

have evolved to be detected" (F. R. Hainsworth, *Am. Sci.* 69, 420 [1981]). Consequently hummingbirds have been valuable for studies of energetics, foraging behavior, time budgets, resource competition, population biology, community structure, plant and pollinator coevolution, aerodynamics, and sensory function. In turn, such research has added considerably to appreciation of the lives of hummingbirds.

Across this spectrum of interests, there has been a need for an up-to-date general reference. Even the Dover reprint of the old (1940) standby from A. C. Bent's *Life Histories of North American Birds* series is out of print. Johnsgard has filled this gap with detailed species accounts that incorporate recent analysis as well as descriptive natural history. These are preceded by a set of color plates and a 65-page "Comparative biology of hummingbirds," summarizing classification, evolution, anatomy, physiology, ecology, behavior, and reproduction.

The North American species appear with flowers they pollinate in a series of esthetically pleasing watercolors by James McClelland. These plates show very fine details down to feather barbs and plant pubescence. The text notes the "remarkable elongation of the hand bones and the associated length of the ten primary feathers" (p. 33), but the primaries shown on some plates (16 E and F) are disproportionately small next to exaggerated forewings. The pedicels of *Ipomopsis* are of exaggerated length and drooping. The plate legends do not reference text pages, and the abbreviation of Latin names is confusing (*C. l. leucotis* and *C. l. magicus* are not races of the same species).

Some information seems to have been adopted from other sources uncritically. It has only been assumed that some Anna hummingbirds migrate to Arizona in September and back to California in December; there are no banding recoveries to substantiate this. The "calories" of energy consumed (p. 41) are actually people-diet "calories" (kcal), a  $10^3$  ambiguity avoidable by conversion to S.I. units. There is "an area of 180 m" on p. 97. Some of the distribution maps do not agree with information given in the text (for example, in the cases of the Anna and the beryline). The normal body temperature of 40°C is not among the highest for birds, as stated, but just average, and without a reference it is hard to swallow the statement that hummingbirds "may drink eight times their weight in water per day" (p. 18).

Valuable appendixes give origins of

Latin names, identification keys, a synopsis of all 342 species and an index to illustrations of them in other books, and a distributional checklist of the hummingbird-adapted plants of North America. There is also a glossary. The bibliography is not all-inclusive and has only 11 references later than 1979. Two-thirds of the citations are from ornithological journals and books, whereas "the great advances made in nearly all areas of knowledge concerning hummingbirds" that the publisher's brochure claims are incorporated have tended to appear in ecological, physiological, and other non-phylogenetically oriented journals. Thus key contributions pertinent to the comparative biology discussions have been omitted (for example papers by Beuchat *et al.*, DeBenedictis *et al.*, Epting, Goldsmith, Hainsworth, Price and Waser, and C. Vleck) although they appeared two years before this book.

Nevertheless, there is a treasury of information here, and pointing out a few omissions is not intended so much as a criticism of the author's intent as of the publisher's promotional claims. Fortunately, this did not become a coffee-table volume; the 19-by-26-centimeter size makes it more portable, certainly a volume to take along for a season of hummingbird studies in the field as well as to enjoy at home.

WILLIAM A. CALDER III

Department of Ecology and  
Evolutionary Biology,  
University of Arizona, Tucson 85721

## Books Received

**Achievement and Achievement Motives.** Psychological and Sociological Approaches. Janet T. Spence, Ed. Freeman, San Francisco, 1983. x, 382 pp., illus. Cloth, \$22.50; paper, \$14. A Series of Books in Psychology.

**Adult T Cell Leukemia and Related Diseases.** Masao Hanaoka, Kiyoshi Takatsuki, and Masanori Shimoyama, Eds. Japan Scientific Societies Press, Tokyo, and Plenum, New York, 1982. viii, 244 pp., illus. \$45. Japanese Cancer Association GANN Monographs on Cancer Research, No. 28.

**Advances in Biotechnological Processes.** Vol. 1. Avshalom Mizrahi and Antonius L. van Wezel, Eds. Liss, New York, 1983. xvi, 344 pp., illus. \$58.

**Advances in Perinatal Medicine.** Vol. 3. Aubrey Milinsky, Emanuel A. Friedman, and Louis Gluck, Eds. Plenum, New York, 1983. xviii, 256 pp., illus. \$39.50.

**Advances in the Study of Mammalian Behavior.** Papers from a conference, Front Royal, Va., Aug. 1980. John F. Eisenberg and Devra G. Kleiman, Eds. American Society of Mammalogists, 1983 (available from G. L. Kirkland, Jr., Vertebrate Museum, Shippensburg State College, Shippensburg, Pa.). xvi, 754 pp., illus. \$45. Special Publication No. 7.

**Aging and Milieu.** Environmental Perspectives on Growing Old. Papers from a conference, Morgantown, W. Va., 1981. Graham D. Rowles and Russell J. Ohta, Eds. Academic Press, New York, 1982. xviii, 254 pp. \$24.

**Biological Effects and Dosimetry of Nonionizing Radiation.** Radiofrequency and Microwave Energies. Proceedings of an institute, Erice, Italy, Mar. 1981. Martino Grandolfo, Sol M. Michaelson, and Alessandro Rindi, Eds. Plenum, New York, 1983.

xii, 670 pp., illus. \$79.50. NATO Advanced Study Institutes Series A, vol. 49.

**Biology.** Helena Curtis. Worth, New York, ed. 4, 1983. xxviii, 1160 pp., illus. \$27.95.

**The Biology of Crustacea.** Dorothy E. Bliss, Ed. Vol. 5, Internal Anatomy and Physiological Regulation. Linda H. Mantel, Ed. Academic Press, New York, 1983. xxviii, 472 pp., illus. \$57.

**Biophysics of Water.** Proceedings of a conference, Cambridge, England, June 1981. Felix Franks and Sheila F. Mathias, Eds. Wiley-Interscience, New York, 1983. xxvi, 400 pp., illus. \$64.95.

**Biotechnology.** H.-J. Rehm and G. Reed, Eds. Vol. 3, Biomass, Microorganisms for Special Applications, Microbial Products I, Energy from Renewable Resources. H. Dellweg, Ed. Verlag Chemie, Deerfield Beach, Fla., 1983. xx, 642 pp., illus. \$309.

**Birth to Maturity.** A Study in Psychological Development. Jerome Kagan and Howard A. Moss. Yale University Press, New Haven, Conn., ed. 2, 1983. xxx, 300 pp. Cloth, \$25; paper, \$8.95.

**The Cauchy Problem.** H. O. Fattorini. Addison-Wesley Advanced Book Program, Reading, Mass., 1983. xxiv, 636 pp. \$69.95. Encyclopedia of Mathematics and Its Applications, vol. 18.

**Cell and Muscle Motility.** Vol. 3. Robert M. Dowben and Jerry W. Shay, Eds. Plenum, New York, 1983. xiv, 312 pp., illus. \$39.50.

**Cell Separation.** Methods and Selected Applications. Vol. 1. Thomas G. Pretlow II and Theresa P. Pretlow, Eds. Academic Press, New York, 1982. xii, 330 pp., illus. \$35.

**Cellular Regulation of Secretion and Release.** P. Michael Conn, Ed. Academic Press, New York, 1982. xx, 590 pp., illus. \$65. Cell Biology.

**Centrifugation in Density Gradients.** C. A. Price with contributions by Eric F. Eikenberry. Academic Press, New York, 1982. xvi, 430 pp., illus. \$59.50.

**Chemistry and Biology of Hydroxamic Acids.** Papers from a symposium, Dayton, Ohio, May 1981. Horst Kehl, Ed. Karger, Basel, 1982. xii, 192 pp., illus. \$142.50.

**Climatic Design.** Energy-Efficient Building Principles and Practices. Donald Watson and Kenneth Labs. McGraw-Hill, New York, 1983. viii, 280 pp., illus. \$29.95.

**Design and Installation of Solar Heating and Hot Water Systems.** J. Richard Williams. Ann Arbor Science (Butterworths), Boston, 1983. x, 430 pp., illus. \$39.95.

**Diabetic Renal-Retinal Syndrome.** Vol. 2, Prevention and Management. Papers from a conference, Brooklyn, N.Y., Nov. 1981. Eli A. Freidman and Francis A. L'Esperance, Jr., Eds. Grune and Stratton, New York, 1982. xvi, 544 pp., illus. \$49.50.

**The Dictionary of Space Technology.** Joseph A. Angelo. Van Nostrand Reinhold, New York, 1983. x, 380 pp., illus., + appendix. Paper, \$15.50. Reprint of the 1982 edition.

**Experimental Therapeutics of Movement Disorders.** Papers from a symposium. Stanley Fahn, Donald B. Calne, and Ira Shoulson, Eds. Raven, New York, 1983. xx, 320 pp., illus. \$42. Advances in Neurology, vol. 37.

**Explanatory Models in Linguistics.** A Behavioral Perspective. Pere Julià. Princeton University Press, Princeton, N.J., 1983. xvi, 228 pp. \$20.

**Fatherhood and Family Policy.** Michael E. Lamb and Abraham Sagi, Eds. Erlbaum, Hillsdale, N.J., 1983. xii, 276 pp. \$24.95.

**Fugitive Emissions and Controls.** Howard E. Hesketh and Frank L. Cross, Jr. Ann Arbor Science (Butterworths), Boston, 1983. xii, 146 pp., illus. \$22.50.

**The Fundamentals of Nitrogen Fixation.** J. R. Postgate. Cambridge University Press, New York, 1983. x, 252 pp., illus. Cloth, \$37.50; paper, \$12.95.

**Genetic Control of Gamete Production and Function.** Papers from a meeting, Vienna, Oct. 1981. P. G. Crosignani, B. L. Rubin, and M. Fraccaro, Eds. Academic Press, London, and Grune and Stratton, New York, 1982. x, 298 pp., illus. Paper, \$40.

**Guidelines for the Control of Leptospirosis.** S. Faine, Ed. World Health Organization, Geneva, 1982 (U.S. distributor, WHO Publications Centre USA, Albany, N.Y.). 172 pp. Paper, \$7.50. WHO Offset Publication No. 67.

**The Human Cycle.** Colin M. Turnbull. Simon and Schuster, New York, 1983. 284 pp. \$14.95.

**Human Genetics.** John B. Jenkins. Benjamin/Cummings, Menlo Park, Calif., 1983. xxii, 462 pp., illus. \$22.95. The Benjamin/Cummings Series in the Life Sciences.

**Identifying and Estimating the Genetic Impact of Chemical Mutagens.** National Academy Press, Washington, D.C., 1983. xii, 296 pp. Paper, \$11.50.

**Illustrated Fact Book of Science.** Michael W. Dempsey, Ed. Arco, New York, 1983. 236 pp. \$9.95.

**Ludwig Boltzmann.** Man, Physicist, Philosopher. Engelbert Broda. Translated from the German edition (Vienna, 1955) by Larry Gay and the author. Ox Bow Press, Woodbridge, Conn., 1983. x, 170 pp., illus. \$22.50.

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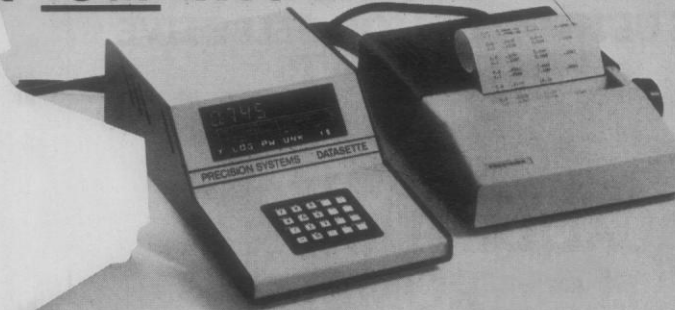
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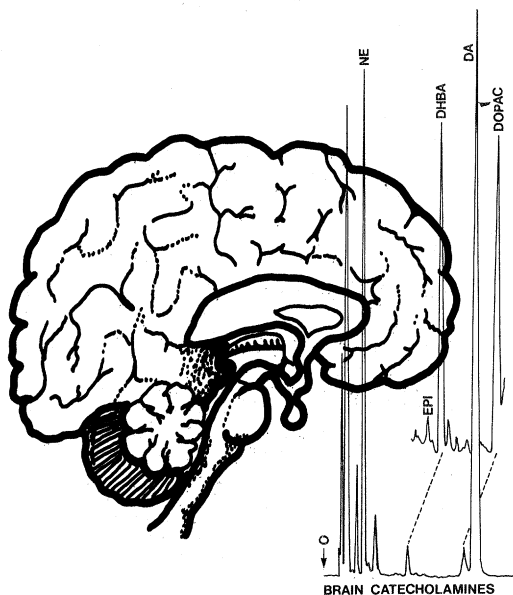
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## POSITIONS OPEN

The University of California, Irvine, has an opening for an **ASSISTANT PROFESSOR IN-LINE IN NEUROLOGY** at the University Medical Center. Candidate must be Board-certified in neurology, electromyography, and electroencephalography with research interests in neuromuscular disorders and somatosensory-evoked potentials. Experience in directing electrodiagnostic laboratory is preferred. Send curriculum vitae and the names of three referees to: **Dr. Arnold Starr, University of California, Irvine, Neurology Department, Room 154/Med Surge I, Irvine, Calif. 92717.** Deadline for applications: 23 September 1983. *An Equal Opportunity/Affirmative Action Employer.*

The Department of Pediatrics of the University of California, San Francisco, is seeking an **ASSISTANT RESEARCH BIOCHEMIST** with a strong background in protein biochemistry and/or membrane biology. A Ph.D. degree and an ability to do independent research are prerequisites. The successful applicant will work closely with a research team evaluating both normal and pathological human erythrocyte membranes. The position is available immediately. If interested, please send curriculum vitae to: **Dr. William Mentzer, Room 6B9, San Francisco General Hospital, San Francisco, Calif. 94110.**

**ASSOCIATE PROFESSOR—BIOCHEMISTRY.** The Department of Biochemistry at the University of Mississippi Medical Center invites applications for a tenure-track faculty position. Highly qualified candidates in all areas of biochemistry will be considered. Established fields of investigation include developmental biology, nucleic acid and protein synthesis, membrane biochemistry, and the cloning of eukaryotic genes. Send curriculum vitae and the names of three references by 30 October 1983 to: **Dr. Lawrence Slobin, Department of Biochemistry, University of Mississippi Medical Center, Jackson, Miss. 39216.** *Equal Opportunity Employer, M/F/V/H.*

### CELL BIOLOGIST

#### ASSISTANT PROFESSOR—FALL 1984

Applicants should have demonstrated research productivity and training in biochemical approaches at the cellular or molecular level. Teaching duties will be an undergraduate course in human anatomy and physiology, a graduate course in the area of research expertise, and participation in team-taught introductory and/or advanced courses in cell biology and physiology. Development of an active research program involving graduate research training is also required. Applicants must possess the Ph.D., and postdoctoral training is preferred. Applicants should send a letter describing their research plans, current curriculum vitae, and the names and addresses of four references to: **Dr. Howard J. Brinkley, Chairman of the Search Committee, Department of Zoology, University of Maryland, College Park, Md. 20742,** no later than 1 December 1983. *Affirmative Action/Equal Opportunity Employer.*

### CANCER BIOLOGIST

#### NORRIS CANCER CENTER UNIVERSITY OF SOUTHERN CALIFORNIA

The newly opened Norris Cancer Center at the University of Southern California is seeking a cancer cell biologist to develop a new program in the general area of urological cancer biology. Applicants should possess a Ph.D. or M.D. degree and have expertise in the area of tumor biology in one or more of the following areas: in vitro cultivation of human tumors, tumor cell heterogeneity, metastasis, invasion, angiogenesis, growth factors, chemotherapeutic assay systems, cell differentiation, and epithelial cell biology. The appointment will be made at the level of assistant or associate professor with the possibility of a joint appointment in a basic science department. The Division of Urology has a large patient base, and will commit substantial funding and resources for the development of this new program. The successful applicant will be expected to develop a strong, innovative, independent program and to integrate with other research currently under way at the Norris Cancer Center. Approximately 900 square feet of new space are available at this time and the possibilities for collaboration, and so forth, are outstanding.

Send curriculum vitae and the names of three references to:

**Dr. Peter Jones**  
Chair, Search Committee  
Department of Biochemistry  
University of Southern California  
School of Medicine  
2025 Zonal Avenue  
Los Angeles, Calif. 90033

## POSITIONS OPEN

**THE DEPARTMENT OF PATHOLOGY, UNIVERSITY OF CALIFORNIA, SAN DIEGO (UCSD),** seeks **Assistant Professor/Associate Director,** Division of Laboratory Medicine. Board-certification or -eligibility in clinical pathology is required and subspecialty certification in chemical pathology or clinical chemistry is desirable. Applicant is expected to pursue an active research program and teach medical students and residents. Salary dependent on qualifications. Submit curriculum vitae by 20 October to: **Nicholas M. Alexander, Ph.D., Department of Pathology (H720), UCSD Medical Center, 225 Dickinson Street, San Diego, Calif. 92103.** *Affirmative Action/Equal Opportunity Employer.*

**BIOPHYSICS/BIOCHEMISTRY.** Postdoctoral position for studies of static and time-resolved magnetic properties of metalloproteins using a one-of-a-kind instrument. Experience in one or more of the areas of metalloproteins, spectroscopic techniques, magnetic susceptibility, rapid kinetics, or instrumentation/computers is highly desirable. Send résumé and names of three references to: **Dr. John Philo, Biochemistry and Biophysics, UNIVERSITY OF CONNECTICUT, Box U-125, Storrs, Conn. 06268.** *An Equal Opportunity/Affirmative Action Employer. (SEARCH NUMBER 3A138.)*

**CELL/DEVELOPMENTAL BIOLOGIST.** Tenure-track position available September 1984. Ph.D. and experience required; rank and salary commensurate with experience. Research interest in area of cell surface and/or membrane biology. Experience with TEM/SEM necessary, microprobe analysis preferred. The successful candidate will be expected to develop a strong independent research program, and participate in a comprehensive graduate training program in analytical electron microscopy. Submit curriculum vitae, including a brief description of research interests, representative refereed publications, and three letters of recommendation to: **Dr. H. W. Sauer, Department of Biology, Texas A & M University, College Station, Texas 77843.** Closing date for the applications is 15 December 1983. *Texas A & M University is an Affirmative Action/Equal Opportunity Employer.*

### ECOLOGIST

The University of Georgia is seeking an eminent ecologist, known for innovative research, who will exert leadership in research and teaching. The position is to be filled at the rank of professor in a department in the Division of Biological Sciences appropriate to the specialization of the successful applicant. If you wish further information or to suggest a suitable candidate, contact: **L. R. Pomeroy, Chairman, Search Committee, Department of Zoology, University of Georgia, Athens, Ga. 30602.** Applications should name a minimum of three references and include other supporting material. Closing date is 1 December 1983 or until a suitable candidate is found. *The University of Georgia is an Equal Opportunity/Affirmative Action Institution.*

### EDUCATION—ASSISTANT PROFESSOR—FOOD MICROBIOLOGY/BIOTECHNOLOGY.

Teach courses in food microbiology and fermentation studies at undergraduate and graduate levels. Team-teach introductory course in food science to nonmajors. Participate in microbiology research and develop utilization of laboratory resources. Requires Ph.D. in microbiology or an appropriate biological science with specialization in microbiology. Postdoctoral experience desirable. One year commencing immediately and ending 30 August 1984. Nonrenewable. Submit, by 15 September 1983, résumé, three professional references, and salary requirements to: **Daniel F. Farkas, Chair, Department of Food Science and Human Nutrition, UNIVERSITY OF DELAWARE, Newark, Del. 19711.** Telephone: 302-738-8979. *The University of Delaware is an Affirmative Action/Equal Opportunity Employer.*

### ELECTROPHYSIOLOGIST—COGNITIVE PSYCHOLOGIST.

Position as assistant researcher/postgraduate researcher available for person with experience in both human evoked potential research and psychological testing. Individual will join a multidisciplinary group examining the role of genetics in alcoholism. Background should include an advanced degree (Ph.D.), computer technology, and a record of publications. Send curriculum vitae and names of three references to: **Dr. Ernest P. Noble, Department of Psychiatry and Biobehavioral Sciences, UCLA, Neuropsychiatric Institute, 760 Westwood Plaza, Los Angeles, Calif. 90024.**

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



# CONSENSUS WORKSHOP ON FORMALDEHYDE

The National Center for Toxicological Research  
will convene a consensus workshop on formaldehyde  
to discuss and seek general agreement on the  
existing scientific data and identify research needs.

The Workshop Will Be Held At The  
**EXCELSIOR HOTEL AND  
STATEHOUSE CONVENTION CENTER**  
Little Rock, Arkansas  
**OCTOBER 3-6, 1983**

Scientific panels have been established to discuss:

- RISK ESTIMATION
- EXPOSURE
- EPIDEMIOLOGY
- CARCINOGENICITY/HISTOPATHOLOGY/GENOTOXICITY
- STRUCTURE ACTIVITY/BIOCHEMISTRY/METABOLISM
- BEHAVIOR/NEUROTOXICITY/PSYCHOLOGICAL EFFECTS
- IMMUNOLOGY/SENSITIZATION/IRRITATION
- REPRODUCTION/TERATOLOGY

FOR ADDITIONAL INFORMATION CONTACT:

Dr. William F. McCallum, HFT-100, National Center for Toxicological Research,  
Jefferson, Arkansas 72079, (501) 541-4513 or FTS 542-4513  
or  
Reservations Department, Excelsior Hotel (501) 375-5000

SEEKING APPLICATIONS FOR

## The University of Akron Biomedical Engineering Director

Position available for individual with Ph.D. and/or M.D. who has at least one engineering degree. Position offers challenge and opportunity to expand biomedical engineering research program involving the University, area hospitals and the medical school. It is desirable that applicants have experience in biomedical engineering research and teaching.

The University of Akron, the third largest state university in Ohio, is located within a culturally rich region of concentrated industrial and research activities as well as outstanding health care facilities.

Salary is competitive, fringe benefits are outstanding and housing is attractively priced.

Send resume and names of three references by November 15, 1983 (February 15, 1984, if not filled sooner), to: Dean Louis A. Hill, Jr., College of Engineering, The University of Akron, Akron, OH 44325.

All materials, including letters from references, transcripts, etc., will be considered for the position available as early as January 1984.

**The  
University  
of Akron**  
Akron, Ohio 44325

The University of Akron is an Equal Education and Employment Institution

## KUWAIT

### Kuwait Institute for Scientific Research (KISR)

Kuwait Institute for Scientific Research, a non-profit organization with a staff of more than one thousand employees engaged in applied research in the fields of Environmental and Earth Sciences, Food Resources, Engineering, Petroleum, Petrochemicals and Materials, and Techno-Economics, presently has a vacancy for:

#### RESEARCH SCIENTIST IN FOREST PHYSIOLOGY

**MAJOR DUTIES:** To study performance of trees and ornamental plants under sea-front conditions of Kuwait's arid environment; to conduct detailed physiological studies related to trees' adaptation and establishment in addition to making necessary recommendations for trees and ornamental plants.

**QUALIFICATIONS:** Ph.D. in Forest Physiology and/or Ornamental Plants, in addition to a minimum of 3-4 years research experience in Tree Physiology and Regeneration. Experience in Sea-Front Plantation is desirable.

Kuwait Institute offers attractive salaries commensurate with qualifications and experience. Generous benefits include a guaranteed annual bonus of a month's salary, free air-conditioned and furnished accommodation, school tuition fees, contribution to a savings plan, air tickets, six week's annual leave and free medical care. Minimum contract is for two years, renewable.

Qualified applicants are invited to send their resumes with supporting information no later than one month from date of this publication to:

**MR. HABEEB AL-SAHHAH  
PERSONNEL MANAGER  
KUWAIT INSTITUTE FOR SCIENTIFIC  
RESEARCH  
P.O. BOX 24885 SAFAT  
KUWAIT**

## POSITIONS OPEN

**DEAN**—The Albert Einstein College of Medicine of Yeshiva University has embarked on a search for a dean of the College of Medicine. Candidates must have an earned doctoral degree in an area of biomedical science and have demonstrated a high level of administrative skill and scholarly achievement. Nominations and applications with curriculum vitae should be sent to: **Ernst R. Jaffe, M.D., Chairman, Search Committee, ALBERT EINSTEIN COLLEGE OF MEDICINE, 1300 Morris Park Avenue, Bronx, New York 10461. An Equal Opportunity Employer.**

### ENTREPRENEUR PRESIDENT—CEO SEPARATIONS

We offer the right individual the unique opportunity to join a new management team as a founder, and in the capacity of president and chief executive officer. The new company is focusing on the membrane separations and purification fields.

Our firm, Johnston Associates Inc., participated in the successful formation of Genex Corporation and Cytogen Corporation, and is actively engaged in the establishment of several new entities in the medical and biotechnology fields.

The ideal candidate should be entrepreneurial in spirit, have high technology experience, P & L responsibility, and a strong academic record with an advanced degree. Send curriculum vitae and letter describing your qualifications in complete confidence to:

**James F. Mrazek  
c/o Johnston Associates Inc.  
Pretty Brook Road  
Princeton, N.J. 08540**

**NOT A SEARCH FIRM—PRINCIPALS ONLY. Equal Opportunity Employer.**

### FACULTY POSITIONS

The Division of Toxicology, Department of Radiation Biology and Biophysics, at the University of Rochester School of Medicine and Dentistry invites applications until 1 November 1983 for three tenure-track positions at the assistant or associate professor level to be filled by September 1984.

#### PULMONARY IMMUNOLOGIST PULMONARY CONNECTIVE TISSUE BIOCHEMIST AEROSOL SCIENTIST

Successful candidates will be expected to develop interactive, independent research programs and participate in graduate education programs. A Ph.D., M.D., or comparable advanced degree is required; 2 to 5 years of postgraduate experience is desirable. Salary is negotiable. Applicants should send a brief statement of research interests, curriculum vitae, and names of three references to:

**Dr. Paul L. La Celle  
Pulmonary Search Committee  
Box RB&B  
University of Rochester  
601 Elmwood Avenue  
Rochester, New York 14642**

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

### FACULTY POSITION IN VIROLOGY

The Department of Microbiology, University of Texas Health Science Center at San Antonio (UTHSCSA), has a tenure-track position (junior-to-senior level appointment) for an outstanding candidate with training in the molecular biology of animal viruses. Candidates with primary research interests in mechanisms of virus replication, in virus gene expression, or in the molecular pathogenesis of viral disease(s) are encouraged to apply. The department is seeking an innovative person to establish/maintain a high quality independent research program and to participate in teaching at the graduate level. The department is an actively growing, research-oriented component of a major health science center located in a desirable geographic setting. Potential applicants should send their curriculum vitae and a statement of accomplishments and future goals, and arrange for three letters of reference to be sent to 15 November 1983 to: **Dr. Joel B. Baseman, Chairman, Department of Microbiology, The University of Texas Health Sciences Center at San Antonio, 7703 Floyd Curl Drive, San Antonio, Texas 78284. UTHSCSA is an Equal Opportunity/Affirmative Action Employer.**

## POSITIONS OPEN

### BIOLOGICAL OCEANOGRAPHER

The Department of Oceanography, Dalhousie University, invites applications for a full-time, tenure-track position as **assistant professor of oceanography**. The appointment will take effect on 1 July 1984. Salary dependent on qualifications and experience.

Applicants must possess Ph.D. and preferably postdoctoral experience. Specialists in marine microbiology, food chain dynamics, or other branches of quantitative biological oceanography are encouraged to apply.

Candidates should submit a letter of application, curriculum vitae, and letters from three referees to: **R. O. Fournier, Chairman, Department of Oceanography, Dalhousie University, Halifax, Nova Scotia, Canada B3H 4J1, before 31 October 1983.**

*In accordance with Canadian immigration requirements, this advertisement is directed to Canadian citizens and permanent residents.*

**FACULTY POSITION—MOLECULAR BIOLOGIST.** Tenure-track opening for a molecular biologist at the assistant or associate professor level in the Department of Chemistry (Biochemistry Division) at Texas Tech University (TTU) for the fall semester of 1984. Experience with recombinant DNA techniques and/or related molecular biological methods required. Prior to 1 November 1983, applicants should forward a résumé and description of proposed research and arrange to have three letters of recommendation sent to: **Professor Pill-Soon Song, Department of Chemistry, Texas Tech University, Lubbock, Texas 79409. Telephone: 806-742-3092. TTU is an Equal Opportunity/Affirmative Action Employer.**

### FACULTY POSITION FOR CELLULAR IMMUNOLOGIST QUALIFIED IN ALLERGY/IMMUNOLOGY

The Department of Immunology/Microbiology of Rush Medical College invites applications from qualified physicians to fill a tenure-track cellular immunology position, with major responsibilities in research and graduate programs. We are seeking an individual strongly committed to investigation and teaching, who can complement departmental research interests, foster clinical investigation, and develop his/her program to a level of national recognition. Ample opportunities are available to contribute to fellow and medical school teaching, and for participation in patient care. This position will be filled at the assistant or associate professor level, depending upon the qualifications of the applicant. Please submit résumé with description of research interests by 1 October 1983 to:

**Henry Gewurz, M.D., Chairman  
Department of Immunology/Microbiology  
Rush Medical College  
1753 West Congress Parkway  
Chicago, Ill. 60612**

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

**HEAD**, Department of Oral and Maxillofacial Surgery. Position available 1 February 1984. The Department of Oral and Maxillofacial Surgery, College of Dentistry, University of Illinois, is seeking applicants for the position of full-time head. The duties include responsibility for clinical and didactic instruction in both the predoctoral and postgraduate programs in oral surgery. Demonstrated ability in research, teaching, and administration is required. Current licensure in at least one of the fifty United States or in Canada and Board-certification are required. Academic rank and salary are commensurate with background and experience. Applications should be sent by 1 October 1983. *Equal Opportunity/Affirmative Action Employer.* Send curriculum vitae and three or more references to:

**Robert P. Scapino  
University of Illinois at Chicago  
College of Dentistry  
Room 535A  
801 South Paulina Street  
Chicago, Ill. 60612**

**INSTRUCTOR IN MOLECULAR NEUROBIOLOGY.** Faculty position available to pursue research on genetic neurological diseases. Applicant should be experienced in techniques of molecular biology including recombinant DNA methodology, formation of genomic and cDNA libraries and cloning procedures. Send curriculum vitae to: **Dr. Roger N. Rosenberg, Department of Neurology, University of Texas Health Science Center at Dallas, Southwestern Medical School, 5323 Harry Hines Boulevard, Dallas, Texas 75235. Equal Opportunity Employer.**

## POSITIONS OPEN

Ponce School of Medicine has **THREE FACULTY POSITIONS** open in **PHYSIOLOGY**. Requirements include M.D., Ph.D., or equivalent, with a sound background in general physiology. Preference will be given to applicants with ability to teach cardiovascular, CNS, or cellular physiology to first year medical students in an LCME accredited school. Teaching may be done in English and/or Spanish. The department also requires faculty to share responsibility for the medical physiology course and to develop their own research program. Submit curriculum vitae and names of three references to: **Chairman, Department of Physiology, Ponce School of Medicine, Box 7004, Ponce, P.R. 00732.**

**FACULTY POSITION**—Section Head, Geriatrics and Gerontology. The Department of Medicine of The Medical College of Wisconsin is recruiting an **internist** with training or interest in geriatrics and research related to aging. Responsibilities include enhancement of on going research programs and administration of the section, as well as the clinical and teaching programs of the section. Faculty appointment and salary will be commensurate with experience. Send curriculum vitae and references to: **Thad C. Hagen, M.D., Professor and Co-Chairman, Department of Medicine, The Medical College of Wisconsin, 8700 West Wisconsin Avenue, Milwaukee, Wis. 53226.**

**UNIVERSITY OF MICHIGAN—Invertebrate Paleontologist.** The Department of Geological Sciences and Museum of Paleontology invite applications for an expected joint tenure-track position, pending budgetary approval, in invertebrate paleontology. Appointment at the assistant professor/assistant curator level will begin in 1984. Ph.D. is required. We seek applicants with broad research and teaching interests in the evolution, paleoecology, systematics, and biostratigraphy of fossil invertebrates, complementing existing programs in paleozoology and paleobotany. Current faculty in paleontology are C. Badgley, C. B. Beck, J. A. Dorr, D. C. Fisher, P. D. Gingerich, R. V. Kesling (retiring), and G. R. Smith. Related faculty in sedimentology and stratigraphy are K. C. Lohmann, B. H. Wilkinson, and J. L. Wilson. Resources include strong programs in organismal and evolutionary biology within the University. Curatorial appointment involves shared responsibility for a major invertebrate research collection. Interested candidates should send a résumé, names of three persons from whom the department may request letters of recommendation, and a brief statement of research interests to: **Daniel C. Fisher, Search Committee Chairman, Museum of Paleontology, Ann Arbor, Mich. 48109.** Closing date for search is 1 November. *The University of Michigan is a nondiscriminatory, Affirmative Action Employer.*

### MARINE INVERTEBRATE ZOOLOGIST

A tenure-track position (assistant professor to professor) is available immediately for a marine invertebrate zoologist in the Division of Biology and Living Resources. Demonstrated (or the potential for) excellence in research and teaching is a prime criterion for appointment.

Applications should be submitted no later than 15 November 1983 to:

**Dr. Peter Lutz, Acting Chairman  
Division of Biology and Living Resources  
Rosenstiel School of Marine and Atmospheric Science  
University of Miami  
4600 Rickenbacker Causeway  
Miami, Florida 33149**

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

**MARINE ORGANIC CHEMIST**—Research associate in the Cooperative Institute of Marine and Atmospheric Sciences, University of Miami and National Oceanic and Atmospheric Administration (NOAA). Experience in GC-MS-DS and sampling from ships or aircraft desired. **Chairman, Search Committee, D. K. Atwood, NOAA/AOML, 4301 Rickenbacker Causeway, Miami, Florida 33149.**

**MS INSTRUMENT SPECIALIST.** University of Rochester, Department of Chemistry. Staff position for high-level maintenance and supervision of computer interfaced nominal and high resolution mass spectrometry instruments. Experience in vacuum techniques and electronics required. Send résumé to: **Personnel Department, University of Rochester, P.O. Box 636, Rochester, New York 14627. The University is an Equal Opportunity Employer; we welcome applications from qualified women and minority candidates.**

## DIABETES RESEARCH SCIENTISTS

The Upjohn Company, Kalamazoo, Michigan, a leading multi-national pharmaceutical company and a leader in the field of diabetes research, is seeking two innovative scientists to participate in a multi-disciplinary research program for the discovery of novel anti-diabetic drugs.

**Ph.D. Pharmacologist** - Design *in vivo* and *in vitro* experimental models for the study of insulin resistance and relative insulin deficiency associated with NIDDM (Type II) patients, and employ these models for drug discovery and development. Applicants must have a Ph.D. in pharmacology or physiology and must have at least two years of post-doctoral experience in diabetes research, preferably in mechanistic and drug-related research.

**Ph.D. Biochemist** - Independently design and implement research activities to define biochemical changes associated with diabetic nephropathy, neuropathy and retinopathy. In collaboration with a morphologist, develop test procedures for discovery of drugs which prevent or reverse diabetic complications. Applicants must have a Ph.D. in biochemistry plus at least two years of post-doctoral experience in studies on glycoprotein/proteoglycan metabolism and structural determination, preferably with experience in studies on basal lamina. Knowledge in diabetic microangiopathy is particularly desirable.

Upjohn offers a stimulating research environment, opportunity for career growth, competitive salary and benefits, and relocation assistance. Kalamazoo, a mid-sized Michigan community, provides a mix of cultural, educational, and recreational pursuits.

For confidential consideration, please call toll free, Upjohn's Corporate Employment Office at 1-800-253-8600 and ask for extension 3-6767. In Michigan call collect: 616/323-6767. Please refer to ad number 15276G when calling.

Equal Opportunity Employer M/F

**Upjohn**

## SENIOR RESEARCH BIOLOGIST Immunoassay

Sterling-Winthrop Research Institute announces the opening for a Senior Research Biologist to work in the Immunology Group of its Dept of Drug Metabolism and Disposition. The position involves the development of quantitative immunoassays for novel drug substances and natural products in biological media.

The successful candidate should have a PhD in biochemistry, pharmacology or the equivalent theoretical depth with 1-3 years of related experience. A background in RIA, ELISA, monoclonal antibodies, pharmacokinetics and computer programming is desirable.

Located near Albany, New York, we offer excellent salary and benefits program in an exciting environment based on a team approach to research and development. Send resume and salary requirements in confidence to:

Mr. John G. Barry, Employment Administrator



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RESEARCH INSTITUTE**

A Division of Sterling Drug, Inc.  
Columbia Turnpike, Rennselear, NY 12144

Equal Opportunity Employer M/F/H

## PROTEINS BIOCHEMIST INDUSTRIAL GENETIC ENGINEERING

Connaught Laboratories Limited is one of the world's largest manufacturers and distributors of human biologicals. Within the Connaught Research Institute, there is an established team of researchers who are exploring the practical application of biotechnological advances in the development of an expanded range of biological products. This team requires the additional expertise of a proteins biochemist who can meet the demands of a challenging position in a rapidly changing environment.

The ideal candidate will have a proven record of achievement in both research and its practical application, within the field of proteins biochemistry. Experience in immunology or molecular biology would be a definite asset, and would enhance the incumbent's ability to interact successfully with other Connaught research personnel.

Please reply in confidence to:

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Connaught Laboratories Limited  
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where service complements research



# Biochemists and Cell Biologists

Pfizer Central Research has openings for Ph.D. scientists to pursue research aimed at the discovery and development of important new therapeutic agents for the treatment of diabetes with special emphasis on the prevention or amelioration of diabetic complications. These positions offer an opportunity to work in an established multidisciplinary project team environment.

Applicants for these positions should have a Ph.D. and post-doctoral experience in cell biology or biochemistry and strong research interests in the areas of vascular, ocular or neurological complications of diabetes or in the study of important factors in glycemic control. Experience in the areas of peptide hormone action, intermediary metabolism, membrane structure and function, phospholipid turnover, ion transport, or endothelial cell biology is desirable. However applicants with demonstrated research accomplishments outside these areas will also be seriously considered.

This position offers an excellent opportunity for professional recognition and career growth. Publication of important findings will be encouraged. We also offer a competitive compensation, benefit and relocation package and the opportunity to live in an attractive Connecticut shore community. Please send resume and brief description of research interests to: Jerry K. Larson, Ph.D., Manager of Employment, Pfizer Central Research, Eastern Point Road, Groton, CT 06340.



An equal opportunity employer.

## Senior Scientist GENETIC ENGINEERING

Bristol-Myers Company, a leader in industrial biotechnology and a major international manufacturer of pharmaceutical products, has a challenging genetic research opportunity in its Genetic Engineering Department.

We are seeking a scientist who will be responsible for the development of host/vector systems for the efficient expression of cloned gene products. The successful candidate will be expected to work closely with scientists in both the Genetic Engineering and Fermentation Development Departments.

To qualify, your published research must document past experience in the cloning and

expression of heterologous genes. In addition, you should be experienced in DNA sequencing techniques and the synthesis of oligonucleotides. A Doctorate in Molecular Biology/Biochemistry must be supported by 2 or more years of postdoctoral research.

Bristol-Myers offers a salary fully commensurate with your experience and qualifications, a comprehensive benefits package, and a professional environment where high visibility will propel you farther faster. For prompt, confidential consideration, please forward your resume indicating current compensation, to: Manager of Employment



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INDUSTRIAL DIVISION**

P.O. Box 4755, Syracuse, New York 13221  
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### POSITIONS OPEN

**UNIVERSITY OF CALIFORNIA, IRVINE, DIVISION OF GASTROENTEROLOGY**, seeking INVESTIGATOR, M.D. or Ph.D., for elucidation of etiology of Crohn's Disease. Send curriculum vitae to:

Daniel Hollander, M.D.  
C340, Med Sci I  
University of California  
Irvine, Calif. 92717

**Tenure-track faculty position for MEDICINAL CHEMIST** with keen interest in research. Expected to instruct pharmacy students in organic medicinal chemistry, and to participate in graduate training leading to the M.S. and Ph.D. degrees in medicinal chemistry. Teaching load depends on involvement in meaningful and productive research. Salary and rank are contingent on expertise, experience, and capability to attract extramural funding. Address applications to: **Chairman, Department of Medicinal Chemistry, College of Pharmacy, University of Tennessee Center for the Health Sciences, Memphis, Tennessee 38163.** The University of Tennessee is an Equal Opportunity Employer.

### NATURAL PRODUCTS CHEMIST

Program Resources, Inc. (PRI), the Operations & Technical Support Contractor for the National Cancer Institute (NCI)-Frederick Cancer Research Facility (FCRF), has an immediate opening for a natural products chemist in the NCI-FCRF Fermentation Program.

The successful candidate should have a Ph.D. in natural products chemistry or organic chemistry with experience in the isolation, purification, and structural elucidation of natural products from fermentation. This scientist-level position is directly responsible for independent isolation, purification, structure elucidation of new compounds, structure validation and purity determination of compounds of interest and process development for scaling-up isolation and purification methods from laboratory to production scale. Worksopce-related collaborations that may result in publications are encouraged.

Program Resources, Inc. offers an attractive salary and company benefits program, including relocation allowance.

For consideration, please send curriculum vitae, salary requirement, names of three references, and complete publication list to:

NCI-Frederick Cancer Research Facility  
PRI Personnel Department  
P.O. Box B  
Frederick, Md. 21701

**PATHOLOGISTS.** The Department of Pathology at University of California, Los Angeles (UCLA), School of Medicine, has positions available at the assistant professor level to start on or before 1 July 1984. Qualifications include an M.D. degree, Board-eligibility or -certification in anatomic or specialty pathology, demonstrated research ability and eligibility for California licensure. Individuals with specialized interests in neuropathology, pulmonary pathology, pediatric pathology, and cell biology will be favored, although candidates with other specialties will be considered. Duties will include assistance on the autopsy service, teaching undergraduate and graduate students and residents, and development of an independent research program. Applications including curriculum vitae, summary of research interests, and names and addresses of four references, should be sent to: **P. A. Cancilla, M.D., Chairman, Department of Pathology, UCLA School of Medicine, Los Angeles, California 90024.**

*UCLA is an Equal Opportunity/Affirmative Action Employer. Minority and women candidates are encouraged to apply.*

### UNIVERSITY OF CHICAGO DIVISION OF THE BIOLOGICAL SCIENCES

Postdoctoral position in cell physiology available in September to investigate the biochemical mechanism by which mitogen stimulation of cultured fibroblasts leads to activation of the  $\text{Na}^+/\text{H}^+$  exchange transport system. Experience in membrane biochemistry desirable. Send curriculum vitae and names of three references to:

Dr. Mitchel Villereal  
Department of Pharmacological and  
Physiological Sciences  
The University of Chicago  
School of Medicine  
947 East 58 Street  
Chicago, Ill. 60637

## SR. PLANT PHYSIOLOGIST

### YALE UNIVERSITY

#### Department of Biology

Yale University's Department of Biology seeks applicants for a senior position in plant physiology. Candidates should be able and enthusiastic teachers who have made a considerable research contribution to a currently active field such as membranes and transport, photosynthesis, nitrogen fixation, developmental physiology or biochemical mechanisms of response to stress and pathogens.

Send C.V., representative publications and the names of at least three referees by 15 November 1983 to: **The Executive Secretary, Department of Biology, Yale University, P.O. Box 6666, New Haven, CT. 06511.** *Yale University is an Equal Opportunity/Affirmative Action Employer.*

## FREIE UNIVERSITÄT BERLIN PROFESSORSHIP AND DIRECTORSHIP IN THE FIELD OF MOLECULAR BIOLOGY LAND BERLIN AND SCHERING AG BERLIN AND BERGKAMEN

jointly intend to establish a scientific institute in the legal form of a limited company. The institute will be orientated towards basic scientific research in the field of molecular biology. It will be housed in a new building situated in the grounds of the "Max-Planck-Institut für Molekulare Genetik" in Berlin-Dahlem. Applications are invited for appointment to the combined position of *professor at the Freie Universität Berlin and director of the institute.* The appointment is open to both men and women.

Applicants should have special interest and experience in the field of molecular biology of eucaryotes. They should have an internationally recognised record of substantial achievement, and experience in the setting up and supervising of a research group. The successful candidate will be required to participate in the planning of the functions, internal structure and technical equipment of the institute within budgetary limits. The appointee will be required to lecture two hours per week and be further responsible for supervision of graduates and post-graduates.

Qualifications: doctorate, habilitation or equivalent, evidence of qualification for experimental scientific work and proven teaching abilities. Salary at an appropriate point on the Professorial Grade C 4 scale.

Applications with full curriculum vitae, details of professional career, list of publications and reprints should be lodged by 30 September 1983 with the Präsident der Freien Universität Berlin -K-, Altensteinstr. 40, D - 1000 Berlin 33, West Germany, quoting reference "Forschungs-GmbH."

## Technical Manager

### MOLECULAR BIOLOGY ENZYMES

Pharmacia P-L Biochemicals, Inc., a division of Pharmacia Inc., has an immediate opening for an energetic innovative PhD Enzymologist with at least 4 years of post-doctoral experience in purification and characterization of nucleic acid modifying enzymes. Industrial experience and commercial orientation desirable. Supervise operations of group responsible for production of enzymes. Participate in hands-on research and development of new product to serve the biotechnology market.

Send resume in confidence with phone number of 3 references to: **Dr. James E. Willis, V.P./Technical Director, Enzymes, Pharmacia P-L Biochemicals, Inc., 1037 W. McKinley Avenue, Milwaukee, WI 53205.**



We are an equal opportunity employer, m/f

## Pharmacia

## CNS ELECTROPHYSIOLOGIST

G. D. Searle, Research and Development Division, has an immediate opening for an electrophysiologist with experience in microiontophoresis and extracellular single unit recording in the CNS of vertebrates. A background in physiological psychology and behavior is preferred. Requirements include a Ph.D. or equivalent, good record of productivity and 0-4 years experience in electrophysiology/microiontophoresis. The ability to communicate effectively is essential as is the ability to work as a team member with the other CNS section scientists.

We are offering an excellent salary and benefit package as well as the opportunity for professional growth. Your curriculum vitae and salary history should be submitted in confidence to:

Barbara Gardner  
#72J-7

Searle Research and Development  
Division of G. D. Searle & Co.  
4901 Searle Parkway  
Skokie, Illinois 60077

An Equal Opportunity Employer M/F/H

## SEARLE

## Director of Development Life Sciences and Physical Sciences

UCLA invites applications for the position of Director of Development for Life Sciences & Physical Sciences. Plan and direct major fund raising and public relations programs for the two Divisions. Analyze market potential for key programs, identify private funding sources, design, initiate strategies for successful solicitation, direct efforts of key volunteers and coordinate committees of faculty and friends. Negotiate major gifts from individuals, corporations and foundations. Consult and assist in planning of overall College goals and objectives as they relate to the UCLA campaign.

Requirements include education and experience equivalent to a Bachelor's degree and 6 years relevant experience, preferably including minimum 3 years fund raising in an urban university setting with some training or understanding of Science and its needs. Demonstrated ability to deal with and meet conceptual, administrative and public relations issues and opportunities inherent in the on-going contact with senior faculty and major donor prospects. Knowledge of proposal preparation for priority programs. Skill in preparing and making presentations to individuals and corporate/foundation leaders. Ability to create, organize and initiate programs and projects in administration, development, public relations which will further goals and objectives of the Life & Physical Sciences.

Please send resume with cover letter describing your qualifications for this position, Job #A-2406 (X) to:

Director Letters & Science Development  
405 Hilgard Avenue,  
Murphy Hall 1312  
Los Angeles, CA 90024



Affirmative Action  
Employer M/F/H

## POSITIONS OPEN

The Department of Anatomy at the University of Tennessee Center for the Health Sciences (UTCHS) is recruiting for **NEURO OR CELL BIOLOGISTS** at the level of assistant professor. Ph.D. or M.D. and postdoctoral experience required. Please send curriculum vitae to the attention of: **Dr. Stephen T. Kitai, Chairman, Department of Anatomy, UTCHS, 875 Monroe Avenue, Memphis, Tenn. 38163.**

**THE DEPARTMENT OF BIOCHEMISTRY, UNIVERSITY OF WISCONSIN**, invites applications for a position of assistant professor in the area of **PLANT MOLECULAR BIOLOGY**. Candidates should have a strong background in molecular biology, biochemistry, and plant sciences and will be expected to establish an independent research program. Other duties will include formal teaching and the supervision of graduate students. Salary will be on a 12-month basis at a level that is commensurate with qualifications and experience and compatible with the salary structure of the University of Wisconsin system. *Women and minority candidates are especially encouraged to apply.* Send a detailed curriculum vitae and a two-page statement of research interests to: **H. F. DeLuca, Chairman, Department of Biochemistry, University of Wisconsin-Madison, Madison, Wis. 53706**, before 15 November 1983. Have three letters of recommendation sent to the same address. *The University of Wisconsin is an Equal Opportunity/Affirmative Action Employer.*

**POSTDOCTORAL ASSOCIATE IN CELLULAR NEUROBIOLOGY AND BIOPHYSICS.** Position available starting January 1984, to investigate regulation of channel excitability by neuropeptides through intracellular messengers such as calcium, cyclic nucleotides, protein kinases, and so forth, in molluscan and/or cultured vertebrate neurons. Techniques include conventional two-electrode voltage clamp, patch clamp, computer analysis, cell injection, calcium indicators, imaging techniques, caged molecules, and so forth. Outstanding facilities and colleagues in an excellent academic environment. Background in cellular electrophysiology or related cell biology is essential; experience with computers or electronics would be useful. Salary from \$17,000. Send curriculum vitae with names of three referees to: **Dr. Roger Eckert, Department of Biology, University of California (UCLA), Los Angeles, Calif. 90024.** *UCLA is an Equal Opportunity Employer.*

**POSTDOCTORAL POSITION IN NEUROBIOLOGY** available immediately to study morphological and physiological characteristics of intersegmental and intrasegmental interneurons in the lobster abdominal nerve cord. Experience with intracellular recording, current passing, and dye filling techniques is required. Send curriculum vitae and names of these references to: **Dr. C. H. Page, Bureau of Biological Research, Nelson Laboratories, Rutgers University, Piscataway, N.J. 08854.**

**POSTDOCTORAL POSITION** available in neuroendocrinology to study the effects of aging, neuropeptides, and/or melatonin on reproduction. Tissue culture experience desirable. This position is for 2 years. Salary comparable to NIH postdoctoral fellowship. Send curriculum vitae and name of two references to: **Employment Coordinator, St. Joseph's Hospital and Medical Center, 350 West Thomas Road, Phoenix, Ariz. 85013.** *Equal Opportunity Employer*

**POSTDOCTORAL POSITION** available to study protein phosphorylation and  $Ca^{2+}$  regulation in smooth muscle. Candidates should have strong background in biochemistry. Those interested should send curriculum vitae and three letters of reference to: **Thomas M. Lincoln, Ph.D., Department of Pharmacology, School of Medicine, University of South Carolina, Columbia, S.C. 29208.** Telephone: 803-733-3258. *The University of South Carolina is an Equal Opportunity/Affirmative Action Employer.*

**POSTDOCTORAL POSITION** available 1 April 1984, for 1 or 2 years; salary consistent with current NIH extramural postdoctoral stipends. The project, while somewhat flexible, will involve studies in cellular systems of the relationship between autonomic receptors, ion fluxes, and inositol lipid metabolism. Applicants should respond by sending curriculum vitae and the names and addresses of two references to: **Dr. J. W. Putney, Jr., Department of Pharmacology and Toxicology, Medical College of Virginia-Virginia Commonwealth University, Box 613, Richmond, Virginia 23298.** *An Equal Opportunity/Affirmative Action Employer*

## POSITIONS OPEN

### POSTDOCTORAL NEUROPHYSIOLOGY

**POSTDOCTORAL NEUROPHYSIOLOGY POSITIONS** in the Neuroscience Research Group at The University of Calgary. The University of Calgary Medical School has a well funded, young faculty providing an exciting research environment. Training can be provided for a variety of electrophysiological and tissue culture techniques applied to single cells, including intracellular recording and staining, voltage clamp, and patch clamp in a variety of preparations with the following individuals: D. Bowling (structure and function in the mammalian visual system), A. G. M. Bulloch (neurite outgrowth and synapse formation of molluscan neurons), K. Lukowiak (neuronal mechanisms of behavior in *Aplysia*), B. A. MacVicar (local synaptic circuitry in the mammalian central nervous system), F. Quandt (properties of ion channels in retinal and neuroblastoma cells), and Q. Pittman (peptidergic neurotransmission and hypothalamic physiology). Postdoctoral fellowships are available on a competitive basis for qualified candidates of any nationality. Interested candidates should send curriculum vitae and statement of area of interest, and have three letters of reference sent to: **Dr. B. A. MacVicar, Department of Medical Physiology, The University of Calgary, Calgary, Alberta, Canada T2N 4N1.**

**POSTDOCTORAL POSITION** in plant physiology to study fluoride-induced alterations in processes associated with senescence. Qualifications include Ph.D. in plant physiology or biochemistry with experience in senescence physiology. Experience with calcium nutrition/metabolism is also desirable. Appointment will begin in January 1984 for a minimum of 1 year and is renewable for up to 3 years. Starting salary: \$16,000. Send curriculum vitae and names of three references to: **Dr. D. C. MacLean, Boyce Thompson Institute at Cornell University, Tower Road, Ithaca, N.Y. 14853.** *Boyce Thompson Institute is an Affirmative Action/Equal Opportunity Employer.*

**POSTDOCTORAL POSITION** available to study the molecular regulation of metabolic pathways and/or pleiotropic genetic control mechanisms in *Salmonella typhimurium*. Background in genetics and/or recombinant DNA technology preferred. Salary: \$16,900 per year. Send résumé and three letters of recommendation to: **Dr. John W. Foster, Department of Microbiology, Marshall University School of Medicine, Huntington, W. Va. 25704.**

**POSTDOCTORAL POSITION** available immediately for cell biologist/cell physiologist to study the role of calcium ions in cell division of cultured mammalian cells. One year renewable position starting at \$14,000 per year. Send curriculum vitae and names and addresses of three references to: **Dr. Jesse E. Siskin, Department of Pathology, Sanders-Brown Building, University of Kentucky, Lexington, Kentucky 40536.** *Equal Opportunity Employer.*

**POSTDOCTORAL POSITION** in neuroscience available 1 October for studies concerning the sequelae of demyelination and the regulation of membrane excitability. Biochemical, electrophysiological, and anatomical techniques are being brought to bear on this problem in the multidisciplinary research environment of the neurosciences program. Candidates should have a strong background in neuroscience and previous experience with histological methods at the light and electron microscopic level is desirable. Send résumé, including a description of prior research experience, along with three references to: **Dr. George B. Brown, The Neurosciences Program, University of Alabama in Birmingham, University Station, Birmingham, Ala. 35294.** *An Equal Opportunity Employer.*

**POSTDOCTORAL RESEARCH** in the molecular biology of vitamin D action in cultured cells. Candidates with a Ph.D. in biochemistry, molecular biology, or related fields are invited to apply for an open postdoctoral position in the Department of Biochemistry, University of Arizona. Experience in the chemistry of nucleic acids and/or proteins is required. The project will involve the elucidation of the biochemical mechanism of 1,25-dihydroxyvitamin D<sub>3</sub> hormone action in cultured cancer cell models—using monoclonal antibodies against the hormone receptor and other tools. The position is available immediately at a salary of \$16,000. Applicants should send curriculum vitae, bibliography, and the names and telephone numbers of four references to: **Professor Mark R. Haussler, Department of Biochemistry, University of Arizona Health Sciences Center, Tucson, Ariz. 85724.** *An Affirmative Action/Equal Opportunity Employer.*

## POSITIONS OPEN

**POSTDOCTORAL POSITION** available 1 January 1984. To perform experimental x-ray scattering studies of the surface of superfluid helium and of thin liquid crystalline films. Candidates should have experience with triple axis spectrometers as employed in either x-ray or neutron scattering experiments. In addition, experience with synchrotron x-ray sources and cryogenic techniques would be desirable. Applications should be addressed to: **Professor P. S. Pershan, Division of Applied Sciences, Harvard University, Cambridge, Mass. 02138**, before 15 October 1983.

**POSTDOCTORAL POSITION** in mammalian developmental neurogenetics available to study gene action, cell lineage, and CNS development using mutant mice and experimental chimeras. Background in neuroanatomy, developmental biology and/or immunology desirable. Send curriculum vitae and names of three references to: **Richard J. Mullen, Ph.D., Department of Anatomy, University of Utah School of Medicine, Salt Lake City, Utah 84132.**

**POSTDOCTORAL POSITION IN IMMUNOCHEMISTRY.** The position will be to study function associated membrane proteins of human cytotoxic T cells using monoclonal antibodies, CTL lines and flow cytometry. Stipend is through an NIH Endocrinology Training Grant with a substantial supplement available for qualified individuals. Send curriculum vitae with three letters of reference to: **Dr. Carl Ware, Division of Biomedical Sciences, University of California, Riverside, Calif. 92521.** *An Affirmative Action/Equal Opportunity Employer.*

### POSTDOCTORAL RESEARCH ASSOCIATE

A postdoctoral position is available immediately to investigate messenger ribonucleoproteins, especially their role in translation and in attachment of polyribosomes to the cytoskeleton. The work will utilize UV crosslinking and other advanced techniques, including antibodies and recombinant DNA. Candidates should have a recent Ph.D. in molecular or cellular biology, or in biochemistry. Send curriculum vitae and three letters of recommendation to: **Dr. Jay R. Greenberg, c/o PERSONNEL OFFICE, Worcester Foundation for Experimental Biology, 222 Maple Avenue, Shrewsbury, Mass. 01545.**

*An Equal Opportunity/Affirmative Action Employer*

**POSTDOCTORAL RESEARCH ASSOCIATE POSITION.** A position is available for work on mammalian fertilization using monoclonal antibodies to examine functional components of sperm. Experience or interest in cell-cell interaction, membrane biochemistry, and/or cell surface labeling techniques preferred. Available immediately. Apply by sending curriculum vitae and three letters of reference to:

**Dr. Patricia M. Saling  
Departments of Obstetrics/Gynecology and Anatomy  
Box 3143  
Duke University Medical Center  
Durham, North Carolina 27710**

*Duke University is an Equal Opportunity Employer.*

**A POSTDOCTORAL RESEARCH ASSOCIATE** (Ph.D. in biochemistry or chemistry) is sought to examine the role of platelet membranes in blood coagulation. Training is offered in membrane biophysics (fluorescence spectroscopy, microcalorimetry, electron microscopy, microcomputers) and platelet cell biology. Salary commensurate with qualifications. Send curriculum vitae and names of three references to: **Dr. Barry R. Lentz, Biochemistry Department, School of Medicine, University of North Carolina, Chapel Hill, N.C. 27514.** *Equal Opportunity/Affirmative Action Employer.*

**POSTDOCTORAL RESEARCH PHYSICIAN**—Position available now or 1984 for studies on membrane control of coupling in oxidative phosphorylation. Recent Ph.D. in biochemistry, biophysics, or cell physiology with knowledge of membrane transport and/or membrane dynamics. Competitive salary. Send curriculum vitae and names of three references to: **Dr. H. Rottenberg, Department of Pathology, HAHNEMANN UNIVERSITY, Broad and Vine, Philadelphia, Pa. 19102.** *Affirmative Action Employer.*

**PROSTAGLANDINS, NUTRITION, AND VASCULAR DISEASE.** Postdoctoral position—expanding program relating nutrition and prostaglandins to blood vessel metabolism and function. Send curriculum vitae and names of two references to: **Dr. Babette Weksler, Cornell University Medical College, New York, N.Y. 10021.**

## MYCOGEN

Mycogen Corporation is a San Diego-based biotechnology firm specializing in the microbial control of plant pests. We have positions available at both technical and staff scientist levels for persons with the following qualifications:

**Molecular Genetics**—vector construction and gene expression

**Mycology**—identification, maintenance and genetic manipulation of Deuteromycetes

**Microbiology**—soil microbiology with an emphasis on plant-microorganism interactions

Mycogen offers attractive salaries and benefits, exceptional working conditions and equity participation for key employees.

Applications can be made by sending a curriculum vitae complete with the names of references to:



**David L. Edwards**  
Director of Research  
Mycogen Corporation  
5451 Oberlin Drive  
San Diego, CA 92121

# PhD Scientists

Lever Research Inc., a subsidiary of the world's largest consumer goods company, is seeking Scientists to support its expanding research efforts.

## PHYSICAL CHEMISTRY Group Leader

PhD in Physical Chemistry, a broad background in colloid and surface science and 5–10 years industrial experience in applied R&D, with 3–5 years directing other professionals.

## PHYSICAL CHEMISTRY

PhD in Physical Chemistry and 1–5 years industrial experience in surface chemistry stressing experimental studies of surfactant systems.

## ORGANIC CHEMISTRY

PhD in Organic Chemistry and 1–5 years industrial experience for research in areas including mechanistic studies of organometallic and radical systems and organic synthesis.

## BIOCHEMISTRY

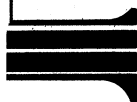
PhD in Biochemistry, Microbiology or Immunology and 1–5 years industrial experience for multidisciplinary programs in personal products including research on skin and oral health care products.

## TOXICOLOGY

PhD in Toxicology or closely related area and 4–7 years industrial experience including new methods development and in vivo testing.

*Qualified applicants must have excellent written and verbal communication skills, as well as outstanding academic records.*

Send resume with salary history, indicating position desired, in confidence, to: Betty A. Droge



# LEVER

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**Lever Research, Inc.**  
45 River Road  
Edgewater, NJ 07020  
An Equal Opportunity Employer M/F

## DIRECTOR, DIVISION OF KIDNEY, UROLOGIC, AND HEMATOLOGIC DISEASES

and Associate Director for Kidney, Urologic, and Hematologic Diseases (dual positions)

The National Institute of Arthritis, Diabetes, and Digestive and Kidney Diseases invites nominations and applications for the position of Director, Division of Kidney, Urologic, and Hematologic Diseases (KUHD). The candidate must be internationally recognized within the scientific community as an authority in kidney diseases. In addition, the candidate should demonstrate an interest and a commitment to urologic and hematologic diseases. This institute conducts, fosters, and supports research and research training in the prevention, management, and cure of arthritis, and related bone and skin diseases, diabetes and related endocrine and metabolic diseases; kidney, urologic and hematologic diseases, and digestive diseases. Programs encompass intramural laboratory research and extramural (grants and contracts) activities in fundamental arthritis, diabetes, digestive and kidney disorders.

The Director, serves as the primary official with responsibility for planning and executing the Institute's extramural programs in kidney, urologic, and hematologic diseases, including: basic and applied research, training fellowships and institutional training awards, multipurpose centers of research, clinical trials, technological development and application of research findings; and collection and dissemination of reliable data and information, budget development, and advising and participating with outside voluntary health organizations and the National Advisory

Council in identifying and assessing the needs and requirements for research and manpower development in categorical diseases. Additionally, the incumbent serves as principal advisor to the Institute Director on matters and policies pertaining to these areas. Also, the incumbent will conduct intramural research projects in the areas of kidney and related diseases.

This is a Civil Service position in the Senior Executive Service (SES), with a salary range from \$56,945 to \$63,800 per annum, depending on qualifications. Currently the payable salary is limited to \$63,800. Physicians may be eligible for an additional comparability allowance up to \$10,000 per year. (Alternatively, candidates may be eligible for appointment in the Commissioned Corps of the U.S. Public Health Service). Mandatory professional/technical qualifications are a medical degree, or Ph.D. degree in a health or health related science (or equivalent) and research program administration and/or clinical experience in kidney diseases. Further information on these qualifications are available by contacting Syd Carter, Personnel Management Specialist, National Institute of Arthritis, Diabetes, and Digestive and Kidney Diseases, Building 31, Room 9A34, Bethesda, Maryland 20205, (301) 496-4231.

Mandatory managerial/executive qualifications include evidence of management of a basic or clinical research program, demonstrating ability to assume leadership

responsibilities in developing program goals; representing the program to outside groups; directing program planning, execution, and evaluation; and conducting a fair and equitable employment program, including the attainment of EEO objectives.

Candidates who meet the mandatory qualifications will be further evaluated by the Search Committee on the degree to which they exceed the mandatory managerial/executive qualifications, and on the following desirable qualifications: scientific reputation/peer recognition, training and education, leadership of a basic or clinical research or research administration program, and honors and awards.

**APPLICATIONS (PERSONAL QUALIFICATIONS STATEMENT SF-171) should be sent to Mr. Clifford Moss, Executive Secretary, Search Committee for Director, KUHD, Building 31, Room 9A34, National Institute of Arthritis, Diabetes, and Digestive and Kidney Diseases, Bethesda, Maryland 20205, telephone (301) 496-4231. All applications must be postmarked before September 30, 1983.**

A current curriculum vitae and bibliography must accompany all applications. Applications from women and/or minority group members are especially solicited. Department of Health and Human Services Public Health Service National Institutes of Health National Institute of Arthritis, Diabetes, Digestive and Kidney Diseases

AN EQUAL OPPORTUNITY EMPLOYER

## THE UNIVERSITY OF FLORIDA VICE PRESIDENT FOR RESEARCH

The University of Florida is seeking applicants and nominations for a newly created position in its central administration, vice president for research. This position will report directly to the president of the university and will have three main areas of responsibility: the general supervision of the University's Division of Sponsored Research (current revenues are about \$80 million), coordination and development of policy with the University of Florida Foundation, Inc., for general research activities in the University's new Research and Development Park, and promotion and development in coordination with the University of Florida Foundation of research contract and grant activities from the private sector. Additionally, the vice president for research will chair the University's Research Policy Council.

Qualifications for this position include an earned doctorate, a record of significant achievement in research, demonstrated academic leadership and administrative ability, an ability to communicate effectively with internal and external constituents and a commitment to the independence and integrity of research and the interdependence of research and teaching. Knowledge of and participation in the federal grants and contracts peer review process is highly desirable as is knowledge of the promotion of grant and contract work through the private sector.

Candidates must be available to assume the position no later than September 1984. Nominations, applications, and inquiries must be submitted on or before 1 December 1983, with résumés and the names of three references, to:

**Dr. Allen Nelms, Chairman  
Search and Screen Committee  
Box J-267, JHMC  
University of Florida  
Gainesville, Florida 32610**

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

## THE INTERNATIONAL CENTRE OF INSECT PHYSIOLOGY AND ECOLOGY P.O. BOX 30772, NAIROBI, KENYA

### DEPUTY DIRECTOR

The ICIPE is an international institution headquartered in Nairobi, Kenya. It undertakes advanced research in insect science and pest management, and offers high-level training to insect scientists and technologists from Africa and other developing countries. It has 40 senior scientists; and is funded by a consortium of donors comprising United Nations and international bodies, governmental aid agencies, and private foundations.

Applications are invited from highly qualified scientists and widely experienced research managers for the senior research management position of DEPUTY DIRECTOR at the ICIPE.

The Deputy Director reports directly to the Director of the Centre, and in his absence, acts for him. He will, in addition, have overall responsibility for the Research Division of the ICIPE, which includes the research programmes, research support units, and technical support services (including field station facilities); develop linkages between the ICIPE and national and regional programmes within Africa and other tropical developing countries; maintain and develop further existing linkages with international research institutions and other advanced laboratories in areas of direct interest to the ICIPE; and maintain close liaison with supportive Divisions within the ICIPE (on Administration, Finance, and Communication and Training). The successful candidate will be a person with a solid background in insect science or pest management or plant protection; he will have had considerable experience in science policy matters and research management; and he will be a successful internationalist able to work in an African environment. A more detailed job description will be sent to qualified candidates.

The remuneration package will be competitive, and will reflect the vital importance of this position within the ICIPE. Applications, giving updated curriculum vitae and addresses of three referees should be addressed (in confidence) to:

**The Director,  
ICIPE,  
P.O. Box 30772,  
NAIROBI, Kenya.**

*Closing Date: 26th September 1983.*

## POSITIONS OPEN

**POSTDOCTORAL RESEARCH ASSOCIATE** position to study DNA replication and expression of genes coding for immunoglobulins and histocompatibility antigens. Project also includes identification and isolation of origins of replication in mammalian DNA and effects of cellular oncogene rearrangements on replication. Challenging research project offers opportunity for training in molecular biology and recombinant DNA techniques. Salary: \$17,500 to \$19,700 commensurate with experience. Send curriculum vitae and have two letters of recommendation sent to: **Dr. Carl Schildkraut, Department of Cell Biology, Albert Einstein College of Medicine, Bronx, N.Y. 10461.**

### POSTDOCTORAL RESEARCH ASSOCIATE

A postdoctoral training position is available in a laboratory whose ongoing projects include: (i) use of recombinants of endogenous and exogenous avian leukosis viruses to study viral genes in cancer induction; (ii) use of tumor DNAs to identify host genes that are targets for cancer induction following proviral insertions, and (iii) use of retroviruses that are transducing oncogenes to study oncogene function. Interested applicants should send résumé and names of three references to: **Dr. Harriet Robinson, c/o PERSONNEL OFFICE, Worcester Foundation for Experimental Biology, 222 Maple Avenue, Shrewsbury, Mass. 01545.**

*An Equal Opportunity/Affirmative Action Employer*

**RESEARCH ASSOCIATE** with strong background in protein sequencing and purification is required to participate in a research program concerning regulatory proteins. Candidate should have 3 to 5 years of postdoctoral training with good publication record. Starting salary is \$25,000 per year. The appointment is of 2-year duration initially and renewable. Interested candidate should send curriculum vitae and three names of referees to: **J. H. Wang, Department of Medical Biochemistry, University of Calgary, Calgary, Alberta, Canada T2N 1N4.**

*Canadian immigration regulations require that Canadians and landed immigrants should be given preference.*

**POSTDOCTORAL—RESEARCH ASSOCIATE** position available for research in molecular pharmacology studying the effect of nucleoside analogs on DNA methylation using recombinant DNA techniques. Experience in nucleic acid technology and microbial genetics desirable. Send curriculum vitae and references to: **Dr. Stanley Friedman, Downstate Medical Center, Box 29, 450 Clarkson Avenue, Brooklyn, N.Y. 11203. DMC 309.**

### SENIOR FISHERIES BIOLOGIST

Ph.D. in fisheries biology, expertise in anadromous fisheries, sampling design, biometrics, statistics, gear types, field sampling, HEP and instream flow methodology, plus broad working knowledge of related fields. Experience in report preparation, program management, and business development also preferred. Send résumé to: **Harriet Blanc, Normandeau Associates, Inc., 25 Nashua Road, Bedford, N.H. 03102.**

### SYRACUSE UNIVERSITY SENIOR POSITIONS

As part of a comprehensive development program that includes two senior faculty appointments, the Syracuse University Chemistry Department invites applications from distinguished scientists in the fields of organic chemistry and experimental physical chemistry. These appointments are part of major new initiatives by the department, including expansion of space and facilities and a strong financial commitment to an aggressive graduate recruiting program which will include a number of institutionally funded graduate fellowships. Progress over the past four years has included eight faculty appointments, a quadrupling of external research funding, a doubling of the number of postdoctoral fellows in the department, and substantial improvements in the number and quality of graduate students and support staff. Applications and inquiries should be directed by 1 November to: **Professor B. R. Ware, Chairman, Department of Chemistry, Syracuse University, Syracuse, New York 13210.** Syracuse University is an Affirmative Action/Equal Opportunity Employer.

## POSITIONS OPEN

**POSTDOCTORAL RESEARCH ASSOCIATE.** A position is available immediately to study central mechanisms of taste in rodents. Applications are invited from Ph.D. neuroscientists with experience in CNS electrophysiology. The individual will join an interdisciplinary group of investigators whose research interests include neuroanatomical, neurophysiological and clinical studies of the gustatory system. Initial one-year appointment at \$16,750 (minimum). Funding for subsequent years anticipated from an NIH program project grant. Apply to: **Dr. Marion E. Frank, Department of Oral Biology, University of Connecticut Health Center, Farmington, Conn. 06032.** Include curriculum vitae, a description of research interests, and a list of references in the initial correspondence. *Equal Opportunity/Affirmative Action Employer.*

**TWO RESEARCH ASSOCIATE POSITIONS** available December 1983. Recent Ph.D. in biochemistry or related field required. Applicants will: (i) determine the mechanism of action of certain naturally occurring anticancer agents. Experience in enzyme purification required. The project will involve purification of DNA polymerase  $\alpha$ , IMP dehydrogenase, and eIF2 $\alpha$  kinase; (ii) determine the intracellular metabolism and mechanism of interaction with DNA of platinum anticancer agents. Experience with DNA biochemistry and/or enzyme purification required. Send curriculum vitae with description of research background and interests and names and addresses of three references to: **Steve Chaney, Department of Biochemistry, School of Medicine, University of North Carolina, Chapel Hill, N.C. 27514.** *Equal Opportunity/Affirmative Action Employer.*

**RESEARCH ASSOCIATE.** Ph.D. A 2-year position is available immediately under a contract for research relating to peptide hormones. Experience with nucleic acids and recombinant DNA technology is essential. Salary negotiable. Send curriculum vitae and three letters of reference to: **Dr. Peter Davies, Department of Biochemistry, Queen's University, Kingston, Ontario, Canada K7L 3N6.**

**RESEARCH BIOCHEMIST/ANIMAL PHYSIOLOGIST** with the U.S. Department of Agriculture (USDA), Agricultural Research Service (ARS), Roman L. Hruska Meat Animal Research Center, Clay Center, Nebraska. Will conduct research and provide leadership to a group of seven or eight scientists studying the biological phenomena associated with growth biology and meat science. Knowledge of protein biochemistry, animal physiology, and mammalian endocrinology required. Postdoctoral experience desired. Career Federal Service. GM-13/14/15—salary based on qualifications and experience. *An Equal Opportunity Employer.* Candidates must be U.S. citizens. For applications: **Jerrle Brooks, USDA-ARS-NCR-B75, 2000 West Pioneer Parkway, Peoria, Ill. 61615. Telephone: 309-671-7813.** Indicate in all contacts whether major field of study is biochemistry or animal physiology.

### VETERINARY VIROLOGIST

D.V.M. and M.S./Ph.D. or Ph.D. in veterinary virology. Diplomate or eligibility for membership in ACVM highly desirable. Tenure-track position with 75 percent service responsibilities in the Diagnostic Laboratory and 25 percent research responsibilities. The major activity is designing and conducting sophisticated viral isolation techniques on specimens submitted through the Diagnostic Center. Must be able to apply a broad background of animal disease knowledge and utilize acceptable diagnostic and laboratory procedures. Designs and conducts sophisticated research on domestic animal diseases, participating as a project leader and as a team member. Rank and salary commensurate with skills and experience of the candidate. Health, life, and disability plans are available. Eligible for TIAA-CREF retirement program. Liberal vacation and sick leave plans. Location: University of Nebraska, Lincoln, Nebraska. Applicant should forward detailed curriculum vitae and names of three references by 15 October 1983, to: **Dr. E. Denis Erickson, Chair, Search Committee, University of Nebraska, Department of Veterinary Science, Lincoln, Nebraska 68583-0905. Telephone: 402-472-2952.**

*The University of Nebraska, Institute of Agriculture and Natural Resources, is an Equal Opportunity Employer authorized to provide research, educational information, and other services to individuals and institutions that function without regard to race, color, sex, national origin, or handicap.*



## MOLECULAR BIOLOGISTS

The Upjohn Company, Kalamazoo, Michigan, has several openings for BS/MS level molecular biologists in Molecular Biology Research.

Applicants must have a BS or MS in Biochemistry, Microbiology, or related field and research experience in Recombinant DNA Technology and Microbial Genetics. Additional experience in Protein Chemistry/Enzymology, Animal Cell Culture, or Oligonucleotide Chemistry, is highly desirable.

Kalamazoo is a medium-sized southwestern Michigan community with immediate access to a mix of excellent cultural, educational, and recreational pursuits, including numerous lakes and a four-season climate. Upjohn offers an excellent salary, commensurate with experience, and an outstanding benefits program.

For confidential consideration, please call from outside Michigan toll free 1-800-253-8600, ext. 3-6767, or inside Michigan collect 616-323-6767 to request an employment application be sent to you immediately. Please refer to Ad Number 15127-J when calling.

**Upjohn**

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## RESEARCH POSITIONS

Battelle Columbus Laboratories, a world leader in contract research, has the following opportunities available in its rapidly growing Molecular Biology group:

### PRINCIPAL RESEARCH SCIENTIST: Immunochemist

— PhD with experience in antibody chemistry with a minimum of two years experience beyond the doctoral degree, with monoclonal antibody development necessary.

### POSTDOCTORAL RESEARCHER: Virologist/Biochemist

— PhD with experience in purification and antigenic characterization of viral proteins.

### POSTDOCTORAL RESEARCHER: Molecular Geneticist/Biochemist

— PhD with strong background of independent research on expression vector design and expression of cloned genes in *E. coli*.

### POSTDOCTORAL RESEARCHER: Microbial Physiologist/Geneticist

— PhD with strong background in genetics of pseudomonads or related species with extensive physiology background in either environmental or industrial microorganisms.

These positions offer the challenge to design and conduct innovative research as part of a solid and growing Molecular Biology/Biotechnology group in the areas of viral vaccine development, immunochemistry and microbial synthesis/catalysis. Starting salary for the Principal Research Scientist ranges from \$30 - \$38,000, depending upon experience. Starting salaries for the Postdoctoral positions will be \$19 - \$25,000 for the first year of postdoctoral work with possibilities for annual renewal or permanent positions with Battelle's multidisciplinary biology research operations. **U.S. citizenship or permanent residency required for all positions.** Individuals interested in these exciting opportunities should send resumes to Carole Paquin, Employment Dept. C-3.



**Battelle Columbus Laboratories**

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## M.S. - Ph.D. IN CHEMISTRY/BIOMEDICAL ENGINEERING OR APPLIED MATHEMATICS RESEARCH SCIENTIST, MEDICAL DIAGNOSTIC PRODUCT DEVELOPMENT

The Ames Division of Miles Laboratories, Inc., a leading company in diagnostics product research and development, is seeking an innovative R&D scientist who has interdisciplinary skills and is committed to technical excellence.

This opportunity with growth potential involves responsibility for the experimental design and direction of studies to evaluate the interaction of system components of new reagent/instrument projects under development. This includes a detailed analysis of all contributing factors to assess the performance status of complex diagnostic systems in terms of precision and accuracy. Another important aspect in combining reagent properties with analytical instrumentation is the development of algorithms for converting the analytical readings into clinically useful units.

The ability to conceive complex multi-parameter experimental designs and apply sophisticated statistical analysis is essential. Computer utilization in performing these tasks is a must. Communication skills and the ability to interact as a member of project teams in an interdisciplinary environment are also very important.

Qualified applicants will have a M.S. or Ph.D. in Chemistry, Engineering, or Applied Mathematics; knowledge of clinical chemistry and computer languages would be a plus. Preference will be given to persons with 2-4 years proven R&D experience.

Situated 90 miles from Chicago, our South Bend/Elkhart, Indiana location provides access to leading cultural and multi-university facilities. Close proximity to lower Michigan and the Great Lakes furnishes unique recreational opportunities. Miles offers an excellent starting salary, superior benefits program and company paid relocation. For confidential consideration, send your resume to:

**Kimberly K. Keller**  
Personnel Representative  
Department 108

**MILES LABORATORIES, INC.**

P.O. BOX 40  
Elkhart, Indiana 46515



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## Project Director International Trilateral Arid Lands Agriculture Research Program

San Diego State University Foundation is seeking a Project Director for its Arid Lands Agriculture Research Program funded by the Agency for International Development (AID). The five-year Program is a trilateral program among Egypt, Israel, and the United States. The major elements of the research program are: Use of Saline Water in Crop Production; Rain-fed Fodder Production in Arid Lands Environment; and Development of new Arid Land Species that show promise for use as industrial crops.

Research efforts are based in Egypt and Israel under the direction of Egyptian and Israeli Technical Directors. International headquarters for project administration is the SDSU Foundation which is responsible for administration and coordination of the Program including achievement of scientific objectives, enhancing cooperation between participants, and coordination of U.S. scientific advisers and evaluators with research participants. The Program is commencing its second year of operation after a highly successful start.

The position requires strong administrative skills, frequent travel to the Middle East, and development of new program opportunities. Candidates must have strong interpersonal skills and the ability to successfully relate to program participants and senior officials of participating countries as well as AID officers and staff. Candidates should possess a degree(s) in agriculture or a closely related field, or equivalent experience. Experience working in the Middle East and/or some knowledge of Arabic or Hebrew is desirable but not mandatory. This is a full-time position with SDSU Foundation with concurrent adjunct appointment to the faculty of the College of Sciences of San Diego State University. Applicants desiring this position on the basis of a leave of absence from another institution will be considered.

Salary commensurate with experience and expertise. Excellent benefits. Submit resume no later than September 23, 1983 to:

Juanita Brents  
Personnel Director  
SDSU Foundation  
San Diego CA 92182

Affirmative Action/EEO Employer

**SDSU**  
**FOUNDATION**

## POSITIONS OPEN

**POSTDOCTORAL RESEARCH ASSOCIATE** in biochemistry, available 1 October. Structure and catalytic mechanism of acetylcholinesterase, including development of novel active-site-directed affinity and photoaffinity labels and analysis of active site structure. Experience in protein chemistry/enzymology required. Send résumé and three letters of recommendation to: **Professor Saul G. Cohen, Department of Chemistry, Brandeis University, Waltham, Mass. 02254.** Affirmative Action/Equal Opportunity Employer.

## RESEARCH SCHOLAR

The Division of Medical Oncology, Department of Medicine, Faculty of Medicine, University of Alberta, and the Cross Cancer Institute invite applications for a position as research scholar at the assistant/associate professor level. The position, funded through an external agency, will have a salary range of \$29,720 to \$53,658 per annum and the incumbent will enjoy the privileges of appropriate University academic rank. A Ph.D. or M.D. is required with preference given to candidates with experience related to human oncology. The appointee will have demonstrated the capacity to carry out independent research, and will be expected to establish an independent program and to interact with other investigators in basic and clinical research.

*The University of Alberta and the Alberta Cancer Board are Equal Opportunity Employers but, in accordance with Canadian Immigration requirements, priority will be given to Canadian citizens and permanent residents of Canada.*

Curriculum vitae, names of three referees, and an outline of research interests should be sent by 1 November 1983 to:

Dr. T. A. McPherson  
Director, Department of Medicine  
Cross Cancer Institute  
11560 University Avenue  
Edmonton, Alberta, Canada T6G 1Z2

## SENIOR RESEARCH SCIENTISTS (Ocular Effects of Laser Radiation)

SRL is a specialized, multi-disciplinary research and development company located in Dayton, Ohio. We are currently seeking to augment our capabilities in our Human Factors Division with three specialists who have experience with ocular effects and primates. The three successful candidates will possess Ph.D. degrees and two or more years experience in one of the following areas: position 1—visual physiology/electro physiology, position 2—physical chemistry/biophysics, position 3—laser physics/biophysics. If you have the desire to join a team of professionals involved in developing the technology of tomorrow, send your resume in confidence to **A. J. Davis, Asst. Manager, Scientific and Engineering Recruiting, Dept. SC, Systems Research Labs., Inc., 2800 Indian Ripple Rd., Dayton, OH 45440.** An Equal Opportunity Employer.

## FELLOWSHIPS

### C. H. BEST FOUNDATION POSTDOCTORAL FELLOWSHIP

In diabetes research, molecular endocrinology, molecular biology, differentiation, immunology, structure and function of membranes or lipid metabolism. Tenable for 2 years after 1 July 1984 with a competitive stipend. Available to new Ph.D.'s or candidates with fewer than 2 years of postdoctoral training by 30 June 1984. Send curriculum vitae, transcripts, and three letters of reference, preferably before 1 November 1983, to: **Dr. C-H. Siu, Search Committee Chairman, Banting and Best Department of Medical Research, University of Toronto, Toronto, Ontario, Canada M5G 1L6.**

**POSTDOCTORAL FELLOWSHIP** in the cellular neurophysiology of thermoregulation using intra- and extracellular recording from preoptic and hypothalamic neurons in tissue culture. Electrophysiological experience and interest is essential; a background or interest in cellular biophysics, mathematical modelling, and computer programming is advantageous. Salary competitive. Send curriculum vitae and references to: **Dr. Herbert M. Geller, Department of Pharmacology, UNIVERSITY OF MEDICINE AND DENTISTRY OF NEW JERSEY—RUTGERS MEDICAL SCHOOL, P.O. Box 101, Piscataway, New Jersey 08854.** An Equal Opportunity/Affirmative Action Employer.

## FELLOWSHIPS

**POSTDOCTORAL FELLOWSHIPS FOR RESEARCH TRAINING IN HYPERTENSION AND CARDIOVASCULAR DISEASE.** NIH postdoctoral fellowships starting 1 July 1983 are available for qualified applicants with the M.D. or Ph.D. degree as part of a multidisciplinary training program. Applicants must possess U.S. citizenship or permanent resident status. Possible areas for intensive research experience include: biochemical, physiological, pathological, and epidemiological studies on the cardiac, renal, adrenal, and neural components of vascular regulation. For further information, write to: **Dr. R. L. Soffer, Departments of Biochemistry and Medicine, Cornell University Medical College, 1300 York Avenue, New York, New York 10021.** An Equal Opportunity/Affirmative Action Employer.

**POSTDOCTORAL FELLOWSHIP**—Basic immunobiology and genetics research, with core clinical and clinical laboratory training, to work with agents of Sexually Transmitted Diseases. Position open now for 1 to 3 years of training. NIH-supported University of California, San Francisco and Berkeley, Stanford University, and California State Department of Health program designed to train persons for research and teaching careers in any one of several primary disciplines. *The University of California is an Equal Opportunity/Affirmative Action Employer. Women and minorities are encouraged to apply.* Inquiries with curriculum vitae and references to: **George F. Brooks, M.D., Department of Laboratory Medicine, M523 (U230), University of California, San Francisco, Calif. 94143.**

## MARKET PLACE

### INTERFERON WANTED

The Cancer Institute, Hahnemann University of Health Sciences, is soliciting bids for 2 billion units of natural (human diploid cell-derived) human beta interferon for clinical use in the spring of 1984. Responders should represent in their letters that their interferon is FDA-approved and give the number of their approved drug master file for appropriate cross reference under our IND. Responders should be prepared to send a representative sample of interferon for potency, purity, and stability testing. Letters and accompanying samples should be sent no later than 1 November 1983 to: **M. Sheinson, Administrator, H. L. Orlovitz Cancer Center, Hahnemann University of Health Sciences, 230 North Broad Street, Philadelphia, Pennsylvania 19102.**

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## CELL BIOLOGY YALE UNIVERSITY DEPARTMENT OF BIOLOGY

Yale University's Department of Biology seeks applicants for one senior position and one junior position in cell biology.

Candidates' areas of interest should include chromosome structure and/or molecular biology of gene expression although applicants studying other aspects of cell structure and function will also be considered. Duties associated with these positions include teaching of graduate and undergraduate students and management of a strong research program.

Send curriculum vitae, résumé of past and present research, and the names of at least three referees to: Executive Secretary, Department of Biology, Yale University, P.O. Box 6666, New Haven, Conn. 06511. Deadline: 1 January 1984. Yale University is an Equal Opportunity/Affirmative Action Employer.

## RESEARCH PHARMACOLOGISTS AND BIOCHEMISTS

Allergan Pharmaceuticals, an international leader in ophthalmic and dermatologic pharmaceutical research, has opportunities in our expanding Pharmacology and Biochemistry Departments for Scientists with 0-3 years of post-doctoral experience.

### INFLAMMATORY MEDIATOR PHARMACOLOGISTS

The successful candidates will have experience with *in vivo* models of the pharmacological control of the inflammatory process. One candidate must possess experience with noninvasive methods for quantitating regional blood flow. Solid backgrounds in both immunology and pharmacology are necessary.

### LENS PHYSIOLOGISTS/BIOCHEMIST

These positions are directed toward the pharmacological control of precataractous changes in lens protein interactions. Strong backgrounds in protein physical chemistry or enzymology are required. One position requires experience with physical methods to determine lens structural changes *in vivo*. The other position requires experience in lens enzymology.

Responsibilities of these positions include planning, supervising and conducting research in a multi-disciplinary team environment.

We are offering competitive salaries, a comprehensive benefits program and a stimulating scientific environment in a rapidly growing Southern California company. For immediate consideration, please send resume with salary history to: Dept. SAW-1. Please, no phone or third party inquiries.

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## Research Scientists

Cambridge BioScience Corporation, a biotechnology company specializing in human immunodiagnostics and veterinary medicine, offers exciting positions in its Hopkinton, Massachusetts research laboratories. We are seeking product development scientists at all levels with experience in:

- Molecular biology specializing in virology
- Immunoassay methods development
- Protein chemistry purification and extraction
- Bacterial diagnostics utilizing monoclonal antibodies
- Cellular biology with interdisciplinary skills
- Genetic Engineering

The successful senior scientist candidates will have an M.S. or Ph.D. in the biological sciences, minimum three years' post doctoral with a substantial publications record, or at least three years' successful track record with a diagnostics company.

Cambridge BioScience offers a unique and challenging opportunity for personal and financial growth. Please send resume and salary requirements in confidence to: Dante Marclani, PhD., Director of Research



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## DIRECTOR, INTRAMURAL RESEARCH PROGRAM

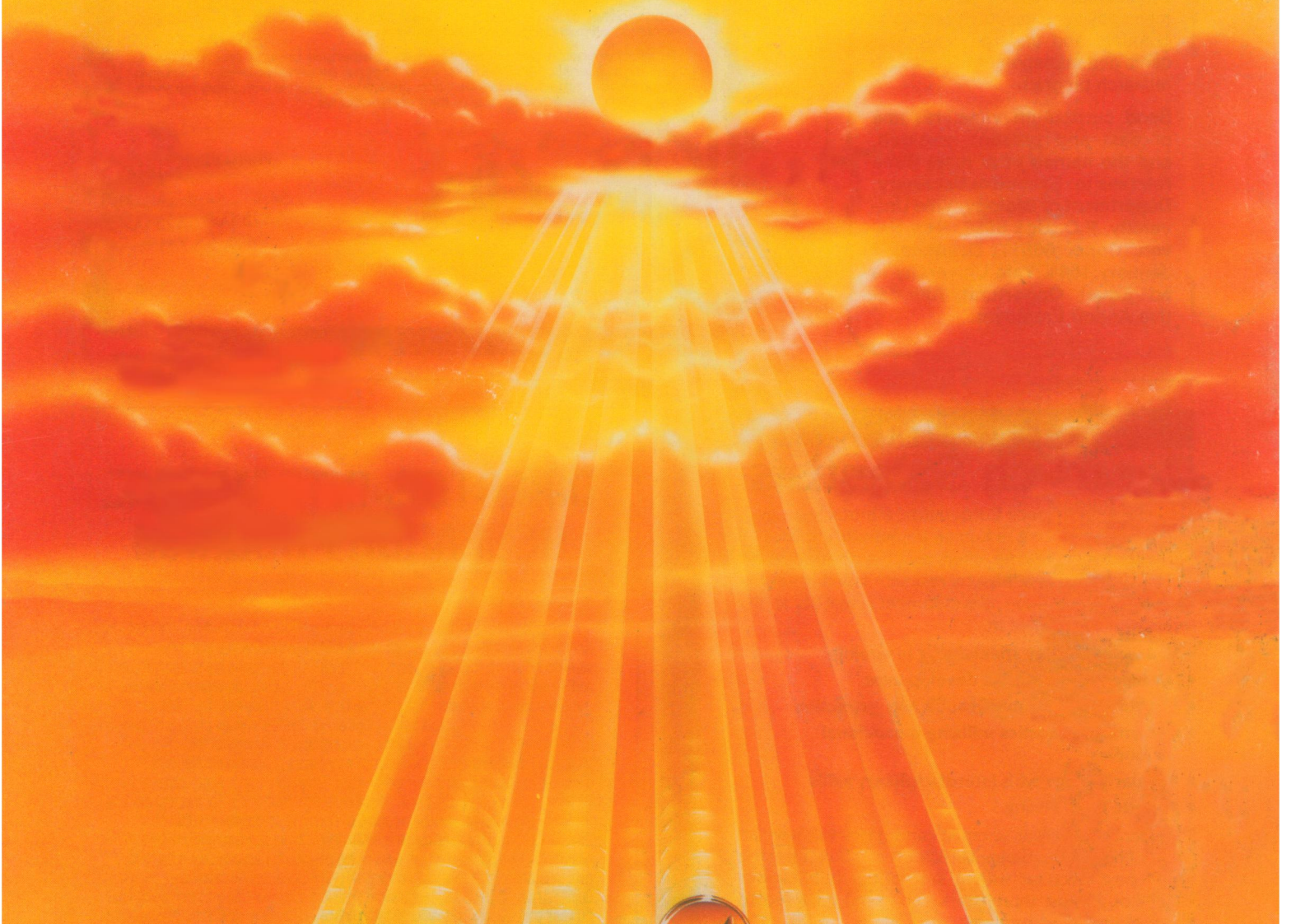
The National Institute on Alcohol Abuse and Alcoholism (NIAAA), Alcohol, Drug Abuse, and Mental Health Administration (ADAMHA), Bethesda, Maryland, is seeking to fill this key Federal position. The NIAAA is responsible for the conduct and support of research and training relating to the causes, prevention, diagnosis, and treatment of alcoholism and other alcohol-related disorders. The Director, Division of Intramural Clinical and Biological Research exercises primary responsibility for planning, organizing, evaluating and directing all aspects of the intramural programs for the Institute, including a clinical research ward in the National Institutes of Health Clinical Center and basic laboratories on and off campus. The Division has a FY 83 budget of \$7.4 million with a staff of 83. For medical officers, minimum requirements include a degree of Doctor of Medicine or Doctor of Osteopathy. For other candidates, a Ph.D. degree in an academic field related to the health sciences pertinent to the work of the position is desirable, but a bachelor's degree is acceptable with additional qualifying experience. All candidates must also demonstrate progressively responsible experience in scientific research administration and have proven professional competence in the areas related to the intramural research function. Salary to \$67,200 (selectee may be eligible for up to \$10,000 per annum-Physicians Comparability Allowance). For additional information regarding the position and/or qualification requirements, including requesting an application form SF-171, contact: Ms. Margaret Skinker. Applications must be sent to: Division of Personnel Management, NIAAA Bldg. 10/ACRF Rm. 3C103, 9000 Rockville Pike, Bethesda, Maryland 20205, (301) 496-6748 by September 30, 1983. Late applications will be accepted until one day before the qualifications review board meets.

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