

accurate and efficient assembly of polypeptide chains. The 70S ribosomes from prokaryotes—mainly *Escherichia coli*—have been examined closely from a variety of perspectives. As a result, a wealth of data have been accumulated on the way in which their three RNA and 50-odd protein components are assembled and arranged and on how they contribute to specific interactions with transfer RNA, messenger RNA, and nonribosomal protein factors during the growth of nascent protein molecules. The far less intensively studied 80S ribosomes from eukaryotic organisms are similar to their 70S counterparts in gross morphology, biological activity, and structural organization, yet they are half again as large. Most of this difference is ascribable to larger and more numerous protein components, but eukaryotic ribosomal RNA's are bigger than their prokaryotic analogs as well. Why then do eukaryotic ribosomes require additional constituents and greatly increased mass? What functions do they carry out that prokaryotic ribosomes do not?

Although the present volume does not provide definitive answers to these questions, it does coherently and straightforwardly set out the facts and figures that define the properties of the eukaryotic ribosome and its component molecules. Individual chapters offer detailed status reports on the size, shape, and subcellular location of the ribosomal particles, the biosynthesis and chemical properties of their protein and RNA constituents, the structural and functional integration of these constituents in the ribosome, interactions of the ribosomal particles with each other and with cellular membranes, and the role of the ribosome in protein synthesis. Most of the chapters are quite thorough and informative; others are dated. Because the literature review was completed in 1979, a number of important new results could not be included in the text; major developments through the middle of 1981 are covered in a series of chapter-by-chapter notes at the back of the book. Though helpful, this procedure leads to a disjointed presentation of several subjects of active research. For example, a postulate concerning the involvement of 5S and 5.8S RNA's in the binding of tRNA to the ribosome is advanced in chapter 11 and retracted in the notes. The volume nevertheless contains a good factual description of the eukaryotic translational apparatus, though the discussion would have been enlivened by a more concerted effort to evaluate, compare, and synthesize the large amount of information available.

One of the strongest justifications for a book of this sort is the opportunity it provides for illuminating comparisons of eukaryotic 80S ribosomes and prokaryotic 70S ribosomes. It is here that *The Eukaryotic Ribosome* misses the mark. The ribosomal particles of higher organisms are treated as entities apart; the authors have made no effort to correlate the morphological and functional domains in eukaryotic ribosomes with those in prokaryotic ribosomes, nor have they traced the lineage of acidic ribosomal proteins, which provide compelling examples of functional relatedness and evolutionary continuity. Moreover, they fail to point out that the high-molecular-weight ribosomal RNA's from prokaryotes and eukaryotes contain numerous highly conserved nucleotide sequences and almost certainly possess very similar secondary structures. At the same time, there is a lack of focus on features peculiar to the translational apparatus of higher organisms, such as the complexity of the polypeptide chain initiation reaction, translational regulation and the role of ribosomal-protein phosphorylation, the special problem of ribosome assembly for cells in which protein and RNA synthesis is compartmentalized, and the vectorial synthesis and transport of secretory proteins by membrane-bound ribosomes. Though all of these topics are mentioned, their uniqueness remains largely unacknowledged and none of them emerges as a central theme of the narrative.

The Eukaryotic Ribosome is the work of five contributors in addition to the editor; the six have achieved a consistent and homogeneous style. The book could have benefited from more interpretative schemes and diagrams as well as closer scrutiny for typographical errors. And, although there are relatively few factual mistakes, there are some quite disconcerting ones, such as the statement on p. 203 that the nucleotide sequence 5'...AGGAGGU...3' precedes the coding segments of all prokaryotic mRNA's. All in all, the authors have made a conscientious effort to provide a comprehensive summary of current knowledge about the eukaryotic ribosome. Though a broader view of the translational apparatus would have been desirable, the volume provides a useful compendium of published data, and its extensive bibliography will be of considerable value to investigators with interests in this field of research.

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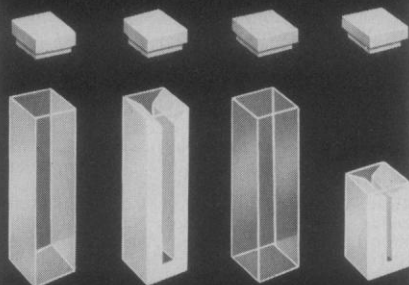
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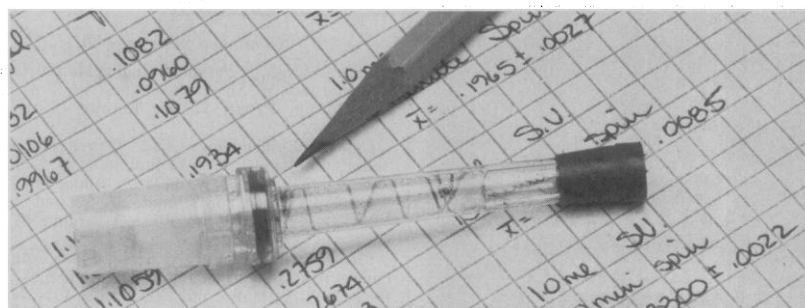
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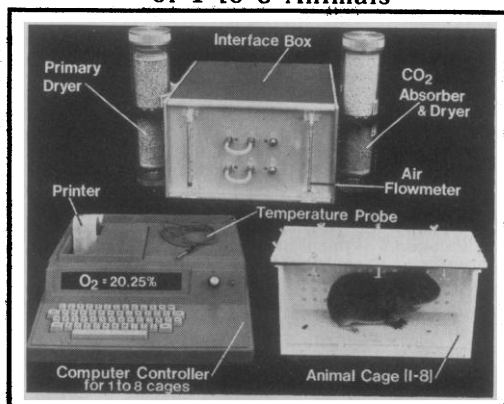
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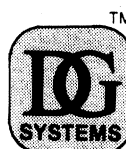
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(Continued from page 402)

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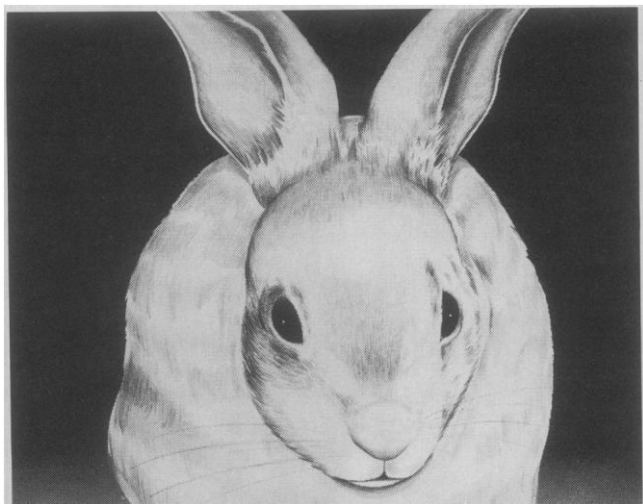
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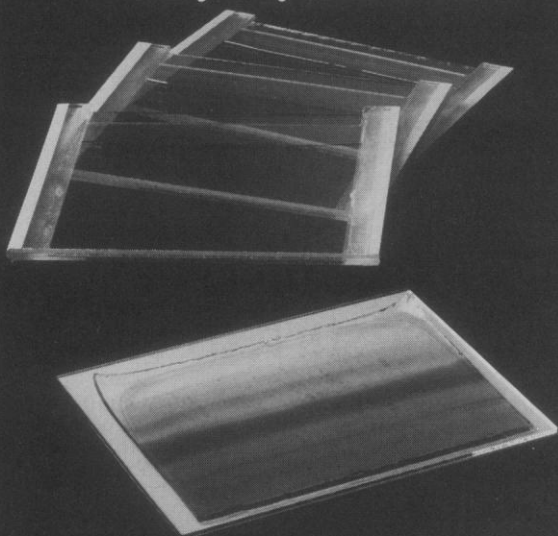
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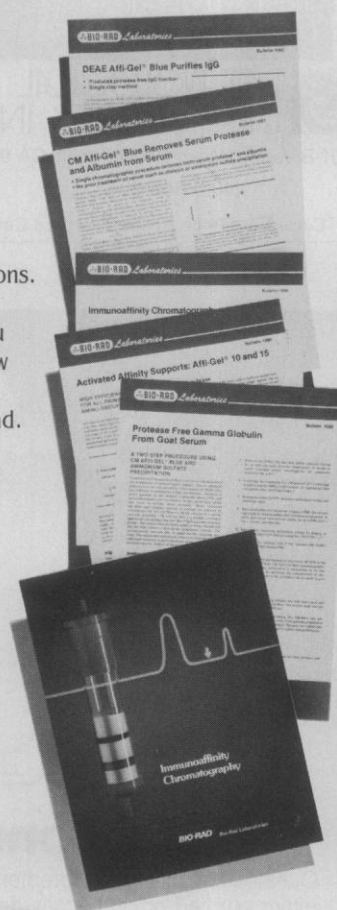
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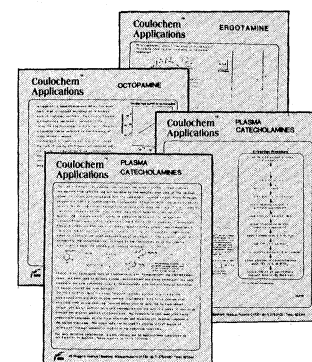
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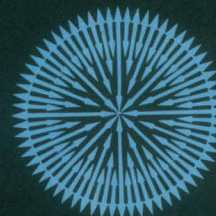
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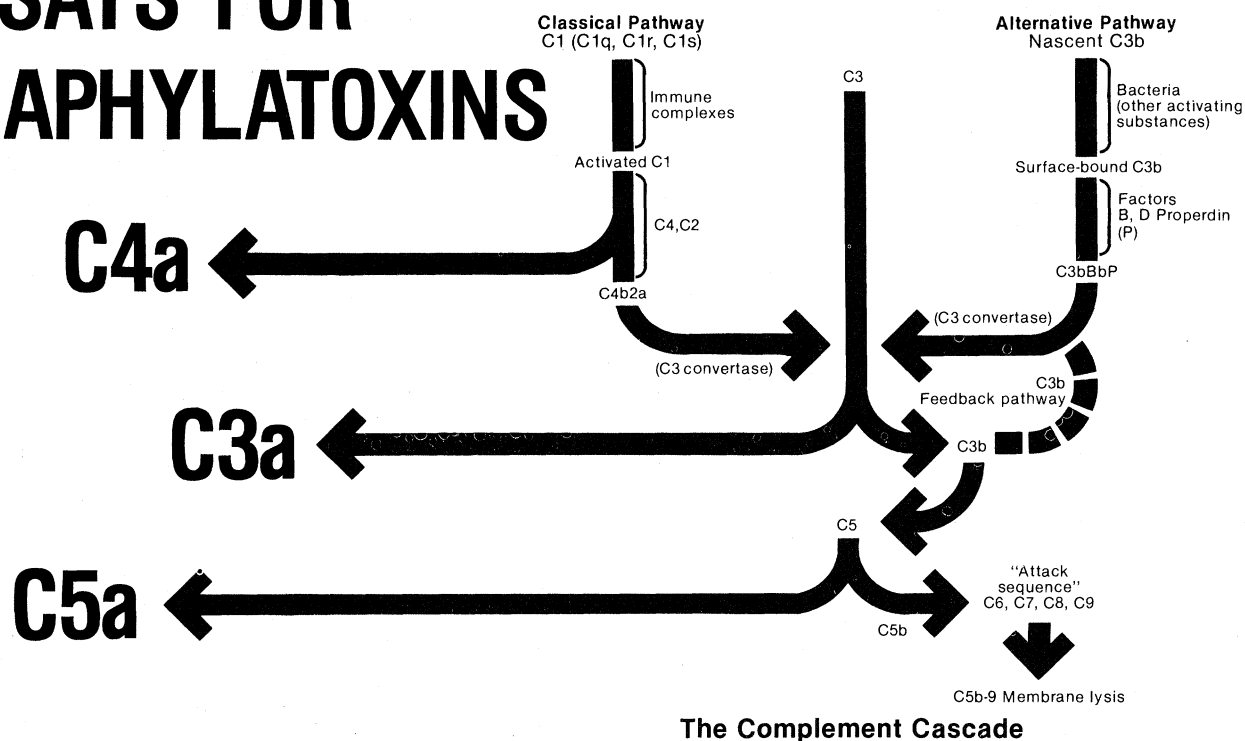
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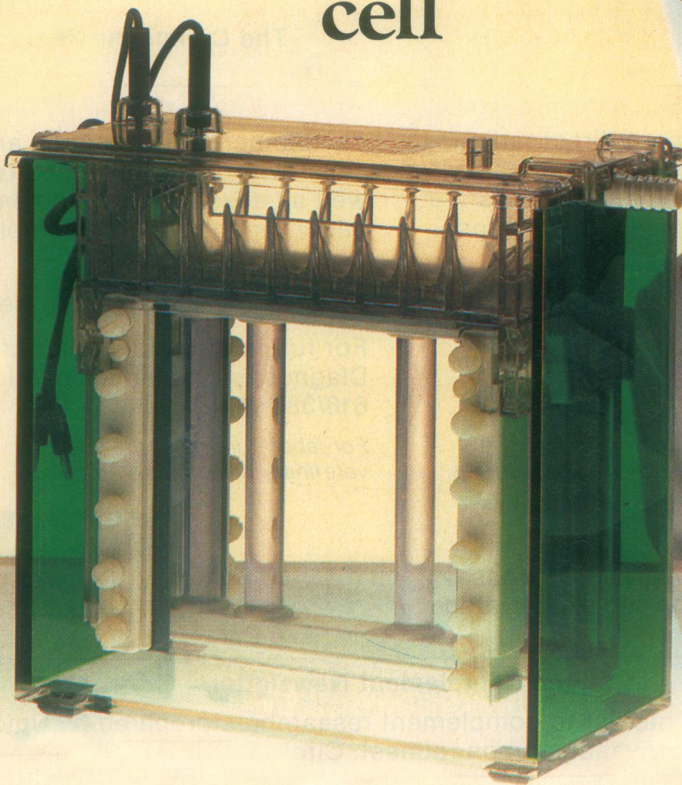
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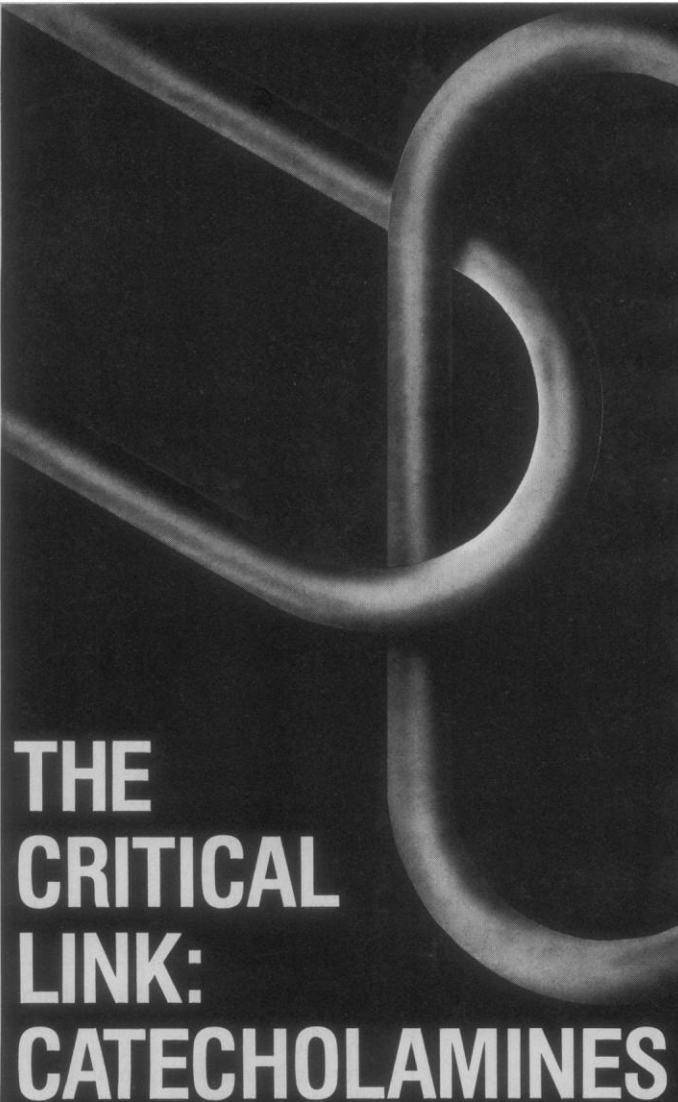
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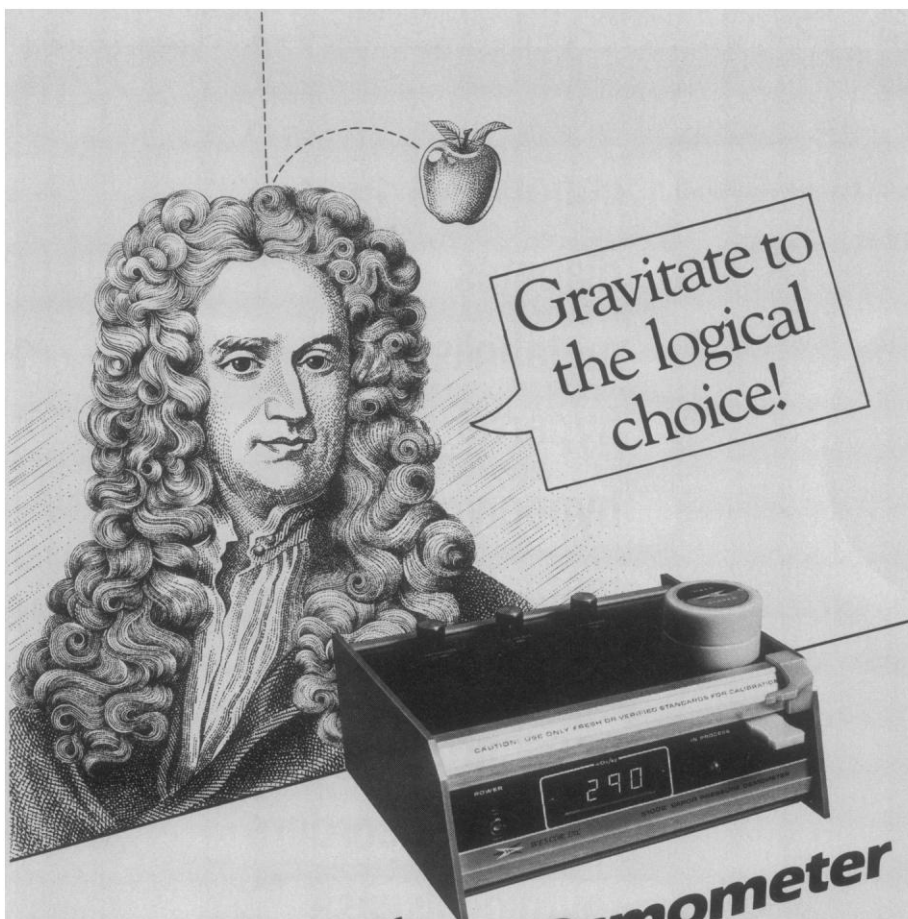
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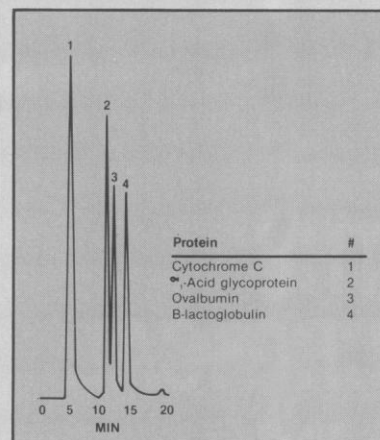
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POSITIONS OPEN

ASSISTANT PROFESSOR—MEDICAL MICROBIOLOGY/INFECTIOUS DISEASES. Ph.D. or M.D. with at least 2 years of postdoctoral research and evidence of ability to initiate independent research program competing for external funding. Teaching duties include infectious diseases to medical students and to graduate/undergraduate microbiology majors. Send applications to: **Chairperson, Medical Microbiology/Infectious Diseases Search Committee, Department of Microbiology, Michigan State University, East Lansing, Mich. 48824-1101. An Equal Opportunity/Affirmative Action Institution.**

ASSISTANT PROFESSOR OF MICROBIOLOGY. We reopen the search to fill a new, tenure-track position assigned to the Department of Microbiology, Iowa State University, starting 1 July 1983. We seek an individual who will establish a program in biotechnology/applied molecular biology that includes vigorous research and participation in the advising and instruction of graduate and undergraduate students. The successful candidate will be experienced in the modern techniques of genetic engineering. The Ph.D. degree is required and some teaching and postdoctoral experience are preferred. Send curriculum vitae, a statement of research plans, and three letters of recommendation to: **Fred D. Williams, Chairman, Department of Microbiology, Iowa State University, Ames, Iowa 50011. Application deadline is 13 May 1983. An Equal Opportunity/Affirmative Action Employer.**

Position for staff position as **ASSOCIATE DIRECTOR** of the Clinical Electrophysiology Laboratory at Duke University Medical Center, Durham, N.C. Applicant must have M.D. degree or equivalent, and credentials for full license to practice medicine in North Carolina. Applicant must have completed an approved advanced training program in cardiology in addition to at least 10 years of experience with invasive technique used in clinical electrophysiology. Experience in cardiac catheterization, familiarity with intensive coronary care, and expertise in pacemaker implantation and follow-up is essential. The appointment involves the teaching of house officers and cardiology fellows. In addition, it is expected that the applicant will participate in ongoing clinical research projects as well as maintaining his own active in-hospital clinical service. Please send curriculum vitae and two letters of recommendation to: **Dr. Joseph C. Greenfield, Division of Cardiology, Box 3246, Duke University Medical Center, Durham, N.C. 27710. Duke University is an Equal Opportunity/Affirmative Action Employer.**

ATMOSPHERIC CHEMIST/UNIVERSITY OF MICHIGAN. The Department of Atmospheric and Oceanic Science invites applications for a tenure-track position in atmospheric chemistry to begin January 1984. Successful applicant must have a demonstrated commitment to excellence in teaching and experimental research. A joint appointment with the Department of Chemistry has been a tradition of this position and is expected to continue. Responsibilities will include teaching atmospheric chemistry at the undergraduate and graduate levels, development of relevant curriculum, and directing a high-quality independent experimental research program. Faculty rank and salary commensurate with qualifications. Send résumé, statement of research interests, and the names of four references before 1 July 1983 to: **G. R. Carignan, Director, Space Physics Research Laboratory, Department of Atmospheric and Oceanic Science, University of Michigan, 2455 Hayward, Ann Arbor, Mich. 48109. The University of Michigan is an Equal Opportunity/Affirmative Action Employer.**

DIRECTOR FLOW CYTOMETRY FACILITY

Faculty appointment of associate professor or professor with appointments in the Cancer Center and appropriate department. In addition to independent research, director is expected to assist and collaborate with researchers in applications of flow cytometry and to develop and implement new methods in this field. Preference will be given to applicant with established reputation in flow cytometry. Please send curriculum vitae and three references to:

**Marshall A. Lichtman, M.D.,
Senior Associate Dean for Academic Affairs
and Research
University of Rochester School of Medicine
and Dentistry
601 Elmwood Avenue, Box 706
Rochester, New York 14642
Equal Opportunity Employer, M/F**

POSITIONS OPEN

The **CALIFORNIA INSTITUTE FOR PEDIATRIC RESEARCH**, a Division of **CHILDREN'S HOSPITAL MEDICAL CENTER OF NORTHERN CALIFORNIA**, is seeking an experienced research investigator as **ASSOCIATE DIRECTOR** of a new Nutrition/Metabolic Laboratory. The overall goal is the development of new and improved methods for detection and monitoring of nutritional imbalances and metabolic diseases of children, a rapid application of these methods to clinical pediatric medicine, and the development of the Nutrition/Metabolic Laboratory as a regional resource for research collaboration and clinical service. The successful candidate will work within guidelines set by the clinical director to establish objectives, develop strategies, obtain support, and develop the budget. Will be responsible for project implementation and evaluation.

Applicants should have a doctorate in biochemistry or a related field with at least 5 years of postdoctorate experience. Proven ability to conduct a program of research and clinical service requiring cooperation with scientists and clinicians. Salary range: \$31,760 to \$35,770. For further information, telephone: **Dr. Julian Irias at 415-428-3654.** Send résumés and references to: **CHILDREN'S HOSPITAL, Personnel Department, 51st and Grove Streets, Oakland, Calif. 94609.**

Equal Opportunity Employer, M/F

BIOCHEMICAL PHARMACOLOGIST—Position available for research associate/assistant research scientist with Ph.D. in pharmacology, biochemistry, or molecular biology to investigate the role of free radical formation in antineoplastic drug action; analytical (HPLC, ESR, GC-MS) and cell culture experience required; knowledge of membrane biochemistry and recombinant DNA technology helpful. Send curriculum vitae to: **Dr. J. Doroshow, Department of Medical Oncology, City of Hope Medical Center, 1500 East Duarte Road, Duarte, Calif. 91010.**

BIOLOGICAL NITROGEN FIXATION

POSTDOCTORAL POSITIONS: Two positions available 1 June for postdoctorates to investigate the process of Rhizobial infection of leguminous plants to yield a symbiotic nitrogen-fixing symbiosis. One position requires prior experience in recombinant DNA or nucleic acid biochemistry. The other position will be filled with someone trained in electron microscopy (TEM, SEM, preferably with plant material) or carbohydrate chemistry of bacterial cell wall polysaccharides. Salary: \$15,000 to \$18,000 per annum, depending on experience. Send résumé and at least three references to: **Dr. Gary Stacey, Department of Microbiology, University of Tennessee, Knoxville, Tenn. 37996-0845. An Affirmative Action/Equal Opportunity Employer.**

BIOLOGY: Faculty position, assistant professor level. Primary interest and commitment to quality undergraduate instruction. Teaching duties (12 hours) include introductory biology for science majors, science for nonscience majors, and upper-division courses in modern ecology, genetics, and related areas. Ph.D. required. Teaching experience preferred. Begin fall 1983. Application deadline: 15 May 1983. Send curriculum vitae, supporting documents, and three letters of recommendation to: **Dr. Denton B. May, Academic Dean, King's College, Wilkes-Barre, Pa. 18711. An Affirmative Action/Equal Opportunity Employer.**

WANTED: CLINICAL INVESTIGATOR with demonstrated independence in research related to muscle surface membranes, including electron microscopy, freeze-fracture, and immunocytochemistry. Requirements include evidence of cooperation and own research grant support. Also, broad experience in histochemical diagnosis of neuromuscular diseases. Rank appropriate to experience in nontenure track. *Columbia University is an Equal Opportunity Employer.* Applicants should send curriculum vitae to: **Timothy A. Pedley, M.D., Neurological Institute, 710 West 168 Street, New York, N.Y. 10032.**

FACULTY POSITION IN CHEMICAL BIOLOGY. Must have Ph.D. and research competence in an area of biology related to chemistry, and strong chemistry background. Expected to teach UG biology and graduate courses in genetics, physiology, cell biology, or immunochemistry, and to initiate research in one of these areas. Send résumé, recommendations, and evidence of research activity (papers, proposals) by 15 May 1983 to: **Professor N. Kumbaraci, Chemistry/Chemical Engineering Department, Stevens Institute of Technology, Hoboken, N.J. 07030. Equal Opportunity/Affirmative Action Employer.**

NATIONAL SCIENCE FOUNDATION (NSF)

NSF, Office of Scientific and Engineering Education, is seeking candidates for the position of **ASSOCIATE PROGRAM DIRECTOR IN THE FELLOWSHIPS SECTION.** This is a rotational assignment for 1 to 2 years. The position is excepted from the competitive civil service with a salary range of \$34,930 to \$53,661 per annum (equivalent to GS-13/14). Appointment will begin during summer 1983. Candidates should have a Ph.D. in science or engineering or equivalent research experience at the college or university level. In addition, for the GG-13 (GS-13 equivalent) level, 4 years of teaching and research experience at the college or university level beyond the Ph.D. is required and for the GG-14 (GS-14 equivalent) level, 6 years of teaching and research experience at the college or university level beyond the Ph.D. is required. Preference will be given to candidates with a background in physics. Some administrative experience and familiarity with the training in science of teachers for the secondary school level are also desirable. The position will center mainly on administering the NATO Postdoctoral Fellowships in Science program and related activities. The incumbent will also contribute to the range of staff expertise available to advise on other activities of the office, including teacher-training programs. Responsibilities include all aspects of application handling, panel review, evaluation, award and program administration, liaison with outside agencies, and representation of the Foundation in the scientific community. The closing date for applications is 20 May 1983. Applicants should submit résumés, indicating their current salary, to: **The National Science Foundation, Personnel Administration Branch, Room 212, 1800 G Street NW, Washington, D.C. 20550; attention: E. Paul Broglie. For further information, telephone: 202-357-7841. NSF is an Equal Opportunity Employer.**

SENIOR SCIENTIST Hybridoma

Join an exciting, growing company developing nonisotopic immunodiagnosics based on monoclonal antibodies. The successful candidate will oversee our hybridoma program.

This position requires a Ph.D. or equivalent with extensive technical expertise in hybridoma technology and hands-on experience in the development of monoclonal antibodies to bacterial and viral antigens, tumor markers and glycoproteins.

Experience in microbiology, virology and immunoassay development is desirable. Our Cambridge laboratories provide access to our Scientific Advisors and local academic institutions.

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POSITIONS OPEN

CHAIRMANSHIP DEPARTMENT OF MICROBIOLOGY AND IMMUNOLOGY THE UNIVERSITY OF MICHIGAN MEDICAL SCHOOL

The University of Michigan Medical School is seeking an individual to assume the chairmanship of its Department of Microbiology and Immunology. Qualifications include national stature in research in an area of microbiology or molecular genetics, demonstrated commitment to teaching, administrative ability. Respond to: M. J. Coon, Ph.D., Chairman, Molecular Genetics Search Task Force, University of Michigan Medical School, M5416 Medical Science I, Box 034, Ann Arbor, Michigan 48109. The University of Michigan is a nondiscriminatory, Affirmative Action Employer. Code number 01.

CHIEF, ADULT BONE TUMOR SERVICE PRESBYTERIAN-UNIVERSITY OF PENNSYLVANIA MEDICAL CENTER

The Department of Orthopaedic Surgery at the University of Pennsylvania School of Medicine is seeking applicants for a full-time academic position as chief of the Adult Bone Tumor Service at the Presbyterian-University of Pennsylvania Medical Center, a major teaching and research facility of the University of Pennsylvania. Candidates should have completed a year's fellowship in bone tumor surgery. Duties of the position include participation in the teaching and research programs of the department as well as the clinical responsibilities of running an adult bone tumor service. Applicants should submit their curriculum vitae and arrange to have three letters of recommendation sent directly to:

Carl T. Brighton, M.D., Ph.D.
Professor and Chairman
Department of Orthopaedic Surgery
University of Pennsylvania School of Medicine
Two Silverstein
3400 Spruce Street
Philadelphia, Pa. 19104

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

CHIEF, ORTHOPAEDIC SURGERY SERVICE PRESBYTERIAN-UNIVERSITY OF PENNSYLVANIA MEDICAL CENTER

The Department of Orthopaedic Surgery at the University of Pennsylvania School of Medicine is seeking applicants for a full-time academic position as chief of the Orthopaedic Surgery Service at the Presbyterian-University of Pennsylvania Medical Center, a major teaching and research facility of the University of Pennsylvania. Duties of the position include participation in the teaching and research programs of the department as well as the clinical responsibilities of running a general orthopaedics service in a 328-bed hospital. Applicants should submit their curriculum vitae and arrange to have three letters of recommendation sent directly to:

Carl T. Brighton, M.D., Ph.D.
Professor and Chairman
Department of Orthopaedic Surgery
University of Pennsylvania School of Medicine
Two Silverstein
3400 Spruce Street
Philadelphia, Pa. 19104

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

ELECTRON MICROSCOPIST—BAYLOR COLLEGE OF DENTISTRY. This position will require the fixation, sectioning, and embedding of tissues for observation, using scanning and transmission electron microscopy. Applicants should have 1 year of experience as an EM technician and possess a B.S. degree in biology, with special courses in EM techniques, histology, and/or cell biology. Send résumé to: Dr. Ruth Jones, Department of Microscopic Anatomy, Baylor College of Dentistry, 3302 Gaston Avenue, Dallas, Texas 75246. Equal Opportunity Employer.

FACULTY POSITIONS

Applications are invited for anticipated tenure-track positions. We are seeking individuals who will establish vigorous, independent research programs in microbiology or cell biology, complementing existing programs in membrane biology and molecular genetics. Rank and salary are negotiable. Send curriculum vitae, a summary of research plans, and names of three references to: Dr. H. Mizukami, Department of Biological Sciences, Wayne State University, Detroit, Mich. 48202. An Equal Opportunity/Affirmative Action Employer.

POSITIONS OPEN

COLLAGEN AND/OR PROTEOGLYCAN BIOCHEMIST to join a multidisciplinary faculty studying the skeletal dysplasias. Send curriculum vitae and references to: Dr. D. L. Rimoin, Division of Medical Genetics, Harbor-UCLA Medical Center, 1000 West Carson Street, Torrance, Calif. 90509.

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DERMATOPATHOLOGIST—University of California, Davis. Full-time faculty appointment as associate or professor of dermatology with training in and special competence in dermatopathology certification; should be Board-eligible or -certified in dermatology. A letter outlining research, teaching background and interests, curriculum vitae, and the names of three references must be received by 1 June 1983. Reply to: Edward C. Gomez, M.D., Ph.D., Department of Dermatology, 4301 X Street, Sacramento, Calif. 95817.

UNIVERSITY OF SOUTHERN CALIFORNIA COMPREHENSIVE CANCER CENTER DIRECTOR FOR BASIC RESEARCH

The Division of Basic Research at the University of Southern California (USC), Comprehensive Cancer Center, conducts research in various fields in the basic sciences: carcinogenesis, mutagenesis, drug development, somatic cell genetics, molecular biology, and cellular immunology. Applicants for the position of director for basic research must currently hold a full professor-level position at a major institution and possess a distinguished record of cancer basic research. Department of academic appointment will depend upon the applicant's area of specialization. Applicants must have demonstrated ability to obtain peer-reviewed support with an established scientific program presently under way at a major comprehensive cancer center or in collaboration with an institution where several multidisciplinary programs are now under way.

Interested applicants should contact: Brian E. Henderson, M.D., Director, USC Cancer Center, P.O. Box 33804, Los Angeles, Calif. 90033-0804. USC is an Equal Opportunity/Affirmative Action Employer.

UNIVERSITY OF SOUTHERN CALIFORNIA COMPREHENSIVE CANCER CENTER DIRECTOR FOR CLINICAL INVESTIGATIONS

The Division of Clinical Investigations at the University of Southern California (USC), Comprehensive Cancer Center, is involved in various fields of clinical research in conjunction with the Kenneth Norris, Jr., Cancer Hospital and Research Institute. Applicants for the position of director for clinical investigations must be M.D.'s who are Board-certified in medical oncology and who currently hold a full professor-level position at a major academic institution. Applicants must possess demonstrated ability to plan, supervise, and implement a peer-reviewed clinical research program and to head clinical investigations programs for the Cancer Center.

Interested applicants should contact: Brian E. Henderson, M.D., Director, USC Cancer Center, P.O. Box 33804, Los Angeles, Calif. 90033-0804. USC is an Equal Opportunity/Affirmative Action Employer.

FACULTY, tenure-track teaching and research position in **NUTRITION**. Candidates with interest in human nutrition and disease will be expected to establish an independent research program and teach undergraduate and graduate courses in nutrition. A Ph.D. or M.D. required. Send curriculum vitae, transcripts, and three letters of recommendation to: John B. Longenecker, Ph.D., Chairman, Search Committee, Division of Graduate Nutrition, University of Texas, GEA 115, Austin, Texas 78712, by 1 August 1983.

NUTRITIONIST: 12-month tenure track, fall 1983. Research, teaching, direct Ph.D. students, develop proposals. Qualifications: Ph.D. in nutrition, teaching/research experience, registered dietitian, ADA membership. Salary and rank negotiable. Send transcript, appropriate reprints, and three letters of recommendation to: Dr. Janet McNaughton, Home Economics Department, Drawer HE, Mississippi State, Miss. 39762. Mississippi State University is an Equal Opportunity/Affirmative Action Employer.

POSITIONS OPEN

ELECTRON MICROSCOPIST—PATHOLOGIST to direct new, fully equipped laboratory of electron microscopy including TEM, SEM, EDXA. Experience and expertise in nephropathology essential. Must be AP-certified. Will be expected to develop productive research program. Faculty rank and salary commensurate with experience. Send curriculum vitae and names of three references to:

John M. Matsen, M.D.
Professor and Chairman
Department of Pathology
University of Utah Medical Center
Salt Lake City, Utah 84132
Telephone: 801-581-5514

University of Utah is an Equal Opportunity Employer. Opening date: 1 April 1983. Closing date: 1 July 1983. Applications submitted after the deadline may be considered if no qualified candidates have applied by the deadline.

POSITION: ENVIRONMENTAL SCIENCE AND REGIONAL PLANNING

Assistant professor, tenurable appointment in cross-disciplinary Environmental Science and Regional Planning Program. Must have master's degree in planning and Ph.D. in a field that provides competence in teaching, community service, and research on environmental management, preferably management of hazardous materials. Candidate should be willing to teach and advise undergraduates in environmental science and to work closely with M.S. and M.R.P. graduate students. Position available fall 1983. For application details, write: Faculty Search Committee, Program in Environmental Science and Regional Planning, Washington State University, Pullman, Wash. 99164-4430.

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

GROSS ANATOMIST. The Animal Science Department, College of Veterinary Medicine, University of Tennessee, invites applications for a tenure-track position with the responsibilities being divided between teaching and research. The successful candidate will be expected to assume leadership in developing course materials and coordinating gross anatomy course work in a veterinary curriculum. The position requires a D.V.M. or Ph.D. degree and experience in teaching in veterinary anatomy. Interested applicants should submit curriculum vitae, transcripts, and three letters of reference to: Dr. Don O. Richardson, Head of Animal Science, University of Tennessee, Knoxville, Tenn. 37996-4500. The University of Tennessee is an Equal Opportunity Employer.

INSECT TOXICOLOGIST: Assistant or associate professor to develop a research program and teach courses in insect toxicology and related entomology areas. Twelve-month, tenure track, available 1 July 1983.

Qualifications: Ph.D. with training in insect toxicology, physiology, and biochemistry. General knowledge of entomology desirable.

Send inquiries, curriculum vitae, transcripts, list of five references, and statement of research interests to: Dr. C. W. Pitts, Head, Department of Entomology, 106 Patterson Building, The Pennsylvania State University, University Park, Pa. 16802. Applications received until 15 May 1983 or until a suitable applicant is found.

An Equal Opportunity/Affirmative Action Employer

MOLECULAR GENETICS. Postdoctoral fellow or research associate trained in recombinant DNA techniques to join ongoing projects in human muscular dystrophies. Laboratory has a strong clinical base, expertise in linkage techniques and molecular biology. Contact: Allen D. Roses, M.D., Professor and Chief, Division of Neurology, Duke University Medical Center, Durham, N.C. 27710. Equal Opportunity/Affirmative Action Employer.

NEUROBIOLOGY—PHARMACOLOGY—ELECTROPHYSIOLOGY postdoctoral position available for an individual with an interest in determining, on a molecular level, the mechanism of action of benzodiazepines and beta-carbolines as functional neuro-modulators of GABA action in brain and spinal cord cell cultures. Experience with intracellular micro-electrode recording and/or patch-clamp techniques and computer analysis would be useful. Salary range: \$16,000 to \$20,000. Send curriculum vitae to: Dr. David H. Farb, Department of Anatomy and Cell Biology, The State University of New York, Downstate Medical Center, Brooklyn, N.Y. 11203. Telephone: 212-270-1308. Affirmative Action/Equal Opportunity Employer.

POSITIONS OPEN

FACULTY POSITIONS

The School of Optometry of the University of California, Berkeley, invites applications for two teaching and research positions, one at the associate professor level with tenure, and one at the assistant professor level (a tenure-track position). These positions will be filled as soon as practical. Requires O.D. and/or Ph.D., or equivalent degrees. The successful applicants will teach clinical courses on pediatric and/or binocular vision and establish an independent research program. Preference will be given to persons in visual psychophysics with special qualifications in one or more of the following: clinical optometry, visual assessment in infants and children, and clinical disorders of monocular and binocular vision. Clinical qualifications are an advantage.

Curriculum vitae, statement of research and teaching interests (and background in each), graduate and undergraduate transcripts, lists and reprints of published works, and names and addresses of at least three references should be sent to:

Professor Clifton M. Schor
Chairman, Search Committee
School of Optometry
University of California
Berkeley, California 94720

Applications will be accepted until 30 May 1983 or until the position is filled.

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

FACULTY POSITION IN BIOTECHNOLOGY at Massachusetts Institute of Technology (MIT)

We invite applications for a tenure-track faculty position in the area of biotechnology. Examples of particular fields of specialization include: industrial genetics, cell technology, bioseparations, drug delivery, biomaterials, and bioorganic chemistry.

Please send curriculum vitae (including a list of publications), a description of research interests and future research plans, and at least three letters of recommendation as soon as possible to: **Dr. Gerald Wogan, Head, Department of Nutrition and Food Science, Room 16-333, Massachusetts Institute of Technology, Cambridge, Mass. 02139.**

MIT is an Equal Opportunity Employer. Members of minority groups are urged to apply.

The University of Michigan Medical School, **Department of Radiology**, has on occasion open **FACULTY POSITIONS** within the department and its affiliated hospitals. Physicians filling these positions will take part in the programs of patient care, teaching, and research in the Department of Radiology. They will supervise the activities of house officers and aid in the teaching of house officers and medical students. Qualified applicants must be American Board of Radiology-certified and Board-eligible. Previous training or work experience in an academic institution as well as demonstration of previous academic research and teaching experience are desirable. Academic rank will depend on qualifications and experience.

Interested applicants should contact: **William Martel, M.D., Chairman, Department of Radiology, The University of Michigan Medical School, Ann Arbor, Michigan 48109. A nondiscriminatory, Affirmative Action Employer. Code 42HO, 110.**

NEUROSURGEON

The Section of Neurosurgery at the University of Michigan Hospitals has an instructor/assistant professor position available for a Board-eligible or -certified neurosurgeon. Clinical, research, and teaching interests essential. Apply to:

Julian T. Hoff, M.D.
Professor and Head
Section of Neurosurgery
University of Michigan Hospitals
C-5083 Outpatient Building
Ann Arbor, Michigan 48109

University of Michigan is a nondiscriminatory, Affirmative Action Employer. P.C.N. number 160.

POSTDOCTORAL (CELL BIOLOGY, ENDOCRINOLOGY). Position available 1 July 1983 for studying gonadotropin actions in cultured cells. Experience in immunology, biochemistry, cell biology, peptide purification, and/or molecular endocrinology desirable. Send curriculum vitae and two letters of reference to: **Dr. Mario Ascoli, Division of Endocrinology, Vanderbilt Medical School, Nashville, Tenn. 37232. A nondiscriminatory, Affirmative Action Employer.**

Associate Director Neuropsychopharmacology

Wyeth Laboratories presently has an excellent opportunity for a senior Neuropsychopharmacologist to lead the CNS-Section in the Division of Experimental Therapeutics. A Ph.D. in Pharmacology (or equivalent) and approximately seven years of postdoctoral experience in the Neurosciences are requirements for this position.

The successful candidate is expected to guide a multidisciplinary team in the development of new psychotherapeutic drugs and to initiate innovative research programs; therefore, previous experience supervising a large group of professionals is required.

To investigate this opportunity, please submit your resume with your salary requirements to:

Wyeth Laboratories, Inc.



Personnel Department
P.O. Box 8299
Philadelphia, PA 19101

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MOLECULAR BIOLOGY FOR INDUSTRY

CODON is recruiting an **IMMUNOLOGIST** experienced in identification and characterization of antigens used in vaccines or diagnostics for human and veterinary diseases.

A position is available for a **BIOCHEMIST** in the protein chemistry department. The successful applicant must have extensive experience in protein purification and characterization with particular emphasis on enzymes.

Several positions are available for **MOLECULAR BIOLOGISTS** with proven skills in genetic engineering and biotechnology.

CODON, located near San Francisco, has employment opportunities available at several levels. Please send a resume and the names of three people that can be contacted for references to:

CODON
430 Valley Drive
Brisbane, CA 94005

Chairperson

Biomedical Theory and Computing Research Group

Applications are invited for **CHAIRPERSON** of the **BIOMEDICAL THEORY and COMPUTING RESEARCH GROUP** in The University of Calgary, Faculty of Medicine. Appointment available jointly in the appropriate Department of the Faculty of Medicine and/or the Departments of Academic Computing Services, Computer Science, or Electrical Engineering. Position requires Ph.D. or equivalent training; plus at least five years experience in biomedical computing, including: management of scientific and medical computing services; programming in mixed environments; independent, externally funded biomedical research. Teaching at undergraduate and graduate levels an asset. Duties will include: recruitment of faculty in the development of a research group; conducting externally funded research; developing and administering faculty computing resources and personnel; consulting with computing users and advising them; maintaining liaison between medical and computing departments; and contributing to undergraduate and graduate teaching and computer training.

In accordance with Canadian immigration requirements, this advertisement is directed to Canadian citizens and permanent residents. Applications will be accepted from all qualified candidates.

The closing date for application is June 15, 1983. Please send a curriculum vitae, a description of career goals and research interests, and the names of three referees to:



THE
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OF CALGARY

William K. Stell, Ph.D., M.D.
Chairman, Medical Computing
Search Committee
Department of Anatomy
The University of Calgary
Faculty of Medicine
3330 Hospital Drive N.W.
Calgary, Alberta, Canada T2N 4N1

POSITIONS OPEN

HEMATOLOGY-ONCOLOGY FACULTY POSITION. The Division of Hematology/Oncology of Childrens Hospital of Los Angeles is seeking a M.D. or M.D./Ph.D. with clinical oncology training and research expertise in the pharmacology of anticancer drugs. The successful candidate would join our large basic and clinical research programs, attend in pediatric oncology and participate in teaching and research programs at the University of Southern California Comprehensive Cancer Center and Department of Pediatrics. Academic rank and salary depend on qualifications. Candidates should send curriculum vitae, representative publications, a statement of research interests, and the names of three references to: **John S. Holcenberg, M.D., Section Head for Basic Research, Division of Hematology/Oncology, Childrens Hospital of Los Angeles, Box 54700, Los Angeles, California 90054-0700. An Equal Opportunity/Affirmative Action Employer.**

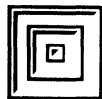
MOLECULAR BIOLOGIST/MICROBIOLOGIST

The Department of Microbiology of Miami University invites applications for a tenure-track appointment at the rank of assistant professor (or a 1-year appointment contingent on qualifications of the applicant) starting August 1983. The candidate must have a Ph.D. in microbiology, or related discipline, postdoctoral experience, and interest in gene expression and regulation in microbial systems with potential applications to biotechnology. The individual will be expected to develop a productive research program, direct the research of M.S. and Ph.D. candidates, and actively participate in teaching undergraduate and graduate courses. Send curriculum vitae, an outline of research interests, and three letters of recommendation by 9 May 1983 to: **Ronald W. Treick, Chair, Search Committee, Department of Microbiology, Miami University, Oxford, Ohio 45056.**

Miami University is an Equal Opportunity/Affirmative Action Employer.

POSITIONS IN MOLECULAR IMMUNOPARASITOLOGY

Postdoctoral positions available for a protein chemist with experience doing microsequencing and an immunochemist with experience producing monoclonal antibodies, to join molecular immunoparasitology group studying human malarial parasites. Please contact:



Dr. Robert T. Reese
Immunology—IM14
Scripps Clinic and
Research Foundation
10666 North Torrey Pines Road
La Jolla, Calif. 92037

OPHTHALMOLOGIST—University of Michigan, full-time faculty position as instructor/assistant professor. Responsible for resident and medical student teaching. Opportunity for clinical and laboratory research. Contact: **Paul R. Lichter, M.D., Department of Ophthalmology, University Hospitals, Parkview 004, Ann Arbor, Michigan 48109. The University of Michigan is a nondiscriminatory, Affirmative Action Employer. Code 27.**

PLANT MOLECULAR GENETICIST

Pioneer Hi-Bred International, Inc., a research based company and leader in the seed industry, is seeking applicants for a permanent position in the Department of Biotechnology Research. The successful candidate is expected to develop a basic research program to understand gene structure and function in plants. Experience with plant gene isolation and transformation of plants is desired. A team approach for genetic transformation of maize will include complementing programs in molecular biology, cell culture, plant pathology, and genetics. Applicants should have a Ph.D. in molecular genetics or biology and postdoctoral experience as a minimum. Pioneer's laboratories are located near Des Moines, Iowa. Send curriculum vitae, names and addresses of three references, and a brief statement of research interests to: **Dr. Nicholas M. Frey, Pioneer Hi-Bred International, Inc., Box 85, Johnston, Iowa 50131.**

POSTDOCTORAL FELLOWS: Two positions available starting September 1983 for persons with strong background in molecular biology and genetics for studies on cellular aging; 2 to 3 years with excellent salary. Apply with curriculum vitae and names and addresses of three references to: **Dr. Sam Goldstein and Dr. Robert J. Shmookler Reis, Departments of Medicine and Biochemistry, Slot 604, University of Arkansas for Medical Sciences, 4301 West Markham, Little Rock, Ark. 72205.**

POSITIONS OPEN

NMR SPECTROSCOPIST—MANAGER

The University of Pennsylvania has an opening for an experimental NMR spectroscopist interested in biological applications. The position involves managing and maintaining a facility with Bruker WH-360 and CXP-200 spectrometers as well as scientific cooperation and collaboration with ongoing research projects. Applications should be sent to: **Vice-Provost for Research, 106 College Hall, University of Pennsylvania, Philadelphia, Pa. 19104.**

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

PLANT PHYSIOLOGIST (BIOCHEMIST). Applicants are sought for a position in a new U.S. Department of Agriculture/Agricultural Research Service (USDA/ARS) research program to study the physiological and biochemical factors controlling the yield potential of crop plants. Incumbent works as part of a team, but is responsible for planning and conducting an innovative fundamental research program on the mechanisms and energy coupling for transport of organic molecules and inorganic ions across plant cell membranes. Proposed research areas are: (i) determine the mechanisms, control and energetics of sugar and amino acid transport across cell membranes, and (ii) study the relationship between the biochemical characteristics of membranes and assimilate allocation or drought stress responses. The following qualifications will distinguish better qualified candidates from among these eligible: knowledge of the principles of membrane transport and experience in the study of transport phenomena, demonstrated experience in the reconstitution of carrier systems in artificial membranes. Position located at Crops Research Laboratory, Utah State University, Logan, Utah 84322. GS-11/12; salary based on qualifications and experience. For applications and further information, contact: **Dr. Roger E. Wyse, USDA/ARS, Crops Research Laboratory, UMC 63, Utah State University, Logan, Utah 84322. Telephone: 801-750-3062.** Candidates must be U.S. citizens. *An Equal Opportunity Employer.*

POSTDOCTORAL POSITION IN MOLECULAR/DEVELOPMENTAL BIOLOGY. A position is available for either a beginning or advanced postdoctoral fellow to work on the structure and regulation of muscle-specific genes using recombinant DNA and gene transfer. Experience in either molecular biology or developmental biology or both is desirable. Salary commensurate with experience. Interested persons should submit a letter indicating their interests and include curriculum vitae and names of three references to: **Dr. Charles Ordahl, S-1334, University of California, San Francisco, San Francisco, Calif. 94143.**

POSTDOCTORAL POSITION for molecular studies of herpesvirus DNA, transcription, oncogenesis, and persistent infection. Experience in nucleic acid biochemistry, cloning, molecular biology, or tumor virology. Send curriculum vitae and references to: **Dr. Dennis J. O'Callaghan, Department of Microbiology, University of Mississippi Medical Center, Jackson, Miss. 39216. Telephone: 601-987-5607. Equal Employment Opportunity, M/F/H/V.**

POSTDOCTORAL POSITION available immediately for mechanistic studies on retinoid inhibition of chemical carcinogenesis in a defined in vitro system. Research will focus on determining the primary site of retinoid action. Experience in plasma membrane structure/function and/or modulation of gene activity required. Send curriculum vitae and names of two references to: **Dr. John S. Bertram, Grace Cancer Drug Center, Roswell Park Memorial Institute, Buffalo, New York 14263.**

POSTDOCTORAL POSITION for Ph.D. in biochemistry with background in enzymology and molecular biology for active research laboratory. Send résumé to: **Miriam Kerans, Recruitment Director, New York University Medical Center, 560 First Avenue, New York, N.Y. 10016. An Affirmative Action/Equal Opportunity Employer, M/F.**

POSTDOCTORAL POSITIONS available in cellular neurobiology training program. Applicants with solid background in neurobiology or related fields, interested in membrane biophysics and ultrastructure, cellular electrophysiology, developmental neurobiology, synaptic physiology, cell culture, sensory receptors, or CNS anatomy and function should send curriculum vitae, recent reprints, statement of research interests, and names of three references to: **Dr. A. D. Grinnell, Jerry Lewis Center, University of California at Los Angeles, Los Angeles, Calif. 90024. An Equal Opportunity/Affirmative Action Employer**

POSITIONS OPEN

POSTDOCTORAL POSITION PEPTIDE ISOLATION AND IDENTIFICATION

The Biochemistry Department of Zeecon Corporation has an opening for a postdoctorate fellow to isolate and sequence biologically active peptides from insect sources. Qualifications should include Ph.D. in biochemistry or chemistry with emphasis on peptides.

Candidate must be intimately familiar with peptide isolation techniques, including HPLC, and have experience in sequencing (Edman and/or MS). Knowledge of peptide processing and immunochemical techniques desirable.

Zeecon developed and marketed the world's first hormonal insecticide and analog of the lipid-like juvenile hormone. Applicants should send curriculum vitae, including names of references and list of publications, to: **M. Heath, Zeecon Corporation, P.O. Box 10975, Palo Alto, Calif. 94303. We are an Equal Opportunity Employer.**

ZOECON

POSTDOCTORAL POSITION available immediately to study three-dimensional architecture of chromosomes using optical and electron microscopy and computerized, three-dimensional reconstruction schemes. The candidate should have strong background in computer science/computer graphics and/or macromolecular crystallographic experience. Send résumé with names of three references to: **Dr. David A. Agard or Dr. John W. Sedat, Department of Biochemistry and Biophysics, University of California, San Francisco, California 94143.**

POSTDOCTORAL POSITION available immediately to study the relationship between tumor cell surface carbohydrates and the invasive and metastatic phenotype of cancer cells. Experience in cell surface carbohydrate biochemistry, tissue culture, and methods for defining and separating tumor subpopulations (including flow cytometry) is required. Salary negotiable. Send curriculum vitae and names of three references to: **Dr. Bendicht U. Pauli and Dr. John Coon, Department of Pathology, Rush Medical College, 1753 West Congress Parkway, Chicago, Ill. 60612. Rush is an Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL POSITIONS—The Merck Institute for Therapeutic Research has openings for several postdoctoral positions available to study: (i) the molecular and cellular biology of organ specific toxicity utilizing IN VITRO cultures, or (ii) the role of DNA damage and repair in cellular aging, or (iii) mechanisms of carcinogenesis. All positions require a strong background in either molecular or cellular biology and evidence of research talent. Our laboratories are extensively equipped with the most modern research instruments and a wide variety of techniques are utilized. The initial term for these postdoctoral positions will be 1 year, renewable for 2 years. Merck offers a very competitive salary, comprehensive benefits program, and a highly professional environment. Our modern facilities are located in the attractive suburbs, 25 miles northwest of Philadelphia. Please send curriculum vitae and three letters of recommendation to: **Dr. Matthews O. Bradley, Merck Institute for Therapeutic Research, Merck Sharp & Dohme Research Laboratories, Building 44-1, West Point, Pa. 19486. Equal Opportunity/Affirmative Action Employer, V/H.**

POSTDOCTORAL POSITION: The focus of our research is to understand the role of the cytoskeleton in the hormonal control of cell growth, differentiation and secretion. Immunofluorescence, immunoprecipitation, and microinjection are being used to study the regulation of centrosome and microtubule function and biochemistry by hormones and growth factors. Available immediately. Contact: **Dr. Peter Sherline, Endocrine Division, Department of Medicine, University of Connecticut School of Medicine, Farmington, Conn. 06032. Telephone: 203-674-2129.**

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

RESEARCH ASSOCIATE

Postdoctoral position available to study regulation of expression of the actin gene family during embryonic development. Background in molecular and/or developmental biology preferred. Send curriculum vitae and names of three references to: **Dr. William R. Crain, Jr., c/o Personnel Office, Worcester Foundation for Experimental Biology, 222 Maple Avenue, Shrewsbury, Massachusetts 01545.**

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MDs

Clinical Research

Continued company growth has created two new clinical research positions that are responsible for phases I, II and III investigations of developmental drug compounds. Position #1 will be responsible for new oncological drug development and requires an individual with an MD degree who is board certified or eligible in internal medicine and medical oncology. Position #2 will be responsible for new drug development in various therapeutic areas and requires an MD degree with some clinical research experience preferred.

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- 1) **SENIOR MOLECULAR BIOLOGIST.** Ph.D. plus a minimum of 5 years of postdoctoral experience in the biochemistry, physiology, and genetics of secretory processes for macromolecules in Gram-positive microbes such as *Bacillus subtilis*. Excellence in the transport of small molecules and intermediary metabolism of *Bacillus* sp. as documented by a substantial scientific publication or patent record. Applicants must have conducted experiments on the cloning, expression, and secretion of eukaryotic and prokaryotic gene products in industrial microbes. Salary: \$30,000 to \$45,000, commensurate with experience.
- 2) **SENIOR APPLIED MICROBIAL PHYSIOLOGIST AND RESEARCH DIRECTOR.** Ph.D. plus a minimum of 10 years of relevant postdoctoral experience. Education, training, experience, and credentials to include evidence of superior accomplishment, in both industrial and academic environments, in the following areas: supervision of R & D effort of scientists and engineers from a variety of disciplines; process development, microbial and mammalian cell physiology, fermentation technology, and equipment design; computerized control system theory and application of these techniques to optimization of biological systems. Substantial scientific publication and/or patent record in above areas also required. Salary: \$38,000 to \$55,000, commensurate with experience.
- 3) **SENIOR BIOCHEMICAL ENGINEER.** Ph.D. plus a minimum of 1 year of postdoctoral industrial experience, R & D in both fermentation and microbial physiology. Applicants must demonstrate practical experience in: polysaccharide and related enzyme analysis, fermentations, and physiology; enzyme applications technology, including experience in new assay development as these apply to the development of new enzyme or macromolecular products; firsthand experience in the fermentation and physiology of both laboratory and various wild-type yeast species; and relevant physiology experience in such fungal species as *Cladosporium*, *Aurobasidium*, and *Rhodotorula*. Experience must be documented by scientific publications or filed patent applications. Salary: \$30,000 to \$35,000, commensurate with experience.

Fringe benefits. Only qualified applicants meeting minimum job requirements should apply. Please indicate position for which you are applying, and submit curriculum vitae, describing relevant scientific background, publications, and three professional references to:

Box 96, SCIENCE

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Toxicologic Pathologist

The Warner-Lambert/Parke-Davis Pharmaceutical Research Division, a worldwide leader in pharmaceutical development, has an immediate expansionary opening within its Department of Pathology and Experimental Toxicology for an individual with experience and/or training in laboratory animal pathology. You will become a member of a dynamic interdisciplinary team focusing on the development of meaningful new therapeutic agents. Duties will include the design, conduct and reporting of a variety of toxicology studies with emphasis on the clinical and anatomical pathologic evaluation of animals used in such studies. Board eligibility or certification in Pathology required.

Located adjacent to the University of Michigan campus, we offer salary commensurate with experience and an excellent benefits package. Send curriculum vitae, together with references and salary requirements to:

Ms. M. Wolin
Human Resources Representative, Dept. #129-83.
WARNER-LAMBERT/PARKE-DAVIS
Pharmaceutical Research Division
2800 Plymouth Road
Ann Arbor, Michigan 48105

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GASTROINTESTINAL BIOCHEMICAL PHARMACOLOGIST

Merck Sharp & Dohme Research Laboratories, a world renowned research leader in the pharmaceutical industry, is presently seeking an innovative and creative scientist to join our Department of Gastrointestinal Pharmacology.

The selected individual will pursue research in Gastroenterology, examining new approaches to drug discovery from a biochemical perspective. The applicant we seek should have a doctorate degree or equivalent in a relevant discipline, post-doctoral training and a very strong record of publication.

Published work should reflect the ability to perform creative and independent research. Previous experience relating to the discovery and development of new therapeutic agents is desirable, but not essential.

Our research laboratories provide an exceptional environment for research which includes, among other things, modern equipment, adequate laboratory space, and fine technical support. Our research facilities are located in a rural setting, 25 miles northwest of Philadelphia.

Please send curriculum vitae complete with publication record to:

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POSITIONS OPEN

POSTDOCTORAL POSITION available September 1983 at the Pasteur Institute, Paris, to study mechanisms of viral persistence and demyelination in mice infected with Theiler's virus. This disease is a model for human multiple sclerosis. Background in molecular biology desirable. Send application, curriculum vitae, and names of three references to: **Dr. M. Brahic, Infectious Diseases 151F, Veterans Administration Medical Center, 4150 Clement Street, San Francisco, Calif. 94121.**

POSTDOCTORAL POSITION available in area of isolation and characterization of membrane proteins. Stipend: \$15,000 to \$18,000 per year, depending on qualifications. Experience in the field essential. Send curriculum vitae and three letters of reference to: **Dr. O. P. Bahl, Department of Biological Sciences, 347 Cooke Hall, State University of New York at Buffalo, Amherst, N.Y. 14260. An Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL POSITION available after 1 May for recent Ph.D. or M.D. with training in biochemistry or cell biology. Studies will focus on membrane lipid synthesis and cell cycling in cultured tumor cells and effects of inhibitors of lipogenesis on tumor growth in vivo. Position available for 1 to 3 years with starting salary of \$16,000 plus benefits. Send curriculum vitae and names of three references to: **Dr. William Maltese, Department of Neurology, College of Physicians and Surgeons of Columbia University, 710 West 168 Street, New York, N.Y. 10032. Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL POSITION—Immunochimistry Laboratory, Hahnemann University. Strong biochemistry and/or immunochimistry background required. Tissue culture and/or hybridoma experience helpful. Send curriculum vitae to: **David Koffler, M.D., Director of Laboratory Medicine, Department of Pathology, Hahnemann University, Broad and Vine Streets, Philadelphia, Pa. 19102.**

POSTDOCTORAL POSITION available immediately to work in an active laboratory on one of two ongoing projects: (i) Study the mechanism of DNA recombination and repair in *Escherichia coli* and initiate parallel studies in eukaryotic cells, and (ii) develop novel new DNA virus vectors for inserting genes into eukaryotic cells. Applicant must have a Ph.D. in biochemistry, molecular biology, or a related field. Available for 3 years beginning immediately. Send résumé to: **Dr. Jack Griffith, Cancer Research Center, Swing Building, University of North Carolina, Chapel Hill, North Carolina 27514. University of North Carolina, Cancer Research Center, is an Affirmative Action/Equal Opportunity Employer.**

POSTDOCTORAL POSITION available immediately for recent Ph.D. with background in appropriate related area to participate in studies on the ontogenetic development and early differentiation of T-lymphocytes. Experience in cell/tissue culture, murine systems, routine immune function assays, and flow cytometry helpful. Enthusiasm essential. Send résumé and names of references to: **Dr. D. A. Crouse, University of Nebraska Medical Center, Omaha, Neb. 68105. An Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL POSITION IN SYSTEMATICS. Appropriate fields: aquatic biology, botany, entomology, herpetology, ichthyology, invertebrate zoology and paleontology, mammalogy, ornithology; also anthropology. Must have received Ph.D. within last 5 years. Pays \$17,000, plus \$1,000 expenses; begins as early as 1 September; normally a 1-year appointment. Provide résumé, research plan, and three references by 15 July to: **Tilton Fellowship Committee, California Academy of Sciences, Golden Gate Park, San Francisco, Calif. 94118.**

POSTDOCTORAL OR RESEARCH ASSISTANT PROFESSOR (nontenure-track) position in mammalian CNS electrophysiology and neural plasticity available 1 July 1983. Projects involve the use of extra-cellular single unit recording and microiontophoretic techniques to examine the electrophysiological properties of striatal neurons after dopaminergic denervation, and their relation to recovery of behavioral function. The position would also involve using similar techniques to investigate stimulation- and learning-induced neural plasticity in the hippocampus. Both lines of research are part of an ongoing collaborative effort among the laboratories of Drs. Theodore W. Berger, Michael J. Zigmond, and Edward M. Stricker, Psychobiology Program, University of Pittsburgh. Salary is commensurate with experience. Send curriculum vitae and names of three references to: **Dr. Theodore W. Berger, Psychobiology Program, 465 Crawford Hall, University of Pittsburgh, Pittsburgh, Pa. 15260.**

POSITIONS OPEN

POSTDOCTORAL POSITION (available May 1983 or later) to study the mechanism of cell toxicity caused by purine antimetabolites (particularly guanine starvation) as potent anticancer drugs. (New 3-year NCI grant.) Send résumé and names and addresses of three references to: **W. Sadee, Professor of Pharmacy and Pharmaceutical Chemistry, University of California at San Francisco, San Francisco, Calif. 94143.**

POSTDOCTORAL RESEARCH ASSOCIATE positions (two); 1- to 2-year appointments. **Western Regional Research Center, U.S. Department of Agriculture/Agricultural Research Service (USDA-ARS), Berkeley, California 94710.** Plant physiologists, GS-11 (\$24,508 per annum). (i) Research influence of salinity stress upon protein biosynthesis and gene regulation in barley. Background in biochemistry, plant physiology, or related discipline. Molecular biology and recombinant DNA experience essential. (ii) Research plasma membrane compositional and functional changes as a consequence of temperature, drought, salt stress in cereal grains. Background in biochemistry, plant physiology, or related discipline required. Ability to interact with physical chemists in ESR and Raman spectroscopy disciplines desirable. **Equal Opportunity Employer.** Résumé and references to: **Dr. W. Hukman** at address above; deadline: 6 May 1983. Telephone: 415-486-3296.

POSTDOCTORAL/RESEARCH ASSOCIATE position available immediately to study the interaction of chronic ethanol exposure and aging in the rat hippocampus. The research involves the use of extracellular field potential recordings to study both synaptic distribution and plasticity. Send curriculum vitae and three letters of reference to: **Dr. Bruce E. Hunter, Department of Neuroscience, College of Medicine, JHMC, Box J-244, University of Florida, Gainesville, Florida 32610. An Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL/RESEARCH ASSOCIATE. Research position involving lysosomal storage diseases. Studies involve phospholipid metabolism, two-dimensional gel analysis of lysosomal enzymes, use of monoclonal antibodies and recombinant DNA techniques. Send curriculum vitae to: **Arthur L. Beaudet, Department of Pediatrics, Baylor College of Medicine, Houston, Texas 77030.**

POSTDOCTORAL/RESEARCH ASSOCIATE positions, one available immediately, to study regulation of beta-adrenergic receptor-coupled adenylate cyclases. Current research includes study of the regulation of receptor-G/F interactions (by reconstitution), metabolism of receptors and G/F (by immunochimical techniques), adenylate cyclase activation by soluble protein factors. A Ph.D. in biochemistry, pharmacology, or related field is required. Research experience in membrane biochemistry desirable. Salary range: \$15,000 to \$18,000 per year.

Send curriculum vitae and names of references to: **Dr. Craig C. Malbon, Department of Pharmacological Sciences, School of Medicine, Health Sciences Center, State University of New York (SUNY) Stony Brook, Stony Brook, N.Y. 11794.**

SUNY Stony Brook is an Equal Opportunity/Affirmative Action Employer. AK 590.

RESEARCH ASSOCIATE required to work on biochemical aspects of hyperthermia in relation to cancer therapy. Applicants should have at least 3 years of postdoctoral experience in biochemistry. Experience with tissue culture is essential. Preference will be given to candidates who can display knowledge of a wide range of biochemical and biophysical techniques and who have research experience in hyperthermia. Specifically, knowledge of magnetic resonance techniques, lipid biochemistry, and gel electrophoresis is required. Experience with ultrasound and knowledge of ultrasound bioeffects would be an advantage. Salary in the range of \$26,000 to \$28,000 per annum. Application deadline: 15 May 1983. Send résumé and references to: **Dr. George Hahn, Department of Radiology, Stanford University, Stanford, Calif. 94305.**

RESEARCH SCIENTIST. The Department of Obstetrics and Gynecology has a position available immediately for a Ph.D.-level biochemist or cell biologist to pursue a research program in the biochemistry of the Myometrial Plasmalemma. Four years of extensive research experience in enzyme purification, protein chemistry, and immunochimistry are required. Please send résumé to: **Department of Obstetrics/Gynecology, Room Number N265, 926 West Michigan, Indianapolis, Indiana 46223, by 9 May 1983. Indiana University is an Equal Opportunity/Affirmative Action Educator, Employer, and Contractor, M/F.**

POSITIONS OPEN

POSTDOCTORAL RESEARCH OPPORTUNITIES

The Dental Research Center at The University of North Carolina at Chapel Hill wishes to attract outstanding scientists in the early stages of their careers who desire 1 to 3 years of research experience in a stimulating multidisciplinary environment.

The Center's research program includes the following areas: calcium metabolism in lactating and suckling rat pups; bone diseases; mineralization of bone and dental enamel; hormonal control of EGF synthesis; androgen receptors and metabolism; amino acid peptide and protein chemistry; wound healing mechanisms; biochemistry and structure of collagen connective tissue in osteoporosis; vitamin D deficiency and aging, and coagulation proteins; platelet physiology including membrane structure function studies and the role of calcium and intracellular messengers in platelet function; biomaterials and evaluation of restorative materials; periodontal disease; histocytochemistry; developmental biology including teratology; neural mechanisms including pain; and clinical and applied studies related to craniofacial growth and development.

Applicants are expected to be able to compete favorably for NIH postdoctoral or similar fellowships. Send résumé to: **Dr. Philip F. Hirsch, Director, Dental Research Center 210H, University of North Carolina, Chapel Hill, N.C. 27514.**

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PRIMATOLOGIST: DIVISION OF COMPARATIVE MEDICINE, UNIVERSITY OF PUERTO RICO, SCHOOL OF MEDICINE AND CARIBBEAN PRIMATE RESEARCH CENTER, CAYO SANTIAGO

Ph.D. with field experience in the behavioral, anthropological, or biomedical aspects of nonhuman primates. This faculty member will be expected to assist in the development and implementation of an active research program at Cayo Santiago. Other responsibilities will include the on-site supervision of an active graduate, postdoctoral, and visiting scientist program in collaboration with other faculty members in the Division of Comparative Medicine. Salary and faculty rank commensurate with experience and previous record of accomplishments. Please send curriculum vitae and the names of three references by 15 June 1983 to: **Director, Caribbean Primate Research Center, P.O. Box 1053, Sabana Seca, P.R. 00749.**

PROFESSOR OR ASSOCIATE PROFESSOR OF TOXICOLOGY/PHARMACOLOGY

The Department of Pharmacology, University of Tennessee Center for the Health Sciences (UTCHS), is inviting applications for a tenure-track position available immediately. The applicant should possess the Ph.D. or M.D. degree and should be an established scientist with demonstrated experience in the application of biochemical, molecular, and/or immunological knowledge in the study of basic toxicology problems. The applicant would be expected to maintain an active, independent research program and participate in undergraduate and graduate teaching. The successful candidate will be required to direct the Interdisciplinary Graduate Program in toxicology recently established at UTCHS. Please submit complete curriculum vitae and three letters of reference before 30 June 1983 to: **Dr. K. U. Malik, Chairman, Search Committee, Department of Pharmacology, University of Tennessee CHS, Memphis, Tennessee 38163. An Equal Opportunity/Affirmative Action Employer.**

KING SAUD UNIVERSITY COLLEGE OF MEDICINE RIYADH, SAUDI ARABIA PROFESSOR OF PHYSIOLOGY

PROFESSOR OF PHYSIOLOGY, King Saud University College of Medicine, Riyadh, Saudi Arabia, with a concurrent appointment in the Department of Physiology, University of Colorado School of Medicine. Successful candidates will be expected to teach undergraduate medical students and assist in development of research programs in physiology at King Saud University. Two positions are available with renewable annual contracts. Substantial remuneration and benefits.

Please send application with updated curriculum vitae and passport-sized photograph to: **Dr. A. Robert Martin, Professor and Chairman, Department of Physiology, University of Colorado School of Medicine, 4200 East Ninth Avenue, Box C-240, Denver, Colorado 80262. Equal Opportunity/Affirmative Action Employer.**

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The ideal candidate will have a B.S. degree in chemistry or other physical science and 1-2 years on-line searching experience, preferably with Dialog, SDC or Derwent. A MLS from an ALA accredited library school is desirable. The successful candidate must be well organized and a self-starter, able to edit and summarize information and meet tight deadlines.

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SM04

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POSITIONS OPEN

POSTDOCTORAL/RESEARCH ASSOCIATE position available 1 July 1983 to study the enzymes which phosphorylate and dephosphorylate the light chains and heavy chains of macrophage myosin, and the effects of phosphorylation on myosin function. Preference will be given to individuals with background in chemistry and protein biochemistry. Send curriculum vitae and names and addresses of three references to: **Dr. John A. Trotter, Department of Anatomy, University of New Mexico School of Medicine, Albuquerque, New Mexico 87131. The University of New Mexico is an Affirmative Action/Equal Opportunity Employer.**

RESEARCH LEADER/RESEARCH CHEMIST (GM-13, -14, or -15) position with Agricultural Research Service at the Southern Regional Research Center, New Orleans, Louisiana, to conduct research and provide leadership to a group of chemists and food technologists in expanding the basic understanding of vegetable proteins. Research involves preparation, isolation, fractionation, and concentration of proteins through varied techniques as well as studying the changes that occur during heating, pH adjustments, fermentation processes, and enzymatic modifications. A strong background in analytical, physical, and organic chemistry; biochemistry; and food technology; and published research in protein chemistry required. Salary (\$34,930 to \$48,553) based upon qualifications and experience. A Federal Career Civil Service position. For application procedures, contact: **Jane L. Giles, USDA-ARS-SRAO-C-2, Box 53326, New Orleans, La. 70153. Telephone: 504-589-4316. Equal Opportunity Employer.** Candidates must be U.S. citizens.

RESEARCH LEADER/SUPERVISORY MICROBIOLOGIST (GM-13, -14, or -15) position with Agricultural Research Service at the Southern Regional Research Center in New Orleans, Louisiana, to conduct research and provide leadership to a group of microbiologists and chemists studying mycotoxins in agricultural commodities. Research involves determination of fungal flora; development of assays; identification, isolation, purification, and structure determinations of toxicants; and determination of biosynthetic pathways. Strong background in mycology, biochemistry, plant physiology, toxicology, and analytical chemistry and published research on mycotoxins required. Salary (\$34,930 to \$48,553) is based upon qualifications and experience. A Federal Career Civil Service position. For application procedures, contact: **Jane L. Giles, USDA-ARS-SRAO-M1, P.O. Box 53326, New Orleans, La. 70153. Telephone: 504-589-4316. Equal Opportunity Employer.** Candidates must be U.S. citizens.

The Environmental Defense Fund is seeking applicants for the position of **SCIENCE ASSOCIATE** in its New York City office. The position carries a 2-year commitment and an annual salary of \$16,000 to \$18,000. Applicants must have a graduate degree in the physical or biological sciences, research experience, and good writing skills. The position provides the opportunity to undertake research and apply the results to public policy issues.

Please send résumés to:

**Marion Rogers
Environmental Defense Fund, Inc.
444 Park Avenue South
New York, New York 10016**

STAFF ASSOCIATE (TWO) OPENINGS. To work in cellular immunology laboratory. Several years of experience with cell culture work, immunochemistry and immunofluorescence are essential. Degrees such as B.A. and M.A. as well as publications will be duly considered. Salary commensurate with experience. Submit curriculum vitae and supporting material to:

**Benvenuto Pernis, M.D.
Department of Microbiology
Columbia University
College of Physicians and Surgeons
701 West 168 Street
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POSITIONS OPEN

RESEARCH ASSISTANT. Run research laboratory, amino acid analyzers, perform biochemical analysis, keep records, participate in planning and performing experiments. Clinical analysis may be necessary. Minimum: B.S. plus 2 years of experience, M.S. plus 1, biochemistry, biology, or chemistry. Experience in amino acid analysis plus biochemical methods, animal experiments. Salary: \$20,492 plus 8 percent anticipated. Send résumé and three references to: **Personnel, attention: Dr. Sturman, Position Number 320, New York State Institute for Basic Research, 1050 Forest Hill Road, Staten Island, New York 10314. Affirmative Action/Equal Opportunity Employer, M/F/H.**

ANNUAL MEETING

American Malacological Union's 49th Annual Meeting, 7 to 13 August 1983, Seattle, Washington. Symposia on "Molluscan Nerve Cells," "Molluscan Extinctions," and "Avian Molluscivores." Papers on Cephalopods, Pacific Northwest Molluscs, and recent studies. Workshops, field trips. For information, write: **Alan J. Kohn, Department of Zoology, University of Washington, Seattle, Wash. 98195, or telephone: 206-543-1629.**

COURSES

Twenty-Fourth Annual Course in Medical Genetics and Experimental Mammalian Genetics. Directors: Victor A. McKusick and Thomas H. Roderick, Ph.D. Location: The Jackson Laboratory, Bar Harbor, Maine. Time: 1 to 12 August 1983.

First conducted in 1960, this course has been supported throughout by The March of Dimes Birth Defects Foundation and conducted as a joint enterprise of Johns Hopkins University and The Jackson Laboratory. Persons may apply for the course by writing to either: **Dr. Victor A. McKusick, The Johns Hopkins Hospital, Baltimore, Md. 21205, or Dr. Thomas H. Roderick, The Jackson Laboratory, Bar Harbor, Maine 04609.**

INQUIRY

SCIENTIFIC FRAUD

Major news organization looking into instances of scientific fraud occurring in recent past or currently. Participants and observers write:

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REQUEST FOR PROPOSALS

The EPA/NCSU Acid Precipitation Program, a cooperative research program between the U.S. Environmental Protection Agency (EPA) and North Carolina State University (NCSU), is now requesting proposals for research on the effects of acid deposition on aquatic ecosystems—specifically, projects related to pH-aluminum stress on fish population in the Adirondacks, New York; status of fish, plankton benthic populations in acidic lakes in northern New England and the Adirondacks; and development of a biological sampling protocol for long-term monitoring programs. For submission details, send a self-addressed envelope to: **EPA/NCSU Acid Precipitation Program, 1509 Varsity Drive, Raleigh, N.C. 27606.** Deadline for requesting information is 13 May 1983.

PROGRAMS

PROSPECTIVE GRADUATE STUDENTS who are interested in specializing in nuclear magnetic resonance (NMR) as part of their training for an advanced degree in biophysics or chemistry are encouraged to write for further information. Aspects of NMR included in the training are NMR spectroscopy (conventional and two-dimensional, especially as applied to biochemical studies) and/or NMR imaging techniques. Write: **Chairman, Biophysics Department, Roswell Park Graduate School, Buffalo, N.Y. 14263.** The Roswell Park Graduate School is a component of the State University of New York at Buffalo and is affiliated with Roswell Park Memorial Institute, the nation's oldest cancer research institute.

FELLOWSHIPS

CLINICAL RESEARCH TRAINING FELLOWSHIPS. Harvard Medical School, Department of Psychiatry, Massachusetts Mental Health Center, offers 1- to 2-year postdoctoral fellowships to psychiatric residents, other M.D.'s and Ph.D.'s in biological, social, and psychological sciences. Program directors: **Robert McCauley, M.D., and Stuart Hauser, M.D., Ph.D.** Starting date: 1 July 1984; application deadline: 15 October 1983. Stipends: \$14,040 to \$20,200. Write, indicating area(s) of research interest, to: **Karen Lyon, Box S, Clinical Research Training Program, 74 Fenwood Road, Boston, Mass. 02115. Telephone: 617-734-0031.**

POSTDOCTORAL RESEARCH-TEACHING FELLOWSHIP in cell and developmental biology starting 1 September 1983. Position includes research on gene expression in *Drosophila oogenesis* with Dr. Gail Waring and teaching an undergraduate cell biology laboratory course to majors in fall semester only. Knowledge of protein and nucleic acid methodologies desired. Position available for at least 3 years at \$20,000 per year. Send curriculum vitae and three letters of reference to: **Dr. Peter Abramoff, Biology Department, Marquette University, Milwaukee, Wis. 53233. Marquette University is an Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL FELLOWSHIPS IN NEUROCHEMISTRY

Fellowships in neurochemistry for holders of Ph.D. or M.D. degrees are available at the Missouri Institute of Psychiatry, Department of Biochemistry, University of Missouri-Columbia. The annual stipend is \$13,380 to \$18,780, depending upon experience. Drs. Ingming Jeng, Eric Brunngraber, and Derek Cash are currently pursuing research in: interrelationship between LSD and serotonin; effect on cultured nerve cells; structure and function of gangliosides and glycoproteins in neuronal tissues; cell culture of neural and glial cells; mechanism of neurotransmitter-receptor interaction and the consequent transmembrane processes; molecular mechanism of the response of acetylcholine receptor. Please send curriculum vitae, area of interest, and three references to:

**Dr. Ingming Jeng, Unit Chief
Neurochemistry Research Unit
Missouri Institute of Psychiatry
5400 Arsenal Street
St. Louis, Mo. 63139**

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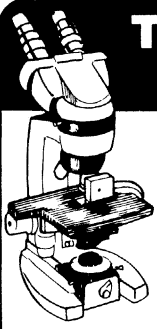
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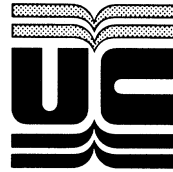
To: Mr. Clifford Moss, Executive Secretary
Cystic Fibrosis Search Committee, NIADDK
National Institutes of Health
9000 Rockville Pike, Building 31, Room 9A34
Bethesda, Maryland 20205
Phone: (301) 496-4231

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Applications are invited for a position at the level of Assistant Professor within the Departments of Medical Physiology, Anatomy, and the Lions' Sight Centre, of The University of Calgary. Applicants should have research interests in the neurophysiology of visual processing in mammalian cortex with an emphasis on single cell structure and function. Experience in intracellular recording and marking, in neuroanatomical techniques and in computer applications is desirable, and applicants whose research involves primate vision are preferred. The Lions' Sight Centre is a growing group of visual physiologists, anatomists, and psychophysicists with excellent support facilities for electron microscopy, immunohistochemistry, and computer reconstruction. The successful candidate will be eligible to apply for a five-year, renewable scholarship and initial establishment grant from the Alberta Heritage Foundation for Medical Research. The successful applicant will be expected to maintain an externally funded research program.

In accordance with Canadian immigration requirements, this advertisement is directed to Canadian citizens and permanent residents. Other qualified candidates should also apply. Please send a curriculum vitae, a brief description of research interests, and three letters of reference, by no later than May 15, 1983, to:



THE
UNIVERSITY
OF CALGARY

William K. Stell, Ph.D., M.D.
Director, Lions' Sight Centre
Professor & Head, Dept. of Anatomy
The University of Calgary
Faculty of Medicine
3330 Hospital Drive N.W.
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