive experience in tissue culture, micromanipulation of mammalian oocytes/embryos, and andrology. *UCI is an Equal Opportunity/Affirmative Action Employer.* Send curriculum vitae and five references to: **Thomas J. Garite, M.D., Professor and Chairman, Department of Obstetrics and Gynecology, UCI Medical Center, 101 The City Drive, Orange, CA 92668.**

MOLECULAR GENETICS TECHNOLOGISTS. Vivigen, the largest clinical genetics service laboratory in the country, has an opening in its DNA diagnostic laboratory for a **CLINICAL TECHNICIAN** with a background in molecular biology. Must be familiar with recombinant DNA technology. Salary commensurate with experience. This position is now available. Send curriculum vitae and three work-related references to:

**Gail Kaplan, Ph.D.
Vivigen, Inc.
2000 Vivigen Way
Santa Fe, NM 87505**

ASSISTANT CHEMIST. Ph.D. in physical chemistry; 1 year of experience in the job offered or 1 year of experience as a postdoctoral appointee or research associate. Graduate research and experience should include: the use of time resolved spectroscopic methods, including picosecond laser techniques for the study of chemical dynamics, photochemistry of biological molecules, and handling of membrane protein samples; molecular mechanics and molecular dynamics programming; and fs laser spectroscopy, the above evidenced by a minimum of ten publications in refereed scientific journals. Development of theoretical modeling of time domain x-ray crystallography including molecular dynamics. Will be responsible for exploring the time domain capabilities of synchrotrons to study chemical reactivity and accompanying structural changes, and building of a picosecond, pulsed, high-power laser system. Salary: \$3650 per month, 40 hours per week, 8:30 a.m. to 5:00 p.m. Send résumés to: **Illinois Department of Employment Security, 401 South State Street—3 South, Chicago, IL 60605, Attention: L. Donegan, Reference #1827-D.** *An employer-paid ad.*

POSITIONS OPEN

The Holden Arboretum invites applications for a **RESEARCH SCIENTIST/WOODY PLANT BREEDER** to initiate and conduct a program for the development of superior landscape plants. The successful candidate will assist in the planning and design of research facilities, contribute to the educational program, and assist in obtaining grants. The position requires a Ph.D. in plant genetics or plant breeding with a strong background in plant physiology. Three to five years of experience in a horticultural or botanical position with a demonstrated interest in the culture of landscape plants is essential. Practical experience in plant tissue culture techniques, molecular biology/genetics, and classical plant breeding would be helpful.

Salary commensurate with experience. Starting date: 1 July 1991. Submit curriculum vitae, a statement of research goals, relevant reprints, and three references to: **C. W. Eliot Paine, Executive Director, The Holden Arboretum, 9500 Sperry Road, Mentor, OH 44060.**

PATHOLOGY. The Department of Pathology and Laboratory Medicine at The University of California, Los Angeles (UCLA), has two positions available, one in **CLINICAL CHEMISTRY** and one in **HEMATOPATHOLOGY**. Qualifications for the clinical chemistry position include an M.D., D.O., and/or Ph.D. degree and eligibility for California licensure. Qualifications for the hematopathology position include AP/CP Board certification and experience in all aspects of hematopathology. Applicants for both positions must show demonstrated research ability and potential for an independent research program. Applications, including curriculum vitae, summary of research interests, and the addresses of four references, should be sent to: **P. A. Cancilla, M.D., Chairman, Department of Pathology and Laboratory Medicine, UCLA School of Medicine, Los Angeles, CA 90024-1732.** *UCLA is an Equal Opportunity/Affirmative Action Employer. Minority and women candidates are encouraged to apply.*

The National Park Service is seeking an **ECOLOGIST**, GS-408-13, for Lakewood, Colorado: **Vacancy Announcement WPO-90-141**, open from 3 December 1990 to 11 January 1991. Salary range, \$44,348 to \$57,650. Incumbent is responsible for a biological effects research program. He/she develops information on the effects of air pollution on park biological resources in order to resolve management issues. Applicants must have bachelor's degree with major study in biology or related field underlying ecological research, including 30 semester hours in biological sciences. This must include 9 hours in ecology and 12 hours in physical and mathematical sciences. Additional requirements: 1 year of specialized experience in ecology equal to the GS-12. Applicants must complete and send an SF-171 to: **National Park Service, P.O. Box 37127, Room 2328, Washington, DC 20013-7127.** For more information, contact: **Adele Singer, telephone: 202-208-4314.**

REPRODUCTIVE BIOLOGISTS LOEB MEDICAL RESEARCH INSTITUTE OTTAWA CIVIC HOSPITAL

The Ottawa Civic Hospital is dedicated to the provision of quality patient care, which is supported and enhanced by an environment of academic and research excellence. The Loeb Medical Research Institute is a research center of the Ottawa Civic Hospital with integrated thematic research foci in reproductive biology, endocrinology, and neurobiology. Two positions are now available for reproductive biologists.

The successful candidates will be members of a reproductive biology research team and expected to conduct independent, peer-review, funded research programs. Applicants should possess a doctorate degree and a minimum of 3 years of postgraduate training. Experience in the area of extracellular matrix remodeling or molecular biology will be an asset. The selected candidates will be eligible for faculty appointments in the Department of Obstetrics and Gynecology and in an appropriate basic science department at the University of Ottawa. Rank and salary are commensurate with qualifications. Submit curriculum vitae, a statement of research aims and interests, and names and addresses of three references by 1 January 1991 to: **Dr. Benjamin Tsang, Professor of Obstetrics and Gynecology and Director, Reproductive Biology Unit, Loeb Medical Research Institute, Ottawa Civic Hospital, 1053 Carling Avenue, Ottawa, Ontario, Canada K1Y 4E9. FAX: 613-761-9151. Telephone: 613-761-4081.** *In accordance with Canadian immigration requirements, priority will be given to Canadian citizens and permanent residents of Canada.*

AAAS/1991-92

Science & Engineering Fellowships

CONGRESSIONAL

AAAS Congressional Science & Engineering Fellows Program

Fellows spend one year on Capitol Hill working with Members of Congress or congressional committees as special assistants in legislative and policy areas requiring scientific and technical input. Two fellowships will be offered, with annual stipends of \$38,000.

EXECUTIVE BRANCH

AAAS-Sloan Executive Branch Science & Engineering Fellows Program

Fellows work in the White House Office of Science and Technology Policy, for one or two years, providing expertise in industrial R&D, technology transfer, international competitiveness, and related issues. Two Fellows will be selected: one industrial scientist or engineer with at least 15 years experience, at a minimum annual stipend of \$75,000; the other with about five years experience, at a minimum stipend of \$40,000. Applicants must be U.S. citizens. *Supported by a grant from the Alfred P. Sloan Foundation.*

DIPLOMACY

AAAS Science, Engineering, & Diplomacy Fellows Program

Fellows work in international affairs on scientific and technical subjects for one year, either in foreign policy at the U.S. Department of State or in international development for the U.S. Agency for International Development. Approximately 12 Fellows will be selected. The annual stipend varies with experience, starting at approximately \$36,000. Applicants must be U.S. citizens.

ENVIRONMENTAL

AAAS Environmental Science & Engineering Fellows Program

Fellows work as special research consultants with the Office of Research and Development of the U.S. Environmental Protection Agency for 10 weeks in the summer. The detailed, future-oriented research assists ORD in assessing the significance of long-range environmental problems. The stipend is \$850 a week. Applicants must be permanent residents of the U.S. Ten Fellows will be selected.

Applicants should be postdoctoral to mid-career scientists and engineers, from any physical, biological, or social science or any field of engineering.

The programs are designed to provide each Fellow with a unique public policy learning experience; to make practical contributions to the more effective use of scientific and technical knowledge in the U.S. government; and to demonstrate the value of science and technology in solving important societal problems.

All Fellows participate in a rigorous orientation on the relevant congressional and executive branch operations and foreign affairs plus a year-long seminar series on issues involving science, technology, and public policy.

The application deadline is January 15, 1991, for the Congressional, Diplomacy, and Executive Branch programs and March 1 for the Environmental program. The three year-long programs begin in September 1991, and the 10-week Environmental program begins in June.

For additional program information and application instructions, write:

Directorate for Science and Policy Programs (FPO)

American Association for the Advancement of Science

1333 H Street, NW, Washington, DC 20005 ♦ 202/326-6600

POSITIONS OPEN

RESEARCH ASSISTANT PROFESSOR. Position available immediately for experienced cellular and molecular neurobiologist to investigate roles of acute phase proteins, serine proteases and serpins in CNS injury. Knowledge of cytokine and/or growth factor receptor, gene expression, and molecular biology essential. No teaching responsibilities, but position involves laboratory management. Opportunity for potential career position in Department of Veterans Affairs (VA). Send curriculum vitae and letter describing research interests along with names, addresses, and telephone numbers of three references to: **Dr. Barry W. Festoff, Neurobiology Research Laboratory (151), University of Kansas at the Kansas City VA Medical Center, 4801 Linwood Boulevard, Kansas City, MO 64128. Telephone: 816-861-4700, ext. 3530. FAX: 816-861-1110. An Equal Opportunity Employer.**

The Department of Biochemistry and Biophysics at the University of Pennsylvania School of Medicine is recruiting a **RESEARCH ASSISTANT PROFESSOR** for research in development of new techniques for localized in vivo NMR spectroscopy, including complex shape functions for multi-inversion frequency band B1 insensitive RF pulses, which include the theoretical description of such pulses, and multi-frequency phase and amplitude modulation RF pulses which serve as propagators with well-defined multi-frequency bands for localization which includes cross-polarization spectroscopy. Requirements: Ph.D. in chemistry with an emphasis on theoretical and experimental multi-frequency RF pulses in NMR spectroscopy and at least 1 year of postdoctoral experience in in vivo spectroscopy and imaging. Deadline: 15 January 1991. Please respond to: **Dr. Franz Matschinsky, Department of Biochemistry and Biophysics, University of Pennsylvania, Philadelphia, PA 19104-6059. The University is an Equal Opportunity/Affirmative Action Employer. Women and minority candidates are encouraged to apply.**

Applications are being accepted from M.D./Ph.D.'s with several years of research experience in the neurosciences with background in neurodegenerative diseases and neurotoxicity models. Applicant must have established skills in behavioral neuropharmacology, in vivo experimentation, and tissue culture methods with experience in cell biology, molecular biology, and biochemistry.

The position is located at Georgetown Medical School (FGIN) and is a faculty appointment (nontenured) as a **RESEARCH ASSOCIATE PROFESSOR** in the Department of Pharmacology. Salary is \$35,000 per year. Send résumé to: **Director, FGIN, 3900 Reservoir Road, Washington, DC 20007.**

ASSISTANT RESEARCH SCIENTIST. Position available (3 years) to study proteolytic processes used by normal and neoplastic cells to traverse extracellular matrix barriers [e.g., *J. Clin. Invest.* **83**, 1122 (1989); *Science* **249**, 178-181 (1990)]. Strong background in endothelial cell or extracellular matrix biology/molecular biology is essential. Salary: \$35,000 to \$40,000. *Must be U.S. citizen or permanent resident of the United States.* Submit curriculum vitae and letters of reference to: **Dr. Stephen J. Weiss, University of Michigan Medical Center, Simpson Memorial Institute, Department of Internal Medicine, 102 Observatory Street, Ann Arbor, MI 48109.**

COURSES AND TRAINING

CAREER CHANGE OPPORTUNITY

This unique program offers the candidate with an earned doctorate in the sciences the opportunity to obtain the Doctor of Optometry (O.D.) degree in two calendar years. Employment opportunities exist in private practice, industry, education, and research. Contact: **Dr. D. Chauncey, Program Director, Accelerated Program, The New England College of Optometry, Room S, 424 Beacon Street, Boston, MA 02115.**

DOCTOR OF ARTS IN BIOLOGICAL SCIENCES. FELLOWSHIPS are available for persons interested in the D.A. degree in biological sciences. The program stresses preparation for undergraduate teaching at colleges and universities. Applicants must hold a master's degree in some area of biology. Deadline for receipt of application is 1 March 1991. For more information, contact: **Chairman, D.A. Committee, Department of Biological Sciences, Idaho State University, Pocatello, ID 83209. An Equal Opportunity Employer.**

COURSES AND TRAINING

M.D./Ph.D. FELLOWSHIPS. The Medical University of South Carolina (MUSC) offers stipends (\$10,000 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.**

NASA PLANETARY BIOLOGY INTERNSHIPS. The Marine Biological Laboratory, Woods Hole, Massachusetts, invites applications from graduate students and seniors accepted to graduate programs for awards of \$2000 plus travel to participate in research at NASA centers and collaborating institutions for approximately 8 weeks. Typical intern programs include: global ecology, remote sensing, microbial ecology, biomineralization, and origin and early evolution of life. Application deadline: 1 March 1991. For information/applications, contact: **Greg Hinkle, Planetary Biology Intern Program, Department of Botany, University of Massachusetts, Amherst, MA 01003. An Equal Opportunity/Affirmative Action Institution.**

SIXTH ANNUAL COURSE OFFERING: "Critical Issues in Tumor Microcirculation, Angiogenesis, and Metastasis: Biological Significance and Clinical Relevance" will be offered 3 to 7 June 1991 at Carnegie Mellon University, Pittsburgh. Lecturers are Pietro M. Gullino, M.D., former Chief of Pathophysiology Laboratory, National Cancer Institute, and Rakesh K. Jain, Ph.D., Director, Tumor Microcirculation Laboratory, Carnegie Mellon. Information: **R. Hilda Diamond, Associate Director, Biomedical Engineering Program, Carnegie Mellon University, Pittsburgh, PA 15213. Telephone: 412-268-2521. FAX: 412-268-7139.**

GRADUATE FELLOWSHIPS CENTER FOR THE STUDY OF EVOLUTION AND THE ORIGIN OF LIFE (CSEOL) THE UNIVERSITY OF CALIFORNIA LOS ANGELES (UCLA)

CSEOL invites applications for six predoctoral fellowships for 1991-92. In addition to support provided to fellows by UCLA academic departments, CSEOL will grant each fellow a stipend of \$5000 per year for each of the first 2 years of graduate study, with no teaching or other duties. Fellows are included in a select group of former fellows and other graduate students invited to interact with center faculty in a weekly dinner/seminar/discussion series. Applicants should be planning to carry out thesis research under the supervision of a CSEOL faculty member and in a subject area relating to evolution, broadly defined: of the solar system, of Earth, of the environment, of life, of humans. Areas of particular interest for 1991-92 include (i) ecological and evolutionary biology, (ii) paleobiology, (iii) biochemical evolution, (iv) cosmic/solar system/geological evolution, and (v) philosophy and history of science. Faculty are members of the UCLA Departments of Anthropology, Astronomy, Atmospheric Sciences, Biology, Chemistry and Biochemistry, Computer Science, Earth and Space Sciences, Geography, and Microbiology; the School of Medicine (Anatomy, Microbiology and Immunology, Physiology, Biobehavioral Sciences); and the School of Public Health. Fellowship applicants must apply by 1 February 1991, both to an appropriate academic department and to CSEOL. For application forms and a list of CSEOL members, contact:

**CSEOL Fellows Committee
Geology Building, Room 5687
University of California, Los Angeles
Los Angeles, CA 90024
Telephone: 213-825-1170
FAX: 213-825-0097**

ANNOUNCEMENTS

Harvard University announces **BULLARD FELLOWSHIPS IN FOREST RESOURCES** with stipends available for advanced study and research in all aspects of forest biology. Fellowships are open to individuals in academic careers, public service, or private forestry with stipends up to \$25,000. Further information may be obtained from: **Committee on the Charles Bullard Fund for Forest Research, Harvard University, Harvard Forest, Petersham, MA 01366.** Deadline for applications: 1 February 1991.

SITUATIONS WANTED

BIOCHEMIST, Ph.D. Strong industrial R&D background; prior teaching experience. Biotechnology, protein chemistry, bioseparations, and biomaterials. Seeks academic teaching/research/administrative position. **Box 136, SCIENCE.**

IMMUNOLOGIST, Ph.D. (1988). Autoimmunity research. Immunoassays, tissue culture, mAb techniques, protein chemistry, computing, supervisory experience. Industrial/academic/R&D position. **Box 141, SCIENCE.**

MICROBIOLOGIST, Ph.D. Experience with parenterals, seeking industry position. QC/QA, GMPs, validations, aseptic processing, pyrogen testing, protein chemistry. West Coast location. **Box 139, SCIENCE.**

MICROCOMPUTER ENGINEER. Seeking design assignments for electromechanical instrument and test apparatus development or support your effort. **3306 Horseman Lane, Falls Church, VA 22042. Telephone: 703-533-1236.**

PATHOLOGIST/PHYSIOLOGIST, M.D., Ph.D., A.P./C.P. Board-certified, with laboratory management/hospital computer experience. Seeks programming, editing/writing/consulting work. **Box 137, SCIENCE.**

Ph.D./M.B.A. Strong experience in operations/finance, business plans, raising capital at therapeutics and diagnostics start-ups. Seeks novel biotechnology opportunity. **Box 138, SCIENCE.**

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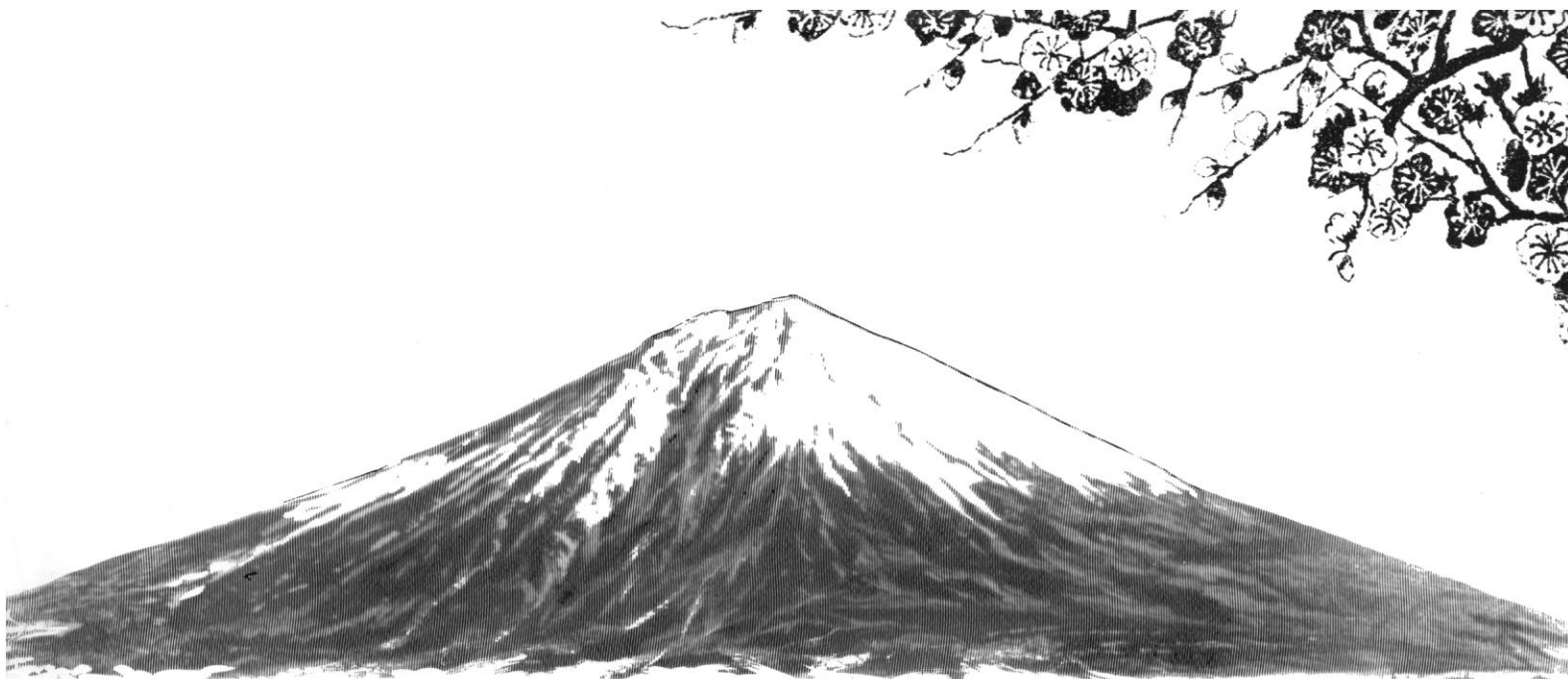
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1991 Summer Institute in Japan for US Graduate Students in Science and Engineering

The National Science Foundation (NSF) announces an opportunity for 50 select US science and engineering graduate students to gain first-hand experience in a Japanese research environment by spending the summer of 1991 at Japanese research laboratories in Tsukuba Science City.

The goals of the Summer Institute in Japan are to expose US graduate students to Japanese science and engineering in the context of a research laboratory and to initiate personal relationships which will better enable them to collaborate with Japanese counterparts in the future. Those eligible are graduate students (US citizens or nationals) who are enrolled at a US institution in a PhD program or enrolled in an engineering graduate program of which they have completed a year or more.

The 50 graduate students selected for this internship will spend the summer participating in on-going research projects at Japanese government or corporate laboratories in Tsukuba Science City, about 60 km northeast of Tokyo. Thirty-six government research institutions are potential hosts for interns, including such well known laboratories as the Electrotechnical Laboratory, the National Institute of Agrobiological Resources, the National Space Development Agency of Japan, the National Research Institute for Metals, and the University of Tsukuba. It is not yet known which organizations may act as hosts.

In addition, interns will receive intensive Japanese language training and, through lectures, discussions and occasional field trips, gain an understanding of the science and science-policy infrastructure of Japan. Interns in the Summer Institute Program will be in Japan for eight weeks from June 28 to August 24. The NSF will pay travel costs to and from Japan and an allowance of \$2,000. Dormitory accommodation and partial board while in Japan will also be provided.

All application materials for the Summer Institute in Japan must be postmarked by January 15, 1991. NSF welcomes applications from all qualified science and engineering graduate students, and strongly encourages women, minorities and persons with disabilities to apply. Application materials may be obtained from NSF's Japan Programs Office, by sending a post card to:

Japan Programs, Room 1214
National Science Foundation
Washington DC 20550

or through electronic mail to:

NSFJinfo@nsf.gov (InterNet) or
NSFJinfo@NSF (BitNet)



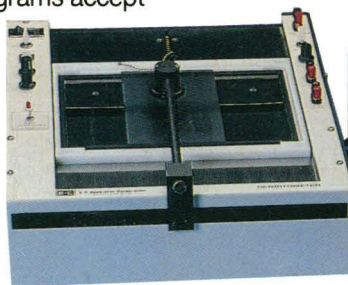
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