

ciples. Sepkoski and Sheehan argue that (i) factor analysis of the family diversity within classes of marine metazoans decomposes the Phanerozoic biota into three "evolutionary faunas"; (ii) good fit of predicted curve to the empirical pattern implies that each fauna diversified according to its own logistic equation and displaced the one that dominated previously; (iii) this displacement is due to major differences in species packing or degree of ecospace utilization; (iv) cluster analysis of the facies distribution of Cambro-Ordovician communities identifies clusters, equivalent to the evolutionary faunas, that first appear onshore, later expand offshore, and persist there longer than onshore; (v) this pattern implies that evolutionary novelties generally arise onshore, owing either to better adaptedness of nearshore taxa that permits them to invade offshore communities or to closer coadaptation that permits them to outcompete offshore communities. A similar conclusion is reached by Jablonski and Bottjer, who demonstrate that Late Cretaceous onshore communities resembled modern ones, whereas the contemporary offshore communities included some sessile epifaunal suspension feeders very much as in the Paleozoic but not in the Recent. Jablonski and Bottjer's explanation emphasizes ecology and population structure of nearshore taxa as promoting evolutionary novelty. Finally, Bambach argues that the difference in diversity between communities representative of Sepkoski's evolutionary faunas is due to an increase in number of guilds instead of in species packing.

Attractive as these arguments are, they are strongly disputable. Factor analysis of nonstandardized diversity data (without giving equal weight to all taxa) does not distinguish cohesive evolutionary units, because it focuses on the few most diverse taxa; it does not show that, say, sclerosponges shared an evolutionary pattern with articulate brachiopods, or calcareous sponges with bivalves. Good fit of a model to an empirical curve cannot prove the validity of the model, especially if there is no independent estimate of the parameters; assumptions of the model and alternative models must also be tested. There is no evidence that, say, Cambrian trilobites were less specialized than Late Paleozoic brachiopods or nautiloids; if, however, the increase in diversity is due to the utilization of an ever wider variety of resources, there is no reason for displacement of one evolutionary fauna by another. The distributional pattern of Cambro-Ordovician communities is far

from obvious, and their equivalence to the evolutionary faunas is questionable (the fauna decomposes into four rather than three primary clusters; there are significant discrepancies between the results of cluster and companion factor analyses; and there is a question whether typically Paleozoic linguloid-mollusk communities are modern or Cambrian). That pattern is irrelevant to the question where evolutionary novelties first appear, unless novelty is identified with a specific array of guilds (taxa characteristic of particular faunas appear earlier than the equivalent community clusters; the appearance of other taxa is neglected as a novelty). The snag with Jablonski and Bottjer's argument is that though their community pattern may tell us something about delayed extinction in offshore environments it tells us nothing about accelerated evolution of new body plans onshore. There is also no doubt that Thayer's bulldozers and Vermeij's durophagous predators flourished in Late Cretaceous offshore habitats. Bambach's data demonstrate that the number of guilds identified among modern bivalves and gastropods is larger than the number identified in Cambrian trilobites or Paleozoic graptolites, conodontophorids, or nautiloids, but this may merely reflect different levels of our understanding of their biology.

All this criticism does not imply that the hypotheses concerning community evolution proposed by Sepkoski and Sheehan, Bambach, and Jablonski and Bottjer are false. They may well be right, even though, I suspect, for wrong reasons. However, before one can argue persuasively for closely coadapted evolutionary faunas and their constituent communities that directly interfered as integrated entities, some better evidence needs to be presented.

Nevertheless, one can hardly imagine future research on community evolution that would ignore these thought-provoking contributions.

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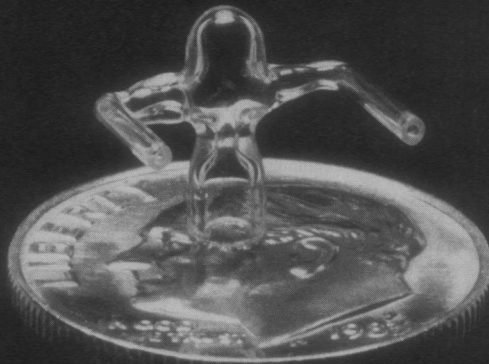
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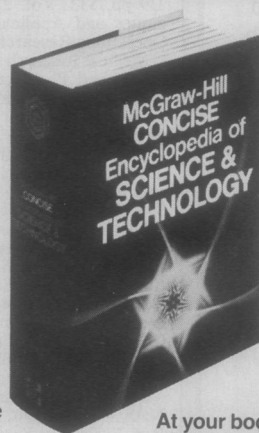
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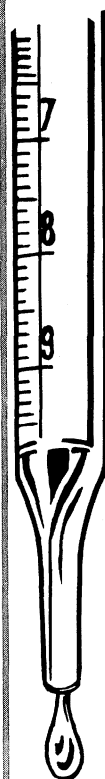
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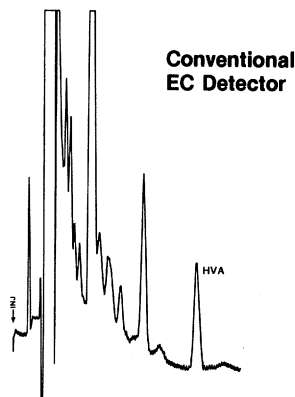
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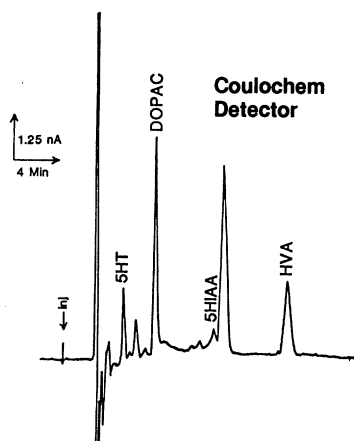
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Pulp and Paper. Chemistry and Chemical Technology. Vol. 4. James P. Casey, Ed. 3rd ed. Wiley-Interscience, New York, 1983. xxx pp. + pp. 2011-2609, illus. \$75.

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Quaternary of South America and Antarctic Peninsula. Vol. 1. Jorge Rabassa, Ed. Balkema, Rotterdam, 1983 (U.S. distributor, MBS, Salem, N.H.). x, 156 pp., illus. \$22. From a meeting, Neuquén, Argentina, March 1982.

Radioprotectors and Anticarcinogens. Oddvar F. Nygaard, Michael G. Simic, and Janet Newlin Hauber, Eds. Academic Press, New York, 1983. xxiv, 773 pp., illus. \$49.50. From a conference, Gaithersburg, Md., June 1982.

Recent Advances in Statistics. Papers in Honor of Herman Chernoff on His Sixtieth Birthday. M. Haseeb Rizvi, Jagdish S. Rustagi, and David Siegmund, Eds. Academic Press, New York, 1983. xiv, 611 pp. \$37.50.

Respiratory Infections. Diagnosis and Management. James E. Pennington, Ed. Raven, New York, 1983. xx, 498 pp., illus. \$39.

Science of Hard Materials. R. K. Viswanadham, D. J. Rowcliffe, and J. Gurland, Eds. Plenum, New York, 1983. xii, 1011 pp., illus. \$135. From a conference, Jackson, Wyo., Aug. 1981.

Seismic Wave Propagation in Stratified Media. B. L. N. Kennett. Cambridge University Press, New York, 1983. x, 342 pp., illus. \$59.50. Cambridge Monographs on Mechanics and Applied Mathematics.

Semiconductors and Semimetals. Vol. 19. Deep Levels, GaAs, Alloys, Photochemistry. R. K. Willardson and Albert C. Beer, Eds. Academic Press, New York, 1983. x, 342 pp., illus. \$57.50.

Semi-Riemannian Geometry with Applications to Relativity. Barrett O'Neill. Academic Press, New York, 1983. xiv, 469 pp., illus. \$45. Pure and Applied Mathematics.

Sex Selection of Children. Neil G. Bennett, Ed. Academic Press, New York, 1983. xviii, 258 pp. \$35.

Silent Violence. Food, Famine and Peasantry in Northern Nigeria. Michael Watts. University of California Press, Berkeley, 1983. xxxii, 687 pp., illus. \$34.50.

Situations and Attitudes. Jon Barwise and John Perry. MIT Press, Cambridge, Mass., 1983. xxii, 352 pp., illus. \$17.50. A Bradford Book.

Social and Personality Development. Infancy through Adolescence. William Damon. Norton, New York, 1983. xviii, 392 pp., illus. \$25.

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Social Science Research and Climate Change. An Interdisciplinary Appraisal. Robert S. Chen, Elise

Boulding, and Stephen H. Schneider, Eds. Reidel, Boston, 1983 (distributor, Kluwer Boston, Hingham, Mass.). viii, 255 pp. \$43.50.

Social Skills Assessment and Training with Children. An Empirically Based Handbook. Larry Michelson *et al.* Plenum, New York, 1983. xiv, 268 pp. \$35. Applied Clinical Psychology.

Statistical Methods for Forecasting. Bovas Abraham and Johannes Ledolter. Wiley, New York, 1983. xviii, 445 pp., illus. \$34.95. Wiley Series in Probability and Mathematical Statistics.

Stream Ecology. Application and Testing of General Ecological Theory. James R. Barnes and G. Wayne Minshall, Eds. Plenum, New York, 1983. viii, 399 pp., illus. \$55. From a symposium, Provo, Utah, April 1981.

Structure and Function of Plant Genomes. Orio Ciferri and Leon Dure III, Eds. Plenum, New York, 1983. xiv, 495 pp., illus. \$69.50. NATO Advanced Science Institutes Series A, vol. 63. From an institute, Porto Portese, Italy, Aug. 1982.

Studies in Econometrics, Time Series, and Multivariate Statistics. Samuel Karlin, Takeshi Amemiya, and Leo A. Goodman, Eds. Academic Press, New York, 1983. xx, 570 pp. \$40.

Such Agreeable Friends. Life with a Remarkable Group of Urban Squirrels. Grace Marmor Spruch. Drawings by Nurit Karlin. Morrow, New York, 1983. 187 pp. \$9.95.

Symptom Control in Far Advanced Cancer. Pain Relief. Robert G. Twycross and Sylvia A. Lack. Pitman, London, 1983 (U.S. distributor, Urban & Schwarzenberg, Baltimore). xii, 334 pp., illus. \$47.50.

Systems of Nonlinear Partial Differential Equations. J. M. Ball, Ed. Reidel, Boston, 1983 (distributor, Kluwer Boston, Hingham, Mass.). x, 481 pp. \$65. NATO ASI Series C, No. 111. From an institute, Oxford, England, July 1982.

Tandem Mass Spectrometry. F. W. McLafferty, Ed. Wiley-Interscience, New York, 1983. xx, 506 pp., illus. \$46.20.

Teratocarcinoma Stem Cells. Lee M. Silver, Gail R. Martin, and Sidney Strickland, Eds. Cold Spring Harbor Laboratory, Cold Spring Harbor, N.Y., 1983. xxii, 743 pp., illus. \$85. Cold Spring Harbor Conferences on Cell Proliferation, vol. 10. From a conference, Cold Spring Harbor, Sept. 1982.

Terrestrial Clastic Depositional Systems. Applications to Petroleum, Coal, and Uranium Exploration. W. E. Galloway and David K. Hobday. Springer-Verlag, New York, 1983. xvi, 423 pp., illus. \$39.

Theory of Structural Transformations in Solids. A. G. Khachaturyan. Wiley-Interscience, New York, 1983. xiv, 574 pp., illus. \$64.95.

Tills and Related Deposits. Genesis/Petrology/Application/Stratigraphy. Edward B. Evenson, Ch. Schlüchter, and Jorge Rabassa, Eds. Balkema, Rotterdam, 1983 (U.S. distributor, MBS, Salem, N.H.). x, 454 pp., illus. \$45. From two symposia, 1981 and 1982.

Time-Resolved Vibrational Spectroscopy. George H. Atkinson, Ed. Academic Press, New York, 1983. xx, 398 pp., illus. \$43. From a conference, Lake Placid, N.Y., Aug. 1982.

Topics in Ocean Physics. A. R. Osborne and P. Malanotte Rizzoli, Eds. North-Holland, Amsterdam, 1982 (U.S. distributor, Elsevier, New York). xvi, 553 pp., illus. \$98. From a school, Varenna on Lake Como, July 1980.

Trace Analysis and Technological Development. M. Sankar Das, Ed. Halsted (Wiley), New York, 1983. xii, 407 pp., illus. \$40. From a symposium, Bombay, Feb. 1981.

Treatise on Materials Science and Technology. Vol. 25, Embrittlement of Engineering Alloys. C. L. Briant and S. K. Banerji, Eds. Academic Press, New York, 1983. xiv, 623 pp., illus. \$89.

Vascular Perfusion in Cancer Therapy. K. Schwemmler and K. Aigner, Eds. Springer-Verlag, New York, 1983. xii, 298 pp., illus. \$55. Recent Results in Cancer Research, 86.

Viral Pollution of the Environment. Gerald Berg, Ed. CRC Press, Boca Raton, Fla., 1983. vi, 241 pp., illus. \$76.

Water Rights. Scarce Resource Allocation, Bureaucracy, and the Environment. Terry L. Anderson, Ed. Pacific Institute for Public Policy Research, San Francisco, and Ballinger (Harper and Row), Cambridge, Mass., 1983. xxiv, 348 pp. \$35; paper, \$11.95. Pacific Studies in Public Policy.

Weather and Climate Responses to Solar Variations. Billy M. McCormac, Ed. Colorado Associated University Press, Boulder, 1983. x, 626 pp., illus. \$29.50. From a symposium, Boulder, Colo., Aug. 1982.

Working with Animal Chromosomes. Herbert C. Macgregor and Jennifer M. Vary. Wiley-Interscience, New York, 1983. xvi, 250 pp., illus. \$41.95.

Zinc Enzymes. Thomas G. Spiro, Ed. Wiley-Interscience, New York, 1983. x, 359 pp., illus. \$89.95. Metal Ions in Biology, vol. 5.

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ACADEMIC RHEUMATOLOGIST: Assistant/associate professor position available in the Rheumatology Division, Rackham Arthritis Research Unit, University of Michigan Medical School. Applicant must be Board-certified/eligible in internal medicine and rheumatology and have expertise in basic research relevant to the rheumatic diseases. Send curriculum vitae to: **Giles G. Bole, M.D., Chief, Rheumatology Division, University of Michigan Medical School, R4633 Kresge Medical Research Building, Box 018, Ann Arbor, Michigan 48109. The University of Michigan is a nondiscriminatory, Affirmative Action Employer. 17BO.**

ASSISTANT PROFESSOR—BIOCHEMISTRY. The Department of Chemistry at Boston University is seeking applicants for a tenure-track position to begin 1 September 1984 to 1 September 1985. Responsibilities include teaching of biochemistry courses and development of a vigorous research program, preferably in the area of membrane chemistry, immunochemistry, recombinant DNA technology, or plant biochemistry, although outstanding applicants in any field will be considered. Résumé and three letters of recommendation should be sent to: **Dr. Norman N. Lichtin, Chairman, Department of Chemistry, Boston University, Boston, Mass. 02215. Boston University is an Equal Opportunity/Affirmative Action Employer.**

ASSISTANT PROFESSOR OF ANATOMY

Applications are invited for a tenure-track faculty position available July 1984. The successful candidate's area of active research investigation shall encompass developmental, cellular, and/or molecular aspects of neurobiology.

Preference given to candidates with postdoctoral experience who have demonstrated outstanding potential for independent research and are willing to participate in the instruction of gross anatomy.

Send applications, including curriculum vitae and names of three references, to: **Chairman, Department of Anatomy, Thomas Jefferson University, Philadelphia, Pa. 19107.**

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The University of Michigan, Section of Urology is seeking a Board-certified or eligible **UROLOGIST** who is completing or has completed a residency within the past several years, has acquired experience as an investigator, is a competent clinician and surgeon, and is interested in an academic career. Salary and rank are negotiable. All inquiries should be directed to: **Edward J. McGuire, M.D., Professor and Head, Section of Urology, Department of Surgery, University of Michigan Hospitals, C5006 OPB, Box 03, 1405 East Ann Street, Ann Arbor, Michigan 48109. The University of Michigan is a nondiscriminatory, Affirmative Action Employer. PCN 127.**

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As a result of a major expansion under way in the Department of Psychiatry, Southern Illinois University (SIU) School of Medicine, a number of academic positions related to biological psychiatry and community mental health care have become available, or will do so in the near future. Appointments will be at the assistant or associate professor level for persons with qualifications, interest, and experience in schizophrenia research, cognitive function in relation to aging, child psychiatry, and balanced community psychiatric care delivery systems. At least one position is expected to be available in each of the following areas: neurochemistry, electrophysiology, gerontological psychiatry, neuropsychology, child psychiatry, and inpatient and outpatient community psychiatric services. One of the appointees will be head of a new division of gerontological psychiatry while another will have a similar role in public mental health service. Salaries are highly competitive. Closing date is 4 May 1984 or until filled. *SIU School of Medicine is an Affirmative Action/Equal Opportunity Employer.* Send curriculum vitae to: **Robert E. Becker, M.D., Professor and Chairman, Department of Psychiatry, SIU School of Medicine, P.O. Box 3926, Springfield, Illinois 62708.**

ASSISTANT/ASSOCIATE PROFESSOR OF BIOMEDICAL ENGINEERING. New tenure-track positions available after 1 July 1984. Candidates must have an earned doctoral degree, must have demonstrated independent research productivity, and must be capable of attracting research support. A research interest in biomedical sensors, biomaterials, biological transport, biomedical signal or image analysis, or biomedical computer and information systems is preferred. Teaching duties include participating in undergraduate student, graduate student, and medical student programs. Qualified candidates should submit by 30 June 1984 curriculum vitae, list of publications, up to three selected reprints, and the names of three referees whom we can contact.

**Department of Biomedical Engineering
The Johns Hopkins School of Medicine
720 Rutland Avenue
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ASSISTANT/ASSOCIATE PROFESSOR IN NEUROCHEMISTRY

Applications are invited for a tenure-track position available 1 January 1985. Candidates should have a demonstrated ability to conduct independent research. Preference will be given to those working in the area of neurotransmission. Rank and salary will be commensurate with qualifications. Send curriculum vitae, statement of research interests, representative reprints, and names of three references by 30 June 1984 to: **Dr. Robert B. Barlow, Jr., Institute for Sensory Research, Syracuse University, Syracuse, N.Y. 13210. An Affirmative Action/Equal Opportunity Employer.**

The Department of Psychology, Columbia University, anticipates a 2- or possibly 3-year term appointment preferably at the **ASSISTANT PROFESSOR** level beginning September 1984. We seek an outstanding teacher and scholar of demonstrated ability, who is capable of teaching a large undergraduate lecture course in physiological psychology. Our preference is for a specialization in sensory, but we will consider applicants in other areas whose presence would enhance our graduate and undergraduate programs. Candidates should send a copy of their curriculum vitae and the names of three individuals who are willing to write letters of recommendation to: **Personnel Search Committee (Physiological Search), Department of Psychology, Box 29 Schermerhorn Hall, Columbia University, New York, N.Y. 10027. Columbia University is an Affirmative Action/Equal Opportunity Employer.**

BIOCHEMIST/CELL BIOLOGIST

Assistant professor level to join the Coagulation Research Laboratory at Michael Reese Hospital and Medical Center, Chicago, Illinois. The academic appointment will be at the University of Chicago. Background required: Earned Ph.D. and laboratory experience in protein separation, iodination procedures, cell biology. It is desirable that the candidate have experience in coagulation research. Send curriculum vitae to: **J. Chediak, M.D., Director, Coagulation Laboratory, Michael Reese Hospital and Medical Center, Lakeshore Drive at 31st Street, Chicago, Illinois 60616.**

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POSITIONS OPEN

ASSOCIATE PROFESSOR—BIOCHEMISTRY

A position as associate professor is available 1 July 1984 in the Department of Biochemistry at the University of Toronto. The candidate should have a Ph.D. degree in biochemistry or a related science. The applicant should have a minimum of 7 years of postdoctoral training. The candidate should have an established record of interest in the biochemistry of the complement system with a special emphasis on physical and spectroscopic methodology. This is a tenure-stream position.

Payment will be in the range for an associate professor and will be university budget money.

In accordance with Canadian immigration requirements, preference will be given to Canadian citizens and permanent residents.

Please send curriculum vitae and the names of three referees to:

Dr. H. Schachter
Department of Biochemistry
University of Toronto
Toronto, Ontario, Canada M5S 1A8

Applications must be submitted by 4 May 1984.

BIOCHEMISTRY, VISITING ASSISTANT PROFESSOR. University of Montana, Department of Chemistry, seeks Ph.D. with expertise in nucleic acid biochemistry/molecular biology for a 1-year position teaching at the graduate and undergraduate level during 1984-1985 academic year. Send résumé and three letters of recommendation by 4 May 1984 to: Professor Walter E. Hill, Department of Chemistry, University of Montana, Missoula, Mont. 59812. *An Equal Opportunity/Affirmative Action Employer.*

BIOLOGIST—The Department of Biological Sciences of the University of Texas at El Paso expects funding for a 9-month, nontenure-track position at the assistant professor level (Ph.D. required) starting September 1984. The individual will teach general biology lecture sections. Preference will be given to those able to conduct collaborative research in immunology (Dr. E. Rael), parasitology (Dr. J. Bristol), or virology (Dr. R. Salo). Recent, appropriate teaching experience is desirable, and a commitment to research is imperative. Closing date is 4 May 1984. Submit curriculum vitae, transcripts, and the names, addresses, and telephone numbers of three references to: Dr. Eppie Rael, Chair, Biology Search Committee, Biological Sciences, University of Texas at El Paso, El Paso, Texas 79968. *The University of Texas at El Paso is an Equal Opportunity/Affirmative Action Employer.*

BIOLOGY: Full-time position to begin September 1984 in the Biology Department of a Catholic liberal arts college dedicated to promoting the philosophy of Christian humanism. The Ph.D. and full-time college teaching experience are required. Teaching responsibilities will include genetics, developmental biology, physiology, and zoology. Candidate must be committed to quality undergraduate education and possess sufficient background and flexibility to provide elective courses. Possibility of department chair. Salary and rank dependent upon experience and background. Send curriculum vitae, transcripts, and three letters of recommendation by 11 May 1984 to: Dr. Joseph Colosi, Department of Biology, Allentown College, Center Valley, Pa. 18034.

A **CHAIRMAN** for the Department of Biochemistry is being sought by Jefferson Medical College of Thomas Jefferson University. The successful candidate will be provided significant resources facilitating maintenance of existing departmental strength and addition of his/her own area of specialization to this most basic of the basic biomedical sciences. Please submit curriculum vitae and names of three references to: E. M. Johnson, Ph.D., Professor and Chairman, Department of Anatomy, 1020 Locust Street, Philadelphia, Pa. 19107. *An Affirmative Action/Equal Opportunity Employer.*

CYTOGENETICIST/PRENATAL DIAGNOSIS DIRECTOR. The Department of Medicine, Baylor College of Medicine, seeks a Ph.D. cytogeneticist to direct an academic prenatal diagnosis laboratory involved in both amniotic fluid and chorionic villus techniques of prenatal diagnosis. Experience with amniotic fluid cell culture, human cytogenetics, and a strong commitment to prenatal diagnosis are essential. This program has complementary biochemical and recombinant DNA diagnostic capacities. Please send curriculum vitae, representative reprints, and names of three references to: Dr. David H. Ledbetter, Kleberg Cytogenetics Laboratory, Department of Medicine, Baylor College of Medicine, Houston, Texas 77030.

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A position is available immediately to join Dr. Marcus Jacobson on a number of different projects including nerve cell lineage, initiation of and control of neurite outgrowth, and cellular interactions and cellular adhesion in the developing nervous system. Send curriculum vitae to: **Dr. Marcus Jacobson, Department of Anatomy, University of Utah School of Medicine, Salt Lake City, Utah 84132.**

DIRECTOR, DIVISION OF MEDICAL TECHNOLOGY

The Department of Laboratory Medicine and Pathology, University of Minnesota Medical School, is seeking applicants for the position of director of the Division of Medical Technology. Twelve-month appointment at rank of associate or full professor, depending on qualifications of the successful candidate. Applicant must be certified medical technologist with M.S. or Ph.D. in relevant field, Ph.D. preferred.

Candidates should present a strong record of leadership, experience in administration, teaching, and research. Responsibilities include directing an approved university 2 + 2 program, teaching in B.S. and M.S. programs, and conducting research. Submit letter of application, curriculum vitae, and names of three references by 15 June 1984 to: **Dr. Michael Steffes, Department of Laboratory Medicine and Pathology, Box 198 Mayo Memorial Building, University of Minnesota, Minneapolis, Minn. 55455.**

The University of Minnesota is an Affirmative Action Employer and specifically invites and encourages application from women and minorities.

DIRECTOR, INSTITUTE FOR ENVIRONMENTAL MEDICINE, UNIVERSITY OF PENNSYLVANIA. The University of Pennsylvania School of Medicine seeks a distinguished investigator to direct the Institute for Environmental Medicine. This institute is a specialized unit that emphasizes studies of atmospheric, aerospace, and pressure physiology. The position includes utilization of pressure chambers for studies in man. Candidates should be eligible for a senior faculty position.

Applicants should forward curriculum vitae and bibliography to: **Karen Lawrence, Office of the Dean, University of Pennsylvania, School of Medicine, 36th and Hamilton Walk, Philadelphia, Pa. 19104.** The University is an Affirmative Action/Equal Opportunity Employer.

GRENADA—ST. VINCENT—BARBADOS

St. George's University School of Medicine, located in the West Indies, is expanding its present **FACULTY**. Applications are invited from Ph.D.'s or M.D.'s. Teaching positions are available at the level of instructor, assistant professor, or associate professor in the following subjects: biochemistry, microbiology, lecturers and laboratory demonstrators in pathology, pharmacology, and physiology. Recent retirees in good health, and experienced lecturers available during a sabbatical leave of at least 1 year will also be considered. Priority will be given to applicants with prior experience in lecturing at medical schools. These faculty appointments will begin July or 1 August 1984. Submit applications, including current curriculum vitae and recent references, to: **St. George's University School of Medicine, c/o The Foreign Medical School Services Corporation, One East Main Street, Bay Shore, New York 11706; attention: Mrs. R. Horton.**

POSTDOCTORAL POSITIONS in neuroscience, developmental biology, and cell biology available for training with **J. F. ASH** (cell membranes), **F. D. COLLINS** (neurite growth), **K. A. CRUTCHER** (neuronal plasticity), **M. JACOBSON** (developmental neurobiology), **A. G. LEVENTHAL** (visual system), **R. J. MULLEN** (mammalian neurogenetics), **T. N. PARKS** (auditory system), and **G. C. SCHOENWOLF** (neurulation). Trainees must be U.S. citizens or permanent residents. Send curriculum vitae to: **Postdoctoral Program, Department of Anatomy, University of Utah School of Medicine, Salt Lake City, Utah 84132.**



UNIVERSITY OF CAPE TOWN

Postdoctoral Research Fellowships 1985

The University of Cape Town annually invites applications for Postdoctoral Research Fellowships to be held at the University.

The Fellowships are tenable for a maximum of twelve months and the stipend attached to the current Fellowships is R1 500 p.m. (R18 000 p.a.). Successful candidates from abroad will receive an additional Travel grant up to a maximum of R2 000. (Some increase in these values to keep pace with inflation is possible for 1985). There is no restriction to any particular field of research.

Preference will be given to recently qualified research workers but reduced awards suitable for a visit of about three months have sometimes been made to tenured staff members of universities. Preference is also given to applicants whose research interests and facility needs mesh well with those of the appropriate host department.

Applications must include full details of the applicant's envisaged research programme in addition to a full curriculum vitae and the names of two referees whom the University may consult. The policy of the University is not to discriminate in the appointment of staff on the grounds of sex, religion, race, colour or national origin. The dates upon which the successful candidates will be expected to take up their duties are flexible and can be arranged to suit the special circumstances of each candidate.

Applications should be addressed to the Head, Research Administration, University of Cape Town, Private Bag, Rondebosch, 7700, South Africa, so as to reach him by 10 June 1984. The first round of award letters will be despatched by the end of August 1984.

FSR 0586

FACULTY POSITIONS IN IMMUNOBIOLOGY

The Department of Microbiology and Immunology at the University of Miami School of Medicine has embarked upon a major effort to build a strong, multifaceted program in immunobiology. The University and its benefactors have committed sufficient resources to ensure that this new program will be housed, equipped, and supported generously.

Tenure-track faculty positions are being offered for suitable candidates in the following areas:

1) **Immune Regulation and Tolerance**—Induction and maintenance of self and transplantation tolerance; analysis of regulatory networks evoked by tissue specific, tumor specific, and chemically defined antigens.

2) **B Lymphocyte Ontogeny and Differentiation**—Molecular and genetic bases for B cell maturation of B cells, as well as microenvironmental conditions that are required/optimal for B cell differentiation.

3) **Accessory Cell Function/Antigen Presenting Cells**—Antigen binding, processing and presentation by macrophages, dendritic cells. Role of molecules encoded by major histocompatibility complex genes.

4) **Lymphocyte Migration**—Description and molecular biology of tissue receptors and their ligands that direct lymphoreticular cell migration.

5) **Molecular Immunology**—Analysis of genes and gene products of particular relevance to the immune system, especially the major histocompatibility complex, immunoglobulins, and cell surface differentiation molecules of lymphocytes. Approach may include determination of DNA and/or protein sequences as well as preparation and study of relevant oligopeptides and/or oligonucleotides.

6) **Lymphokines, Monokines, and Related Molecules that Induce or Regulate the Immune System**—Biologic properties, structure, genetic basis, and receptors.

7) **Retrovirus/Oncogenes in Lymphoid Cell Malignancies.**

Upon completion of this recruiting effort, the immunobiology program will take its place alongside recently developed and outstanding basic science programs in cell biology and in pharmacology, as well as long-standing and distinguished programs in biochemistry, neurophysiology, and biophysics. The School of Medicine has also launched a drive to develop a vigorous, interdisciplinary program in human and molecular genetics. A large, diverse, and distinguished clinical faculty, heavily committed to research, offers innumerable opportunities for collaborative efforts to apply the knowledge of basic research to the understanding, treatment, and prevention of the diseases of man.

Applicants should have a Ph.D., M.D., or equivalent degree, several years of postdoctoral experience, and an interest in establishing an independent research program, obtaining research grant support, and in participating in medical and graduate student teaching and training. Interested persons please send curriculum vitae, including names of three references, and a summary of current and projected research interests to: **Dr. J. Wayne Strelein, Department of Microbiology and Immunology, University of Miami School of Medicine, Miami, Florida 33101.**

An Equal Opportunity/Affirmative Action Employer

SENIOR RESEARCH SCIENTIST MOLECULAR GRAPHICS/DRUG DESIGN

ELI LILLY AND COMPANY, an established leader in pharmaceutical research, is expanding its efforts in Computer-Assisted Drug Design, and is therefore seeking candidates to fill a Senior (Ph.D.) Scientist position.

Candidates must have an extensive background in chemistry and computer sciences with demonstrated ability to design original software. Prior experience in application of molecular mechanics, quantum mechanics, and molecular modeling to chemical and biological problems is desirable. Experience in academic or industrial research is a requirement for this position.

This Senior Research Scientist will collaborate with scientists from several disciplines in studying drug-receptor interactions to define new concepts for drugs and will play a key role in guiding chemists and biologists in rational approaches to drug design.

Qualified candidates should send a curriculum vitae to:

John W. Crooks
Manager, College Relations (MG)
Eli Lilly and Company
307 East McCarty Street
Indianapolis, Indiana 46285



An Equal Opportunity
Employer M/F

CHAIRPERSON DEPARTMENT OF IMMUNOLOGY

Showa University Research Institute for Biomedicine in Florida anticipates the formation of a new Department of Immunobiology and Immunogenetics. To assist in this development, the institute would like to begin to identify potential candidates for the position of chairperson for such a department.

The Department of Immunology may consist of one chairperson and four institute members. The candidates for the position of chairperson should have at least 7 years of experience in the research field of immunology, with significant progress in their research program.

The institute is a nonprofit organization partly supported by Showa University Medical School in Tokyo, Japan, and will be dedicated to cancer-oriented biomedical research. The Department of Virology and Molecular Genetics is currently in operation. Opportunities for affiliation with the University of South Florida College of Medicine in Tampa, Florida, exist. The institute is housed in a recently completed facility of 33,000 square feet in the beautiful area of St. Petersburg, Florida. *Showa University Research Institute is an Equal Opportunity Employer.* Individuals interested in this position should send their curriculum vitae and a list of publications to: **The Chairperson of the Search Committee, Showa University Research Institute, 10900 Roosevelt Boulevard, St. Petersburg, Florida 33702, by 1 June 1984.**

Showa University Research Institute
for Biomedicine in Florida
A not-for-profit organization

TWO RESEARCH FACULTY/RESEARCH SCIENTIST POSITIONS are available in the Department of Physics and the Center for Atmospheric and Space Sciences at Utah State University. Candidates should have a Ph.D. degree and experience in theoretical and/or experimental aeronomy and space physics. Experience in the following areas will be advantageous: experimental optical spectroscopy, theoretical modeling of the chemistry and dynamics of the stratosphere/mesosphere; theoretical modeling of the thermosphere/ionosphere. Opportunities exist to participate in stratospheric balloon, space shuttle and satellite flights, in the design and fabrication of experiments, and in data analysis and theoretical modeling. The opportunity also exists for a suitable candidate to assume program responsibilities for a major optical remote sensing instrument. A comprehensive database of terrestrial emissions covering the extreme ultraviolet to the near infrared, and extending from the surface of the earth to the thermosphere, was recently acquired on Spacelab 1, providing significant data analysis opportunities. The group is also involved in the development of comprehensive models of the photochemistry and dynamics of the thermosphere/ionosphere/plasma-sphere. It is planned to extend the modeling work to the stratosphere and mesosphere in support of balloon measurements of key radicals.

Interested persons should submit a résumé and the names of three individuals who may be contacted for reference purposes to:

M. R. Torr
Department of Physics
Utah State University, UMC 41
Logan, Utah 84322

before 4 May 1984. Salary will be commensurate with experience.

The Utah State University is located in scenic northern Utah, and is an Affirmative Action/Equal Opportunity Employer.

VICE PROVOST FOR RESEARCH THE UNIVERSITY OF TENNESSEE, KNOXVILLE (UTK)

The vice provost for research at UTK has primary responsibility for the University's research programs and for building relationships with the industrial community of Tennessee and elsewhere.

The University of Tennessee, Knoxville, with about 27,000 students and over 1,200 faculty, currently receives about \$20 million annually in basic and applied research support. The governor and other state officials are establishing a high-technology corridor between Knoxville and Oak Ridge and, as a land-grant institution, the University accepts a major role in this venture. The vice provost will contribute to the University's effort by developing and implementing programs with the Oak Ridge Laboratories, TVA, and high-technology industry.

The successful candidate will have substantial accomplishments in most, if not all, of the following areas: basic or applied research of such quality to warrant a senior faculty appointment; experience in the management of research or industrial enterprises; evidence of entrepreneurship and imaginative leadership; sufficient experience to understand the missions and functions of a large university and/or industrial organizations. **Salary:** Competitive, dependent on experience and qualifications.

Nominations and applications with curriculum vitae and the names of at least three references should be sent to:

Dr. George W. Wheeler, Provost
The University of Tennessee
517C Andy Holt Tower
Knoxville, Tenn. 37996-0154

Deadline for application is 31 May 1984.
An Affirmative Action/Equal Opportunity Employer

POSITIONS OPEN

The College of Veterinary Medicine, Iowa State University, seeks a **DIRECTOR OF LABORATORY ANIMAL RESOURCES** in a tenure-track appointment at the **associate professor or professor** rank. Duties include supervision and management of animal care in the College of Veterinary Medicine and responsibility for laboratory animal facilities and care throughout the university. This individual will directly administer approximately 20 full-time employees within the laboratory animal resources program at the College of Veterinary Medicine and interact with university personnel utilizing experimental animals. Interaction with private and municipal bodies concerned with animal welfare also will be necessary. Candidates must have a D.V.M. degree and Board-certification in laboratory animal medicine. An advanced degree and experience with animal research is desirable.

Applicants should send curriculum vitae and three letters of reference to: **William P. Switzer, D.V.M., Associate Dean, College of Veterinary Medicine, 2522 Veterinary Medicine, Iowa State University, Ames, Iowa 50011**, by 1 June 1984. *Iowa State University is an Affirmative Action/Equal Opportunity Employer.*

EXECUTIVE DIRECTOR for the Point Reyes Bird Observatory (PRBO), a research organization with education and conservation programs. Applicants should have the experience necessary to administer a non-profit corporation with an operating budget of \$700,000, 25 employees, and a membership of 2500. Corporate, foundation, and government agency fund raising experience, a strong background in biology, and public relations skills are essential. Other responsibilities include editing a quarterly newsletter. August or September starting date. Please send two copies of letter of inquiry, résumé, and any other appropriate material by 1 June to: **PRBO, 4990 Shoreline, Stinson Beach, Calif. 94970**.

FACULTY POSITION IN PHARMACOLOGY

The Department of Pharmacology, College of Medicine, University of Vermont, invites applications for a tenure-track position in pharmacology available 1 August 1984. Candidates should have a Ph.D. or M.D. degree and should have expertise appropriate for conducting investigations in the biochemical pharmacology of novel and of established anticancer drugs. The appointment will be made at a level commensurate with the successful candidate's experience. Candidates should have a vigorous independent research program, be committed to excellent teaching at the graduate and undergraduate levels, and be able to contribute to an interdisciplinary program involved in anticancer drug development. Applications for this position may be made by submitting curriculum vitae and names of three references to: **Pharmacology Search Committee, Vermont Regional Cancer Center, University of Vermont, One South Prospect Street, Burlington, Vt. 05401**.

An Affirmative Action Employer. Women and minorities are encouraged to apply.

THE HEBREW UNIVERSITY OF JERUSALEM

Faculty Position in Biochemistry

The Department of Biochemistry at the **HEBREW UNIVERSITY HADASSAH MEDICAL SCHOOL** invites applications for a tenure-track faculty position. Ph.D. or M.D. degree and postdoctoral training required. Successful candidates are expected to develop independent research in biochemistry or biophysics and teach biochemistry to medical and graduate students. Curriculum vitae, list of publications, and research plans should be sent to: **Dr. M. Chevin, Search Committee, Biochemistry, P.O. Box 1172, Jerusalem 91-010, Israel**. In addition, three letters of recommendation should be sent directly to the above address. Closing date: 31 May 1984.

FACULTY POSITION IN PATHOLOGY

The Department of Pathology at the Hebrew University Hadassah Medical School invites applications for a tenure-track faculty position in pathology. Ph.D. and/or M.D. is required. Candidate is expected to develop independent research in the fields of experimental pathology and/or immunopathology, and to participate in teaching programs of pathology for undergraduate and medical students. Send curriculum vitae, list of publications, and three letters of recommendation before 31 May 1984 to: **Dr. Eliezer Rosenmann, Search Committee, P.O. Box 1172, Jerusalem 91-010, Israel**.

POSITIONS OPEN

EDUCATION-ASSISTANT PROFESSOR-FOOD MICROBIOLOGY/BIOTECHNOLOGY — Tenure-track position for teaching and research in food microbiology and fermentation technology. Teaching of upper division/graduate courses in food microbiology and fermentation technology. Participate in microbiology/biotechnology research and develop utilization of laboratory resources. Requires Ph.D. in microbiology, food science, or an appropriate biological science with specialization in microbiology/biotechnology. Submit, by 10 May 1984 (or until filled), résumé, official transcripts, and names of three professional references to: **Dietrich Knorr, Chair, Biotechnology Group and Search Committee, Department of Food Science and Human Nutrition, UNIVERSITY OF DELAWARE, Newark, Del. 19716. Telephone: 302-451-8966. The University is an Affirmative Action/Equal Opportunity Employer.**

FISH ECOLOGIST

An assistant/associate professor position is open at the Appalachian Environmental Laboratory, University of Maryland. Candidates must have an extensive background in funded research, and interest in graduate teaching, and must maintain an innovative research program. Experience in aquatic/fisheries ecology and the ability to teach ichthyology or fish biology and behavior required. A 12-month, tenure-track position; salary negotiable. Send letter of application, description of research interests, curriculum vitae, and names, addresses, and telephone numbers of four references to: **Dr. J. Edward Gates, Chairman, Search Committee, Appalachian Environmental Laboratory, University of Maryland—CEES, Frostburg, Md. 21532**.

Closing date is 15 May 1984, or until a suitable candidate is found. *An Equal Opportunity/Affirmative Action Employer.*

GENETIC ENGINEERING WADLEY INSTITUTES OF MOLECULAR MEDICINE

Positions are available for research assistants, postdoctoral fellows, and senior scientists to participate in research on eukaryotic gene manipulation and regulation. Human and yeast gene systems are under study with emphasis on human interferon and other human blood protein genes and yeast nuclear genes. Prokaryotic and eukaryotic cloning systems are being utilized for gene analysis and protein production.

Wadley Institutes has played a prominent role in cancer research having pioneered the first clinical use of cisplatin and L-asparaginase. The facilities, which are centrally located to other medical and academic institutions in Dallas, contain excellent research laboratories and offer opportunities for scientific growth.

Please send résumé to:

Dr. Arthur P. Bollon, Chairman
Department of Molecular Genetics
Director of Genetic Engineering
Wadley Institutes of Molecular Medicine
9000 Harry Hines Boulevard
Dallas, Texas 75235

INSTRUCTOR/ASSISTANT PROFESSOR

Applicants are sought for a number of one-year or one-semester replacements. Courses to be covered are introductory biology (two semesters), comparative anatomy and physiology, human sexuality, and neurobiology. Interested persons can apply for any combination from one course up to a full year load (four courses). Ph.D. and teaching experience preferred. Apply by 11 May 1984 to: **Leathern Mehaffey, Chairman of Biology, Box 251, Vassar College, Poughkeepsie, New York 12601. Equal Opportunity/Affirmative Action Employer.**

MOLECULAR BIOLOGIST—Assistant professor, research and teaching. Applicant should have Ph.D. in molecular biology, biochemistry, or related field; background in chemistry. Expertise required in molecular biology of information transfer and genetic engineering techniques. Emphasis on eukaryotic systems preferred. Starting date variable: 1 July to 1 September 1984. Application deadline: 30 June 1984. Send curriculum vitae, names of references, and statement to: **Dr. H. J. Klosterman, Chairman, Biochemistry Department, North Dakota State University, Fargo, N.D. 58105. An Equal Opportunity/Affirmative Action Employer.**

Cell Biologist Connective Tissue Research

Pfizer Hospital Products Division is seeking a Ph.D. cell/developmental biologist with at least two years postdoctoral research experience in extracellular matrix biology. Familiarity with tissue culture techniques is also required. Initial research will explore the role of matrix components in the repair and maintenance of connective tissues. Potential areas for future research include the effects of external stimuli on cell-matrix interactions and development of artificial organs. The successful candidate will join a multidisciplinary team involved in the development of novel applications for natural materials in new medical device products.

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



*Equal Opportunity
Employer*



UNIVERSITY OF CAPE TOWN

Chair of Mathematics

Applications are invited for a chair in Mathematics, vacant from 1 January 1985. Candidates should be well qualified in at least one branch of mathematics, but the University is not specifying particular fields for this chair.

Appointment according to qualifications and experience will be made in the salary range R23 109 to R30 255 per annum plus a pensionable allowance of 12% of the basic salary, with an annual bonus of nearly one month's salary and attractive staff benefits.

Applicants should submit a full resume and the names and addresses of three referees not later than 30 May 1984 to the Registrar (Attention: Appointments Office), Department AQ/431, University of Cape Town, Private Bag, Rondebosch, 7700, South Africa, from whom further information should be obtained.

UCT is an equal
opportunity
employer.

FSR 0602

RESEARCH ASSOCIATES

AMGEN, INC., a biotechnology firm active in developing health care products, has immediate openings in the following areas:

FERMENTATION: Maintenance of culture collection with responsibility for record keeping and related analysis of strains used in production; research on culture storage methods; and assistance in research on yield improvement through selection of superior production strains. Qualified applicant will have BS/MS in microbiology and experience in culture maintenance. Experience with recombinant DNA organisms or storage of strains used in pharmaceutical production desirable.

GENE CLONING: Gene isolation, construction of recombinant plasmids, analysis of expression of recombinant derived plasmids. Qualified applicant will have BS/MS in biology or related field and background in molecular biology and microbiology with laboratory experience in recombinant DNA methodology, including nucleic acid hybridization.

PROTEIN BIOCHEMISTRY/PROCESS DEVELOPMENT: Familiarity with protein isolation and purification including chromatography, electrophoresis and other routine analytical techniques essential. Experience with large scale protein isolation and purification desirable. Qualified applicant will have MS in chemistry/biochemistry and one to two years experience or BS in chemistry/biochemistry and three to five years experience.

PROTEIN CHEMISTRY: Demonstrated skills in the areas of amino acid analysis, protein sequence analysis, protein/peptide purification, HPLC, chemistry system automation, and other analytical instrumentation are desirable. Qualified applicant should have BS/MS in organic chemistry or related field.



RECRUITMENT
AMGen
1900 Oak Terrace Lane
Thousand Oaks, Calif. 91320

Equal Opportunity Employer

POSITIONS OPEN

SWISS FEDERAL INSTITUTES OF TECHNOLOGY

Position open:

HYDROGEOLOGIST

To carry out independent research and provide advisory services in the field of ground water quality. Applicants must hold Ph.D. or equivalent in geology, geochemistry, chemistry, or civil engineering. We desire a person with strong background in chemical, physical, and biological-hygienic aspects of ground water and their relation to geological environment and water pollution.

The applicant will be expected to collaborate with chemists, geologists, and engineers.

Send curriculum vitae, including a list of publications and a list of references not later than April to:

Professor Werner Stumm, Director, Swiss Federal Institute for Water Resources and Water Pollution Control, EAWAG, 8600 Dübendorf, Switzerland.

IMMUNOLOGIST. A tenure-track, FY (12-month) position for an individual with Ph.D. degree or equivalent, and training and research experience in the area of host-defense mechanism/infectious diseases. Primary responsibilities involve development of a research program in the area of mechanisms of host defense in spontaneous and/or experimental animal diseases. Participation in ongoing research projects, teaching and advising M.S. and Ph.D. students in veterinary science is encouraged. Salary and academic rank negotiable. Send curriculum vitae and names of three references before 1 June 1984 to: **Dr. C. A. Speer, Department of Veterinary Science, Veterinary Research Laboratory, Montana State University, Bozeman, Montana 59717. An Equal Opportunity/Affirmative Action Employer.**

The Department of Comparative Medicine, Bowman Gray School of Medicine, Wake Forest University, has a new faculty position available at the rank of **INSTRUCTOR OR ASSISTANT PROFESSOR**. The applicant must possess the D.V.M. degree with experience in medical primatology and/or comparative pathology. The position will involve research on the comparative aspects of atherosclerosis in nonhuman primates and responsibilities for the operation and coordination of a national nonhuman primate resource for atherosclerosis research. Qualified individuals should send a statement of interest in the position accompanied by curriculum vitae to: **Dr. Thomas B. Clarkson, Chairman, Department of Comparative Medicine, Bowman Gray School of Medicine, Wake Forest University, Winston-Salem, North Carolina 27013.**

Affirmative Action/Equal Opportunity Employer

The **Department of Animal and Poultry Science**, University of Guelph, seeks a faculty member at the assistant/associate rank for a tenure-track position in **MOLECULAR GENETICS**.

The successful applicant will be expected to develop a strong research program in gene transfer and the expression of genes in developing avian and/or mammalian embryos. Major emphasis will include mediation of gene transfer by retroviral transduction, recombinant DNA techniques, gene cloning, splicing, and transfer. The appointee will be expected to be an integral part of a university team approach to genetic engineering of farm animals.

In addition to establishing a vigorous laboratory, the incumbent will also be expected to participate in the ongoing undergraduate and graduate teaching programs of the department.

A Ph.D. degree with demonstrated expertise in molecular genetics or a related field is required. Applicants should submit curriculum vitae, bibliography, recent reprints, transcripts, the names and addresses of at least three references to: **Dr. R. R. Hacker, Chairman, Department of Animal & Poultry Science, University of Guelph, Guelph, Ontario, Canada N1G 2W1.**

Closing date for receipt of applications is 15 May 1984 or until the position is filled.

Citizenship is not a factor for consideration.

Position subject to final budgetary approval.

POSTDOCTORAL FELLOW position available immediately to study and develop techniques assaying short-term effects of ultraviolet radiation in skin of human and experimental animals. Previous experience in photobiology or photochemistry desirable, but not necessary. Send curriculum vitae with names of three references to: **Dr. Vincent A. DeLeo, Department of Dermatology, Columbia University, 630 West 168 Street, New York, N.Y. 10032.**

An Affirmative Action/Equal Opportunity Employer

POSITIONS OPEN

INSTRUCTOR/ASSISTANT PROFESSOR OF PHYSIOLOGY

Position (nontenure track) available 1 September 1984 to conduct research on sensory processing of olfactory information. Some teaching required. Preference given to individuals with experience in neurophysiological techniques. Support available for up to 5 years. Salary will depend on experience.

Applicants should have an M.D. or Ph.D. degree in physiology or a related field. Send curriculum vitae and names of three references to: **Dr. Richard Costanzo, Department of Physiology and Biophysics, Medical College of Virginia, Box 551 MCV Station, Richmond, Va. 23298. An Equal Opportunity/Affirmative Action Employer.**

MOLECULAR GENETICS postdoctoral position is open immediately. Applicants should have training in either molecular genetics, nucleic acid enzymology; or formal genetics with some experience in biochemistry. The research will involve investigations into the properties and mechanisms of transposable elements in bacteria. Techniques that are employed in this laboratory involve bacterial and phage genetics, protein and enzyme characterizations, and DNA cloning and sequencing. Interested applicants should send curriculum vitae with the names of three references to: **Dr. Michael Syvanen, Associate Professor, Department of Microbiology and Molecular Genetics, Harvard Medical School, 25 Shattuck Street, Boston, Mass. 02115; telephone: 617-732-1922.**

PLANT OR ANIMAL PHYSIOLOGICAL ECOLOGIST

A full-time research position for a plant or animal physiological ecologist is available at the Savannah River Ecology Laboratory of the University of Georgia. Candidate must be a U.S. citizen, have several years of experience beyond the Ph.D., and a strong open literature publication record. Research emphasis will be on the physiological response to stress in natural and man-perturbed environments. Rank and salary are negotiable, depending upon professional record of the applicant. Ability to work collaboratively with other staff and strong communication skills will be weighed heavily in evaluating candidates. Applicants should send résumé, reprints, and the names, addresses, and telephone numbers of four individuals who may be contacted as references to:

**Chairman
Physiological Ecologist Search Committee
Savannah River Ecology Laboratory
Drawer E
Aiken, S.C. 29801**

Applications will be accepted until 15 May 1984.

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

PLANT OR TREE PHYSIOLOGIST. The Botany Department at the University of Vermont (UVM) will have a nontenure-track position of research assistant or associate professor available 1 September 1984. Candidates must have the Ph.D. degree in plant or tree physiology or a subdiscipline of botany applicable to maple research; must have demonstrated a successful pattern of funding in order to sustain the position; and must have had experience and ability to deal with people and coordinate activities. The successful candidate will maintain and support ongoing basic and applied sugar maple research in areas of physiology, microbiology, biochemistry, and maple sap and syrup production, and will coordinate an extension education effort. The facilities consist of an on-campus laboratory and a field station. Send curriculum vitae and have transcripts and three letters of recommendation sent to: **Dr. Hubert W. Vogelmann, Chairman, Botany Department, Marsh Life Science Building, University of Vermont, Burlington, Vermont 05405.** Applications will be accepted until 4 May 1984. *UVM is an Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL ASSOCIATES to conduct research in the development of Fourier transform mass spectrometry. An experienced person is sought for long-term research to understand ion dynamics in the FTMS cell. Requires Ph.D. in FTMS or ICR along with demonstrated experience in fundamental FTMS research and computer programming. Minimum salary: \$18,000. Second person is sought to carry out more applied FTMS research. Ph.D. in mass spectrometry or allied area is desirable. Minimum salary: \$16,000. Send résumé and three reference letters by 4 May to: **Professor Michael Gross, Department of Chemistry, University of Nebraska-Lincoln, Lincoln, Neb. 68588-0364. Affirmative Action/Equal Opportunity Employer.**

POSITIONS OPEN

THE AUSTRALIAN NATIONAL UNIVERSITY invites applications for appointment to the position of **POSTDOCTORAL FELLOW/RESEARCH FELLOW IN VISION** in the **RESEARCH SCHOOL OF BIOLOGICAL SCIENCES** and **RESEARCH SCHOOL OF PHYSICAL SCIENCES**. The successful applicant will join a multidisciplinary team, working on neural principles in vision, and should have a strong background in human psychophysics and a keen interest in developing the principles of visual information-processing. Initial enquiries may be made to Professor A. W. Snyder, Department of Applied Mathematics, Research School of Physical Sciences. Salary in accordance with qualifications and experience within the ranges: research fellow, A\$23,394 to A\$30,734 per annum; postdoctoral fellow grade 1 (at fixed point) A\$20,164 to A\$23,000 per annum. Current exchange rates: A\$1 = U.S. \$.96. Appointment will be: research fellow normally up to 3 years with the possibility of extension to maximum of 5 years; postdoctoral fellow normally 2 years, with the possibility of extension to maximum of 3 years. Grants are provided towards travel and removal; assistance with housing; superannuation. The University reserves the right not to make an appointment or to make an appointment by invitation at any time. Prospective applicants should write to: **The Registrar, The Australian National University, G.P.O. Box 4, Canberra, ACT 2601, Australia,** before submitting applications which close on 30 June 1984.

POSTDOCTORAL—FLOW CYTOMETRY

A postdoctoral or research associate position is available for recent Ph.D. interested in acquiring or expanding expertise in flow cytometry. Research areas will include T and B cell activation and differentiation studied by separate dual laser and mercury arc lamp driven systems. Applicants should submit curriculum vitae, thesis abstract, and names of three references to: **M. R. Garovoy, M.D., Immunogenetics and Transplantation Laboratory, HSE 520, University of California, San Francisco, Calif. 94143.**

POSTDOCTORAL POSITIONS IN MOLECULAR NEUROBIOLOGY available immediately. Research projects involve the analysis of gene expression in brain and cells of neuroectodermal origin using recombinant DNA technology. Applicants should have a strong background in molecular biology or biochemistry. Experience in cell culture would be helpful. Send curriculum vitae and three references to: **Dr. B. B. Kaplan, Program Director, WESTERN PSYCHIATRIC INSTITUTE AND CLINIC, 3811 O'Hara Street, Pittsburgh, Pa. 15213. The University of Pittsburgh is an Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL POSITION IN IMMUNOLOGY

Available 1 July 1984 to study the immune response to a syngeneic B cell leukemia. Experience in cellular/molecular immunology is desirable. Please send curriculum vitae and three letters of reference by 21 May 1984 to: **Dr. M. J. Ricardo, Jr., Microbiology/Immunology, Bowman Gray School of Medicine, 360 South Hawthorne Road, Winston-Salem N.C. 27103. An Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL POSITION available starting 1 June 1984 or thereafter in laboratory studying chemoprevention of cancer and mechanisms of neoplasia. Ph.D. degree in a biological science or organic chemistry required. Work will focus on identification of critical adducts. Experience in structure elucidation and modern analytical and spectroscopic methods essential. Send curriculum vitae to: **Dr. Lee Wattenberg, Laboratory Medicine and Pathology, 6-133 Jackson Hall, University of Minnesota Medical School, Minneapolis, Minn. 55455. An Affirmative Action/Equal Opportunity Employer, M/F.**

POSTDOCTORAL POSITION (research associate) available immediately at the Oregon Health Sciences University, Portland, Oregon, for an individual interested in studies on cell surface properties in health and disease. The position involves the application of innovative preparative and analytical techniques, including cell partitioning in two-phase aqueous polymer systems and cell electrophoresis. Individuals with a background in cell biophysics, membrane biochemistry, or cell separation techniques would be appropriate. Salary range: \$18,000 to \$23,000, commensurate with background and experience. Current funding available for up to 30 months with possible renewal. Résumés and names of three referees should be addressed to: **Dr. G. V. F. Seaman, Department of Neurology, L104, Oregon Health Sciences University, Portland, Ore. 97201.**

An innovative, high-technology company, located in Northern N.J. has 2 immediate opportunities available for:

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We seek a research minded individual for our Analytical staff experienced with AA and other spectrometric procedures. Intelligence and determination are prerequisites.

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We seek a Senior "Hands-On" Research Scientist in the separations field to develop protocols for patented electrochemical process. Candidates should exhibit innovative flair and independence, yet able to interface well with a creative team of scientists and entrepreneurs. Experience with the Federal Grand System helpful. Background should include electrophoresis and liquid chromatography. Position reports directly to the company's founder and president.

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Sr. Research Chemist/Virologist

Bio-Rad Laboratories, a leading manufacturer in the biotechnology industry, has, as a result of our continued growth a new position for a Virologist/Sr. Research Chemist, to work as part of a new research team in clinical diagnostics.

The successful candidate should have experience in medical virology research with expertise in virus propagation and immunological methods. Qualifications include an advanced degree in microbiology, cell biology, or a closely related field, and some academic or industrial experience.

For immediate consideration, please send resume to Human Resources, Bio-Rad Laboratories, 2200 Wright Avenue, Richmond, CA 94804. An equal opportunity employer.

BIO-RAD

Bio Rad Laboratories

University of Southern California

MARINE LABORATORY DIRECTOR

The University of Southern California, through the Institute for Marine and Coastal Studies, is seeking a full-time Director for its Catalina Marine Science Center.

CMSC is situated at the isthmus of Santa Catalina Island, 22 miles offshore from Los Angeles, and provides convenient access to a wide variety of warm temperate marine deepwater and shallow habitats, including kelp beds, rocky and soft-bottom intertidal and subtidal zones, with leeward or windward exposures. The facility includes a 30,000 sq. ft. lab building equipped with running seawater, a waterfront pier with a fleet of small boats and staging area, a research diving operation, a hyperbaric chamber for recompression treatment and physiological research, an administration building, and an apartment-dormitory complex housing 60 people. CMSC was recently selected as the site for an underwater habitat by NOAA's National Undersea Research Program, with construction beginning 1984.

As a regional facility, the Center serves scientists from USC and other West Coast institutions. Research at USC presently focuses on three areas: 1) Neurobiology, utilizing squid and organisms which produce neurotoxins; 2) Marine ecology and physiology; and 3) Oceanography. The Director will be responsible for aiding the development of research in these areas, coordinating the teaching of graduate and undergraduate students, and the management of the physical plant. The appointment will be in IMCS and will involve an affiliation with an academic unit of the University.

There is no formal deadline for applications, but the position will be available to be filled in Fall 1984. Selection will be based upon a record of scientific research, and on evidence of the ability to promote the research and teaching programs, as well as to administer the physical operation of the laboratory complex. Preference will be given to applicants with an active current research program. Salary will depend on experience. Please send resume and names of three references who may be contacted for professional evaluations. Inquiries should be directed to:

Dr. James N. Kremer
Chairman, Catalina Coordinating Committee
Department of Biological Sciences
University Park
Los Angeles, California 90089-0371
(213) 743-6198 OR 743-6843

Ethical Pharmaceuticals Director of Research

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My client is a profitable, sizeable and autonomous subsidiary of one of the world's most prestigious drug companies. In the UK it is engaged in the research, manufacture and marketing of a wide range of ethical pharmaceuticals.

It now wishes to appoint a new Director of Research, who will earn and use the support of a young, energetic and interested Board and prove worthy of appointment to it. Reporting to the Managing Director, the Director of Research will have full responsibility for the considerable Research Function, its enviable facilities and more than 200 staff.

The highest academic research record is vital; skills in leadership, management and development of the research teams must combine with a wholehearted and effective input to this multinational's research operations worldwide for the discovery of drugs that are medically valuable and commercially viable.

If you are interested in the very real challenge and rewards (salary will not be a limiting factor) of this job, write or phone me, Mrs. Indira Brown, Corporate Resourcing Group Ltd., 6 Westminster Palace Gardens, Artillery Row, London SW1P 1RL. Telephone: 01-222 5555. As an independent consultant, I shall treat your enquiry with complete discretion.

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Research Scientist, Biostatistician

Fisheries and Oceans
Fisheries Research Branch
St. John's, Newfoundland

We require a senior scientist who has demonstrated a capacity to undertake basic and applied research projects designed to address a variety of fisheries science problems. We will rely on you to assist and collaborate with other scientists in the design, analysis and interpretation of various experiments involving multivariate data.

You require graduation from a recognized university with a doctorate degree in biostatistics, or a lesser degree with evidence of research experience and scientific productivity equivalent to that of a Doctoral degree. In addition, you require extensive experience in conducting research into methodology development and application, together with a proven record of publication. It is essential that you have a thorough knowledge of, and an ability to work with computers. Knowledge of English is essential.

We offer a salary ranging from \$44,275 to \$57,803 commensurate with your qualifications.

Forward your résumé and/or application form,
quoting reference number
84-NCRSO-DFO-RES-3(4030), to:
Joan Girling (613) 593-5331
Public Service Commission of Canada
Ottawa, Ontario K1A 0M7

Closing date: 11 May 1984

*Tout renseignement est disponible en français en
s'adressant à la personne susmentionnée.*

The Public Service of Canada is
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Canada

POSITIONS OPEN

THREE POSTDOCTORAL POSITIONS IN INTERMEDIARY METABOLISM

Open 1 July at University of Montreal's Notre Dame Hospital to study: (i) metabolism of transplanted liver and the effect of cyclosporin, (ii) metabolism of modified fatty acids used for cardiac imaging, and (iii) metabolism of new sources of calories for parenteral nutrition. Projects are conducted in perfused organs (liver, heart, kidney) and in vivo. Candidates should have experience in biochemical methods (HPLC, enzymatic, and isotopic assays) and basic surgical skills. Contact: **Dr. Henri Brunengraber, Metabolic Unit, Notre Dame Hospital, Montreal, Quebec, Canada H2L 4K8. Telephone: 514-876-6670.**

POSTDOCTORAL POSITION—A position to investigate the structure, function, and biosynthesis of a novel class of fungal glycoproteins. Successful candidate will have a degree in biochemistry/chemistry or related field and experience with NMR spectroscopy and enzymology. The position is funded by a research grant for a minimum of 2 years; a third and final year is possible. Send curriculum vitae and the names and addresses of three references by 15 June 1984 to: **J. E. Gander, Chairman, Department of Microbiology and Cell Science, University of Florida, Gainesville, Florida 32611. The University of Florida is an Affirmative Action/Equal Opportunity Employer.**

POSTDOCTORAL POSITION open for the study of breast epithelial cell antigens. Study will use mono- and polyclonal antibodies to characterize breast epithelial antigens in circulation, to correlate with histopathology and clinical history, and to investigate biological behavior. May participate in experimental approaches using antibodies in diagnosis and therapy of breast cancer. Requires: completion of doctoral studies in immunology, cell biology, biochemistry, and/or pathology. *Candidates must be U.S. citizens or possess legal right to work in United States.* Send résumés to: **CHILDREN'S HOSPITAL MEDICAL CENTER, Personnel Department, 51st and Grove Streets, Oakland, Calif. 94609.** Interested candidates may telephone: **Dr. Roberto C. Ceriani** for additional information at 415-428-3513. *Equal Opportunity Employer, M/F.*

POSTDOCTORAL POSITION available immediately to study a new human protein inhibitor of serine proteases. Studies include analysis of its function in normal and malignant cells, biochemical characterization, and gene cloning. Experience in biochemistry, cell biology, or molecular biology preferred. Send curriculum vitae and names of three references to: **Joffre Baker, Department of Biochemistry, University of Kansas, Lawrence, Kans. 66045.**

POSTDOCTORAL RESEARCH ASSOCIATE position available for an individual with a strong biochemical background to study estrogen receptor characterization and monoclonal antibody production or estrogen and antiestrogen receptor binding mechanism and kinetics. Send curriculum vitae and names of three references to: **Dr. A. C. Notides, Department of Radiation Biology and Biophysics, University of Rochester School of Medicine and Dentistry, 601 Elmwood Avenue, Rochester, New York 14642.**

An Equal Opportunity/Affirmative Action Employer

POSTDOCTORAL RESEARCH ASSOCIATE available 1 June, for initial 2-year appointment. Must have Ph.D., including hands-on experience in molecular biology/recombinant DNA techniques. Offers challenge for one in instrumentation with respect to state-of-the-art recombinant DNA methods and offers rewarding atmosphere of an academic-industrial joint project with a well-established company developing new research frontiers. Apply by 4 May with curriculum vitae and three references to: **Dr. J. A. Brumbaugh, School of Biological Sciences, University of Nebraska-Lincoln, Lincoln, Neb. 68588-0118.**

Affirmative Action/Equal Opportunity Employer

POSTDOCTORAL RESEARCH ASSOCIATE

Neuroimmunology. Position available for Ph.D. or M.D. with expertise in cellular immunology. Projects involve studies of immune responses, immunomodulation and immuno/CNS restrictive elements in models of CNS inflammation. Send curriculum vitae and names of references to: **Fred D. Lublin, M.D., Department of Neurology, THOMAS JEFFERSON UNIVERSITY, 1025 Walnut Street, Philadelphia, Pa. 19107. Equal Opportunity Employer.**

BASF is one of the leading business groups in the chemical industry. Our success in international competition is based on intense research.

For several years we have been developing a biochemical research group with great intensity. Recently we constructed a modern research building for future-oriented activities in the field of biotechnology and molecular biology. As co-workers in our young, rapidly expanding research group we are seeking
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Molecular Biologists (Ph. D.)

with a strong background in organic and analytical chemistry to

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with a strong background in the following fields:

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- in-vitro translation systems
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As our future colleagues will be working within an interdisciplinary team of scientists, we anticipate a high degree of cooperativeness along with the capability and will to contribute creatively to the work of the team. Applicants for the positions as molecular biologists should be in command of the German language or be willing to learn German quickly. For all other applicants fluent command of the German language is mandatory.

Applications should be directed to

BASF AKTIENGESELLSCHAFT
Personalwesen AT/LA
D-6700 Ludwigshafen/Rhein

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SYMPOSIUM: MAY 20-24, 1984



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Symposium objective is to evaluate current dose-response models for risk assessment taking into account best current knowledge regarding carcinogenic mechanisms and fundamental experimental findings, such as

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Biology Department
Brookhaven National Laboratory
Upton, L. I., New York 11973
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Biotechnology

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IMMUNOLOGIST/
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Cetus Corporation, recently named one of California's fastest growing companies, has an immediate opening for a Cellular Immunologist needed to develop in vitro and in vivo models which will define the role of lymphokines in cellular tumor immunity. This individual will be responsible for basic research in support of current and future clinical trials of lymphokines. Experience in organizing and directing a laboratory with clear research goals is necessary.

For confidential consideration, send resume to:

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1400 Fifty-third Street
Emeryville, CA 94608



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POSITIONS OPEN

POSTDOCTORAL RESEARCH—Department of Physiology/Biochemistry, Medical College of Pennsylvania. NIH postdoctoral training grant positions are available to join an established, multidisciplinary research team studying lipid transport, metabolism, and cardiovascular physiology. Trainees will participate in basic research projects with emphasis on lipid transport and atherosclerosis or various aspects of cellular lipid metabolism. Responsibilities will include developing and conducting studies in the areas of lipoprotein structure, turnover and interactions with cells, enzymes of cholesterol metabolism, vitamin A transport and metabolism, or lipids and arterial wall function. Candidate should have a Ph.D. or M.D. degree. Stipends are in the range of \$14,000 to \$19,000. *Candidate must be a U.S. citizen or permanent resident.* Applications should include curriculum vitae, names of three references, and summary of research interests. Inquiries or applications should be sent to: **Dr. Michael C. Phillips, Department of Physiology/Biochemistry, Medical College of Pennsylvania, 3300 Henry Avenue, Philadelphia, Pa. 19129. Equal Opportunity Employer, M/F.**

POSTDOCTORAL OR RESEARCH ASSOCIATE position available for a molecular biologist. Position offers unique opportunity to have high impact on human tropical disease. Interested candidates should send full curriculum vitae and names of three references and telephone number to:

Dr. Curtis L. Patton
Yale University School of Medicine
60 College Street, EPH 816
New Haven, Conn. 06510

**POSTDOCTORAL SCIENTIST:
NEUROBIOLOGY**

One or two openings will become available this spring (1984) for a well trained Ph.D. or M.D. with a background in neurosciences. Areas of investigation include interactions between nerve and skeletal muscle acetylcholine receptor turnover, nerve-muscle junction formation, regulation of cellular metabolic properties. Techniques used include: neurophysiology, neuropharmacology, cell culture, receptor metabolism, and neuroimmunology.

Please reply to: **Dr. Daniel B. Drachman, Department of Neurology, Johns Hopkins University, School of Medicine, 600 North Wolfe Street, 5-119 Meyer Building, Baltimore, Maryland 21205.**

**RESEARCH ASSOCIATE OR
SENIOR RESEARCH ASSOCIATE
STANFORD SYNCHROTRON RADIATION
LABORATORY (SSRL)**

A position will be available in the coming months for an appointment to the SSRL scientific staff. Candidates with interests and experience in x-ray absorption spectroscopy and x-ray diffraction (preferably with biological molecules) are particularly being sought. It is expected that about 50 percent of the research associate's effort will be devoted to research and 50 percent to facility development. Facility responsibilities include user support, beam line improvements, software improvements and documentation, and x-ray instrumentation development projects related to the EXAFS and diffraction stations at SSRL. Candidates with two or more years of experience beyond the Ph.D. are preferred. The level of appointment and term (typically 3 years) are flexible depending on applicable experience. *Stanford University is an Affirmative Action/Equal Opportunity Employer.* Candidates interested in applying should send curriculum vitae, a brief statement of research experience (especially noting that related to the use of synchrotron radiation) and future research objectives, a list of publications, and the names, addresses, and telephone numbers of three references to: **Professor Keith Hodgson, Stanford Synchrotron Radiation Laboratory, Stanford Linear Accelerator Center, Bin 69, Stanford University, Stanford, Calif. 94305.**

RESEARCH COORDINATOR

Prestigious national medical/surgical specialty academy seeks individual with administrative experience in biological sciences to function as coordinator for research. This would involve tracking and coordinating ongoing specialty efforts in some 100-plus universities, motivating and reviewing grant application efforts, and otherwise perpetuating quality research work in this field. Five to 10 years of experience related to a clinical discipline is desirable. This individual may have the opportunity to pursue own continuing research project. Send resume to: **Research Coordinator, The American Academy of Otolaryngology—Head and Neck Surgery, 1101 Vermont Avenue, NW, Suite 302, Washington D.C. 20005.**

POSITIONS OPEN

RESEARCH ASSISTANT PROFESSOR. The Department of Medicine, Uniformed Services University of the Health Sciences, is seeking applicants for a faculty position. Applicants should have a Ph.D. degree and considerable experience in the use of a fluorescence activated cell sorter. Position includes responsibility for directing maintenance and use of flow microfluorimetry and related equipment, including computers, and for suggesting and overseeing improvements in equipment as technological advances are made. Successful applicant will set up own research program and advise and collaborate with other investigators who use this equipment. A hard salary based on applicant's qualifications, internal research funding, a dual laser modified FACS-II, and a skilled sorter technician are currently available. Interested individuals should send a copy of their curriculum vitae and the names of three references to:

**Directorate of Civilian Personnel
Attention: Fred D. Finkelman, M.D.
Uniformed Services University of the Health Sciences
4301 Jones Bridge Road
Bethesda, Md. 20814**

Applications will not be returned. *The Uniformed Services University is an Equal Opportunity/Affirmative Action Employer.*

RESEARCH ASSOCIATE OR ASSISTANT PROFESSOR to study the arachidonic acid cascade in the nervous or cardiovascular system beginning July 1984. Doctorate and publication in the area of arachidonic acid research required. This individual will contribute to ongoing studies and be encouraged to pursue related, independent studies. Initial appointment for 2 years with possibility for additional years. HPLC and GC/MS facilities available. Salary based on qualifications. Send curriculum vitae, reprints, and names of three references to: **Dr. Earl Ellis, Department of Pharmacology and Toxicology, Box 613, Medical College of Virginia, Richmond, Virginia 23298-0001.**

**RESEARCH FACULTY POSITIONS—
MEDICAL SCHOOL**

Applications are invited for two positions, available immediately in the Center for Endocrinology, Metabolism and Nutrition, Northwestern University Medical School. Candidates should have Ph.D. or M.D. and at least 2 years of postdoctoral research experience:

1) **Molecular Biologist—Biochemist:** To work in developmental biology with special emphasis on metabolic regulation and gene expression during embryogenesis and differentiation. Prior experience with genetic probes and molecular aspects of intermediary metabolism, glycolytic regulation, and ion activities desirable.

2) **Tissue Culture—Cell Biologist:** To direct Tissue Culture Core Unit and participate in studies involving culture of whole embryos and isolated fetal structures. Prior experience in membrane biochemistry, differentiation, cell and subcellular fractionation, and ultrastructure desirable.

Successful candidates will join established program with opportunities for collaborative and independent initiatives. Salary negotiable. Send curriculum vitae and names of three references by 15 June 1984 to: **Dr. Norbert Freinkel, Northwestern University Medical School, 303 East Chicago Avenue, Chicago, Ill. 60611. Northwestern University is an Equal Opportunity/Affirmative Action Employer.**

**RESEARCH POSITIONS IN
PHARMACOLOGY/TOXICOLOGY
UNIVERSITY OF MARYLAND**

Positions available for: **POSTDOCTORAL FELLOW** to participate in investigations of the abuse potential of phencyclidine (PCP) and PCP analogues. Candidate should have a Ph.D. in pharmacology or experimental psychology with emphasis on behavioral pharmacology. Experience with drug self-administration techniques in animals is desirable. Stipend is \$16,500 per year plus fringe benefits. **RESEARCH ASSOCIATE** to investigate the pharmacology and toxicology of psychotropic drugs in animal models. Candidate should have a Ph.D. in pharmacology/toxicology with postdoctoral experience in psychopharmacology and/or behavioral pharmacology. Salary will be commensurate with qualifications. Please send curriculum vitae, representative publications, and names and addresses of three references to: **J. Edward Moreton, Ph.D., Department of Pharmacology and Toxicology, University of Maryland, School of Pharmacy, 20 North Pine Street, Baltimore, Maryland 21201. An Equal Opportunity/Affirmative Action Employer.**

PRESIDENT

THE SCIENCE MUSEUM OF MINNESOTA

Nominations and applications are invited for the presidency of The Science Museum of Minnesota. The Museum is an organization of ten scientists and two hundred staff, with a budget of \$6.5 million and an annual audience of 750,000, serving Minnesota and the Upper Midwest. The president is the Museum's chief executive officer, responsible for its staff, program, fundraising and financial management, and for expanding the Museum's local, national and international ties.

Preferred qualifications:

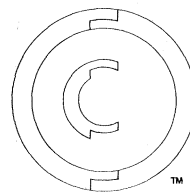
- distinction, as scientist or social scientist in the scientific, academic or museums sphere, providing background for leading the Museum's scientific and scholarly programs;
- administrative and entrepreneurial experience appropriate to managing a complex institution including its exhibits and outreach to the community and other museums;
- sufficient knowledge of financial procedures to oversee the Museum's financial management and guide its financial planning;
- experience in selecting and guiding scientific, professional and artistic staff;
- interest in arts and other cultural institutions.

Nominations close April 30, 1984; the target date for an appointment is July 1, the new president to take office in the fall. Salary is competitive and comparable with that of senior academic administrative posts.

Nominations and applications should be sent to:

Mr. Robert H. Edwards, Search Committee Chairman
c/o Mrs. Nilda Weber, Assistant Secretary of the Board of Trustees
The Science Museum of Minnesota
30 East Tenth Street
Saint Paul, Minnesota 55101

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For further information and to receive totally free a 1.0 ug sample of M13 universal sequencing primer (15 or 17 bases long, your choice), please write or call to:

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Hoechst is one of the world's leading pharmaceutical companies. Our research institute, based in the suburb of Tokyo, offers an independent and open research environment which encourages publication and interaction with other scientists throughout the world.

Presently several challenging positions for highly motivated individuals are available at the Department of Basic Research. The current programs entail creative research in the areas of immunology, molecular biology and microbial chemistry.

The research institute seeks PhD Researchers with strong background in state-

of-the-art technology in characterization of tumor cell antigens, lymphokines growth factors and receptors, and in gene cloning and expression and protein chemistry.

These open positions require at-the-bench research. Successful candidates should be capable of working independently and directing co-workers in research programs. Please send curriculum vitae together with a list of your publications, to: Dr. Akio Fukuda, Hoechst Japan Ltd, Central P.O. Box 1256, 8-10-16 Akasaka, Minato-ku, Tokyo 107, Japan.

Hoechst



BIOTECHNOLOGY

Director of Research Administration

One of the nation's leading biotechnology firms offers a key management position reporting to the Vice-President, Research and Development. The individual chosen for the job will be in charge of all aspects of research administration including management of research contract reporting, fiscal planning and control, Science Board relationships, and liaison with personnel, finance, operations and marketing departments. We're looking for a strong individual with excellent organizational and interpersonal skills who can get things done in a complex research environment. Managerial experience and Ph.D. level knowledge of biotechnology required. Northern California location. Compensation includes equity participation.

Box 103, Science

POSITIONS OPEN

POSTDOCTORAL RESEARCH ASSOCIATE TISSUE NUCLEAR MAGNETIC RESONANCE

The Johns Hopkins University seeks an NMR spectroscopist, 1 July 1984, interested in cell and tissue applications. We have a Bruker WH-180 wide-bore, with a Nicolet 1280 computer. The Ph.D. candidate must have extensive instrument experience. Please send curriculum vitae, reprints, and three letters of reference to: Dr. William E. Jacobus, Division of Cardiology, 538 Carnegie Building, The Johns Hopkins Hospital, 600 North Wolfe Street, Baltimore, Md. 21205. Telephone: 301-955-8728. *An Equal Opportunity/Affirmative Action Employer.*

SPACE PHYSICS RESEARCH LABORATORY DEPARTMENT OF ATMOSPHERIC AND OCEANIC SCIENCE THE UNIVERSITY OF MICHIGAN

Seeks a RESEARCH INVESTIGATOR OR ASSISTANT RESEARCH SCIENTIST to conduct observational and theoretical studies on the dynamics of the thermosphere and ionosphere. The candidate should have a Ph.D. degree or equivalent experience in research. Experience in optical and radar observation of the upper atmosphere is desirable.

Send curriculum vitae, list of publications, and the names and addresses of three references before 4 May 1984 to:

Dr. James C. G. Walker
Space Physics Research Laboratory
Department of Atmospheric and Oceanic Sciences
The University of Michigan
2455 Hayward
Ann Arbor, Michigan 48109-2143

The University of Michigan is a nondiscriminatory, Affirmative Action Employer.

Wanted: RESEARCH PHYSIOLOGIST IN GASTROENTEROLOGY. The candidate should have a Ph.D. degree in physiology, pharmacology, or biochemistry and be familiar with intestinal transport studies, HPLC, tight junctions, and preferably familiar with prostaglandins and lipid chemistry. Send curriculum vitae to: D. Hollander, M.D., Room C340 Med Sci I, University of California, Irvine, Calif. 92717.

POSITIONS OPEN

RADIOLOGICAL PHYSICIST—ASSISTANT DIRECTOR. Office of Environmental Health and Safety (OEHS). Requires M.S. and 4 to 5 years of experience. Individual will perform x-ray surveys, maintain technical services and emergency response capabilities, coordinate laboratory surveys, and teach A.S. level courses. ABHP or ABR-certification/eligibility preferred. Faculty appointment. Send résumé and three references to: Director, OEHS, Medical College of Virginia, Box 112, Richmond, Va. 23298.

RESEARCH ASSISTANT FOR DNA SEQUENCING WORK. Should have experience with recombinant DNA, Maxam/Gilbert or dideoxysequencing techniques. Send curriculum vitae to:

Dr. Jeff Seilhamer
California Biotechnology, Inc.
2450 Bayshore Frontage Road
Mountain View, Calif. 94043

VISION RESEARCH

Systems Research Laboratories, Inc., is seeking vision research scientists to conduct research on the ocular effects of laser radiation on subhuman primates for a DOD customer in San Antonio, Texas. Preference will be given to scientists who have had two or more years of experience in primate vision research using behavioral, physiological, or electrophysiological measures, and who have a significant publications history. A Ph.D. degree and major concentration in one of the following areas is required: (i) visual physiology, (ii) visual psychophysics, (iii) visual electrophysiology, and (iv) experimental psychology. We are also looking for research assistants and technicians with experience in primate research. If you would like to be a member of this research program, send your résumé in confidence to:

T. P. Ryan
Scientific and Engineering Recruiting
Department SC20
Systems Research Laboratories, Inc.
2800 Indian Ripple Road
Dayton, Ohio 45440

POSITIONS OPEN

RESEARCH FACULTY POST (approximate level, assistant professor) open in the Center for Quantitative Science in Forestry, Fisheries and Wildlife at the University of Washington. Position involves research and occasional teaching. Ability to teach stimulating courses in calculus, statistics, and computer systems applied to biological problems expected. State funding available for 4.5 months of teaching. Candidate must have or acquire partial independent research support to complement interests of the multidisciplinary faculty. Research experience in the biological sciences highly desirable. Ph.D. required. The College of Forest Resources and the College of Ocean and Fishery Sciences offer excellent potential to generate supporting research funds. Send résumé and names of three references by 15 May 1984 to: Professor L. L. Conquest, Search Committee, HR-20, University of Washington, Seattle, Wash. 98195. Telephone: 206-543-1708.

Memorial University of Newfoundland Marine Sciences Research Laboratory RESEARCH SCIENTIST FACULTY POSITION IN MARINE PLANT PHYSIOLOGY AND BIOCHEMISTRY

Applications are invited for a full-time, tenure-track position as a research scientist with strong interest and experience in the physiology, biochemistry, or molecular biology of marine plants. The appointment will take effect when a suitable applicant is selected. Salary is dependent on qualifications and experience. Minimum qualifications include a Ph.D. with postdoctoral experience. An established reputation in an appropriate area of research would be an asset. Applicants must be anxious to establish a vigorous, independent research program utilizing the excellent facilities of the marine laboratory.

Candidates should submit a letter of application with a brief research proposal, curriculum vitae, and the names of at least three references to: Dr. D. R. Idler, Director, Marine Sciences Research Laboratory, Memorial University of Newfoundland, St. John's, Newfoundland, Canada A1C 5S7. *In accordance with Canadian immigration requirements, this advertisement is directed to Canadian citizens or permanent residents of Canada.*

Scientist Drug Metabolism

The Drug Metabolism Department of Smith Kline & French Laboratories, located in a modern research facility in King of Prussia, is seeking a Scientist to join their animal pharmacokinetic group.

Primary responsibilities include developing novel GLC and HPLC assays for drugs and their metabolites in biologic media, conducting pharmacokinetic studies in lab animals, and developing in vitro assays of drug metabolizing enzymes with purified proteins, homogenates, or cells to predict in vivo rates of metabolism.

The successful candidate must have:

- M.S. Chemistry/Biochemistry or B.S. Chemistry/Biochemistry with two years experience required.
- Demonstrated ability to apply multi-disciplining approaches to solve problems in drug metabolism required.
- Previous experience in the following areas required: whole animal metabolism studies in vivo; HPLC.
- Preferred experience: GLC; cell fractionation, in vitro assays of drug metabolizing enzymes, protein purification.

Reply in confidence to: George P. Kissell, Senior Employment Consultant, Smith Kline & French Laboratories, a division of SMITHKLINE BECKMAN CORPORATION, 1581 Spring Garden Street, Philadelphia, PA 19101. We are an equal opportunity employer, M/F/H/V.

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The International Laboratory for Research on Animal Diseases (ILRAD), Nairobi, Kenya, is an internationally funded institution with the mandate to develop improved methods of control for two major diseases of livestock, trypanosomiasis and theileriosis. The multidisciplinary research programme includes biochemistry, molecular biology, immunology, cell biology, pathology, and parasitology with appropriate supporting units. Applications for the following positions are invited:

IMMUNO-PARASITOLOGIST REFERENCE: SC/L1/84/1

A scientist to conduct comparative investigations on mechanisms of resistance to African pathogenic trypanosomes in susceptible and naturally resistant vertebrate hosts. Applicants should have a first degree in biology, medicine, or veterinary medicine and a doctorate in immunology or parasitology with at least 5 years of postdoctoral research experience in the field of host-parasite interactions, preferably in the area of protozoology. Experience of research in wildlife and/or domestic livestock would be an advantage.

CELL BIOLOGIST/BIOCHEMIST REFERENCE: PD/L1/84/1

A postdoctoral fellow to study biochemical characterisation of salivarian trypanosome populations. Applicants should have completed a Ph.D. in a relevant research area of biological science, preferably with recent experience in the use of isoenzyme biochemistry or related techniques for characterising cells and their products. Knowledge and experience of protozoan parasite biochemistry, would be an advantage.

The above positions are international staff positions and salaries will be paid in U.S. dollars. Initial salary level will be determined by qualification and experience. Moving, housing, commutation, and education allowances are paid and there are medical and retirement benefits. Applications should include current curriculum vitae and the names and addresses of three referees. Applications, citing the reference number, should be sent by 31 May 1984 to:

Chief Personnel Officer
ILRAD
P.O. Box 30709
Nairobi
Kenya

ASSOCIATE DIRECTOR OF NUTRITION

Leading pharmaceutical company has a challenging position available for an individual with a Ph.D. in Nutrition or Biochemistry. Candidates should have a minimum of five years experience in nutritional research. Individuals should have the ability to conduct biochemical nutritional research in the development of products for infants and adults, a familiarity with food analysis and food technology, and an aptitude for liaison activity with governmental, academic or other professional organizations.

Qualified applicants should forward resume including salary history to: Personnel Department.

Wyeth Laboratories, Inc.



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Philadelphia, PA 19101

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DIRECTOR OF RESEARCH IMMUNOLOGIST/MOLECULAR BIOLOGIST

The Otsuka Pharmaceutical Co., Ltd., a major Japanese pharmaceutical corporation, is seeking a distinguished scientist to serve as Director of Research for its new Maryland research facility. The duties of this position shall include the development and administration of research programs, assembly of a multidisciplinary research staff, and participation in research activities. The successful candidate will have over five years of post-doctoral research experience in the field of immunology or molecular biology and an outstanding publication record. Group leadership experience is a pre-requisite. Industrial experience is desirable but not required. Special consideration shall be given to individuals who combine the above qualifications with an M.D. degree.

Otsuka Maryland Research Laboratories will be located in a suburb of Washington, D.C., and will begin operations in March of 1985. The facility will engage in the discovery/evaluation of immune response modifiers (cytokines) of therapeutic value and the development of biotechnological production methods. The scientific staff of the facility shall number 25 - 30 individuals divided into molecular biology, immunology and cell biology groups. P-3 level fermentation facilities shall also be available.

The position offers salary and benefits fully commensurate with experience and qualifications as well as an exceptional opportunity for professional achievement.

Applications should include C.V., publication record, and at least three references. Applications will be accepted through May 15, 1985 and should be sent to:



Otsuka Pharmaceutical Co., Ltd.
P.O. Box 8927
Rockville, MD 20856
Attention: Recruitment

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Biotechnology Careers

Challenging career opportunities currently exist in the expanding Biotechnology Section of the Celanese Research Company. The successful candidates will join our professional team of dedicated scientists engaged in the application of state-of-the-art technology to the development of microorganisms and processes for the production of a variety of chemical products.

BIOCHEMIST/ PHYSIOLOGIST

This position requires a Ph.D. in Biochemistry or Microbial Physiology, preferably with at least 2 years postdoctoral experience in the area of microbial metabolism and/or the genetic manipulation of microorganisms. The successful candidate will be required to participate in ongoing research programs in addition to initiating his/her own programs.

POLYMER BIOCHEMIST/ MICROBIOLOGIST

In addition to a Ph.D. in Microbiology or Biochemistry, this position requires at least 2 years postdoctoral experience in the production (e.g. fermentation), isolation and rheological evaluation of biopolymers such as microbial polysaccharides.

Located at our Corporate Research Center in Summit, N.J. these positions offer salaries commensurate with credentials, and comprehensive benefits packages in addition to a professionally stimulating environment.

To be considered for one of these exceptional opportunities, please forward a resume with salary history in confidence to: **Employee Relations, Dept. SB4, Celanese Research Company, 86 Morris Ave., Summit, N.J. 07901.**



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POSITIONS OPEN

POSTDOCTORAL RESEARCH ASSOCIATE available immediately to study the pathogenesis of *Pseudomonas aeruginosa* in cystic fibrosis patients. Research involves characterization of the immune response to the mucoid exopolysaccharide and development of experimental strategies for testing the vaccine potential of mucoid exopolysaccharide. Ph.D. in microbiology or immunology. U.S. citizens or residents send curriculum vitae to: **Dr. Gerald B. Pier, Channing Laboratory, Harvard Medical School, 180 Longwood Avenue, Boston, Mass. 02115.**

POSTDOCTORAL RESEARCH FELLOW to work on molecular cloning of estrogen receptor gene. Background in nucleic acids helpful; \$20,000 for first year; project period: 2 to 3 years. Position available now. Personnel and facilities strongly oriented toward molecular cloning. Anyone with related background who is seriously interested in this position, send curriculum vitae and two references to: **Dr. Syr-yaung Lin, Beckman Research Institute of the City of Hope, Duarte, Calif. 91010.**

SALES REPRESENTATIVE

BIOCHEMICAL RESEARCH INSTRUMENTS

We seek bachelor's and master's of science currently working in a laboratory or in sales. Candidates must have experience with electrophoresis and chromatography. Overnight travel required; Chicago, Boston, and Houston areas available.

We will interview candidates at the ASBC meeting in St. Louis in June. Please send résumés with cover letters demonstrating adequate laboratory experience and an understanding of sales work to:

Box 90, SCIENCE

VICE PRESIDENT COMMERCIAL DEVELOPMENT

This senior management position reports to the president and chief executive officer. The ideal candidate should have a strong scientific background with a degree in microbiology, molecular genetics, or biochemistry. The position necessitates the ability to communicate advanced technological benefits to commercial interests. Several years of successful marketing or commercial development experience is highly desirable. Responsibilities will include developing research contracts with established firms in the agrochemical industry as well as defining and implementing our long term marketing strategy.

Ecogen Inc. is developing new biological pesticides in the genetic engineering field. The company was organized by Johnston Associates, Inc., the firm responsible for the formation of Genex Corporation and Cytogen Corporation.

As an equity participant, the vice president, Commercial Development, will share in the growth of the company.

Send your curriculum vitae and letter describing your qualifications in complete confidence to: **John E. Davies, President, Ecogen Inc., Building 0, 1101 State Road, Princeton, N.J. 08540.**

VIROLOGY PREDOCTORAL AND POSTDOCTORAL POSITIONS. The Department of Microbiology and Immunology, University of California, Los Angeles (UCLA), School of Medicine, invites applications for training positions in virology. Research programs and faculty include the cellular and molecular basis of latency and pathogenesis of herpes simplex viruses (Dr. Jack G. Stevens), molecular biology of influenza viruses (Dr. Debi P. Nayak), transformation by papilloma viruses (Dr. Felix O. Wettstein), persistence of lymphocytic choriomeningitis viruses (Dr. Rafi Ahmed), molecular biology of picornaviruses (Dr. Asim Dasgupta), and molecular basis for transcriptional activation of herpesvirus genes (Dr. Lawrence T. Feldman). Stipends are available. For predoctoral training program, contact: **Dr. Dexter Howard**, and for postdoctoral positions, contact: **Dr. Debi Nayak, Department of Microbiology and Immunology, UCLA School of Medicine, Los Angeles, Calif. 90024. An Equal Opportunity/Affirmative Action Employer.**

SYMPOSIUM

PLANT BIOLOGY SYMPOSIUM 4 to 6 June 1984; St. Paul, Minnesota

Symposium on Implications of Molecular Genetics in Plant Breeding includes: Genome organization and effects by environment; production and genetic control of DNA variation; unexplained variation in breeding lines; and application to breeding. For registration, contact: **Plant Biology Symposium, Department of Agronomy, University of Minnesota, St. Paul, Minnesota 55108.**

CONFERENCE

The New York Academy of Sciences INTERNATIONAL CONFERENCE ON COLLAGEN: BIOLOGY, CHEMISTRY AND PATHOLOGY

The Barbizon-Plaza Hotel
New York, New York
17 to 19 October 1984

The conference co-chairmen are Raul Fleischmajer (Mount Sinai), Bjorn R. Olsen (Rutgers), and Klaus Kühn (Max Planck Institute).

This conference will summarize and release new information in the field of collagen. The following subjects will be covered: collagen structure, with particular emphasis on collagen types IV, V, VI, and VII; collagen genes, structure and regulation; collagen biosynthesis; developmental biology including cell-extracellular matrix interactions; genetic and acquired diseases of collagen. There will be formal presentations and poster sessions (by invitation).

Inquiries should be addressed to: **Ellen Marks, Conference Director, The New York Academy of Sciences, 2 East 63 Street, New York, N.Y. 10021.**

FELLOWSHIPS

M. G. F. FUORTES FELLOWSHIP

The M. G. F. Fuortes Memorial Trust announces the availability of two fellowships to scientists working in neurobiology so that they can attend the course on **Vision and Image Understanding** to be given in Erice, Italy, by the International School of Biophysics, 1 to 12 July 1984. Deadline for receipt of application: 16 May 1984. For information, call or write: **Dr. Harold Lecar, Building 36, Room 2A-29, National Institutes of Health, Bethesda, Md. 20205. Telephone: 301-496-3204.**

PREDOCTORAL AND POSTDOCTORAL (Ph.D., D.V.M., M.D.) FELLOWSHIPS: Available 1 July. Integrated research training in: cancer and molecular biology, cardiopulmonary and neuromuscular disease, diabetes, infectious disease. Evidence of commitment to academic research career important. National Research Service Award; only U.S. citizens and permanent residents eligible. Contact: **Dr. B. T. Mossman, Department of Pathology, University of Vermont College of Medicine, Burlington, Vt. 05405. The University of Vermont is an Equal Opportunity/Affirmative Action Employer.**

NEW ZEALAND SENIOR AND POSTDOCTORAL RESEARCH FELLOWSHIPS

The National Research Advisory Council offers 12 fellowships to be taken up in 1985 for research in government departments in fields of importance to New Zealand.

Senior Research Fellowships

Applicants should have a distinguished record of scientific research and/or administration in a relevant field.

Postdoctoral Research Fellowships

Applicants should be recently graduated research workers in a relevant field with a Ph.D. or equivalent degree and some experience since graduation.

Applicants must have a good working knowledge of English and meet New Zealand immigration requirements. Emoluments, which are taxable, range from NZ\$25,684 to NZ\$46,682. Return travel to New Zealand is provided.

Application forms and information booklets may be obtained from:

New Zealand diplomatic posts
or
National Research Advisory Council
P.O. Box 12240
Wellington, New Zealand

Applications close on 1 August 1984.

FELLOWSHIPS

POSTDOCTORAL FELLOWSHIP. Two years, in lipoprotein biochemistry/metabolism, at Harvard Medical School, New England Regional Primate Research Center; available immediately. The successful candidate will use existing and/or develop new molecular probes for monkey apolipoprotein genes to study diet-induced alterations of lipoprotein metabolism. Experience in recombinant DNA and protein chemistry preferred. Send curriculum vitae and arrange to have three letters of recommendation sent to: **Dr. Robert J. Nicolosi, Harvard Medical School, New England Regional Primate Research Center, One Pine Hill Drive, Southborough, Mass. 01772. An Equal Opportunity/Affirmative Action Employer.**

The Department of Botany, University of Toronto, invites applicants from Canadian citizens and permanent residents who wish to be sponsored for a **NSERC UNIVERSITY RESEARCH FELLOWSHIP** to be held at the Erindale Campus. Applicants from all fields of plant science including the physiology, biochemistry, genetics, morphology, ecology or systematics of plants, fungi, or prokaryotes will be considered. Our facilities include space and technical services to support research in any area of plant science. The position will be available in April 1985 and would involve some teaching opportunities appropriate for the specialization of the appointee. NSERC University Research Fellowships are awarded for 5 years and carry a salary at the assistant professor level as well as support for research. Submit curriculum vitae with names of three referees and representative reprints by 1 June 1984 to:

**Dr. P. A. Horgen
Associate Chairman
Department of Botany
University of Toronto
Erindale Campus
Mississauga, Ontario, Canada L5L 1C6**

PROGRAMS

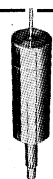
CAREER CHANGE OPPORTUNITY

This unique program offers the candidate with an earned doctorate in the sciences the opportunity to obtain a doctor of optometry (O.D.) degree in two calendar years. Employment opportunities exist in private practice, industry, education, and research. Contact: **The Dean of Admissions, The New England College of Optometry, Room 401, 424 Beacon Street, Boston, Mass. 02115.**

INTERDISCIPLINARY TRAINING PROGRAM MAMMALIAN NEUROBIOLOGY

An NINCDS-funded postdoctoral training program in **Synaptic Mechanisms in the Mammalian CNS** will commence at University of Medicine and Dentistry of New Jersey (UMDNJ)-Rutgers Medical School on 1 July 1984. Training will include supervised research under the direction of participating faculty members, and may combine clinical and experimental neurobiology. Participating faculty are: C. O. Brostrom, M. A. Brostrom, E. T. Brown, L. Grandison, R. Heikkila, W. Nicklas, and D. J. Wolf (cellular and molecular neuropharmacology); S. Chokroverty, R. Duvoisin, and J. Sage (experimental and clinical neurology); M. D. Egger, H. M. Geller, and R. W. Rhoades (cellular and organismic neurophysiology); and F. Roisen (developmental neurobiology). Curriculum vitae, the names of three references, and an indication of those individuals under whose direction it is desired to work should be sent to: **M. D. Egger, Program Director, Department of Anatomy, UMDNJ-Rutgers Medical School, P.O. Box 101, Piscataway, N.J. 08854.**

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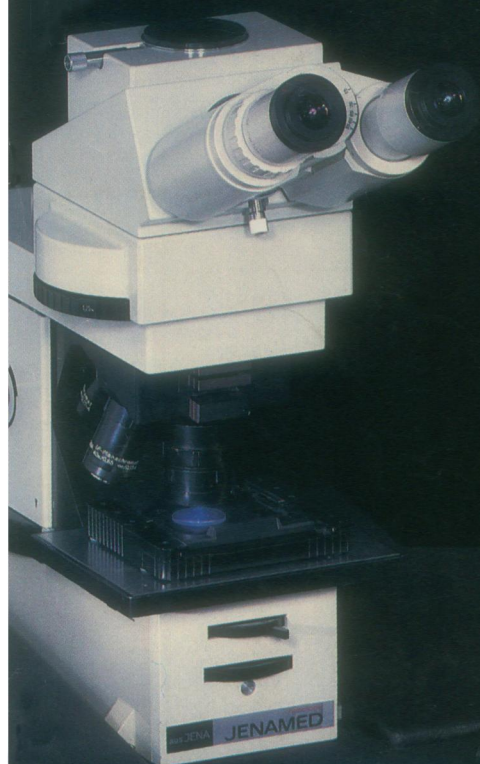
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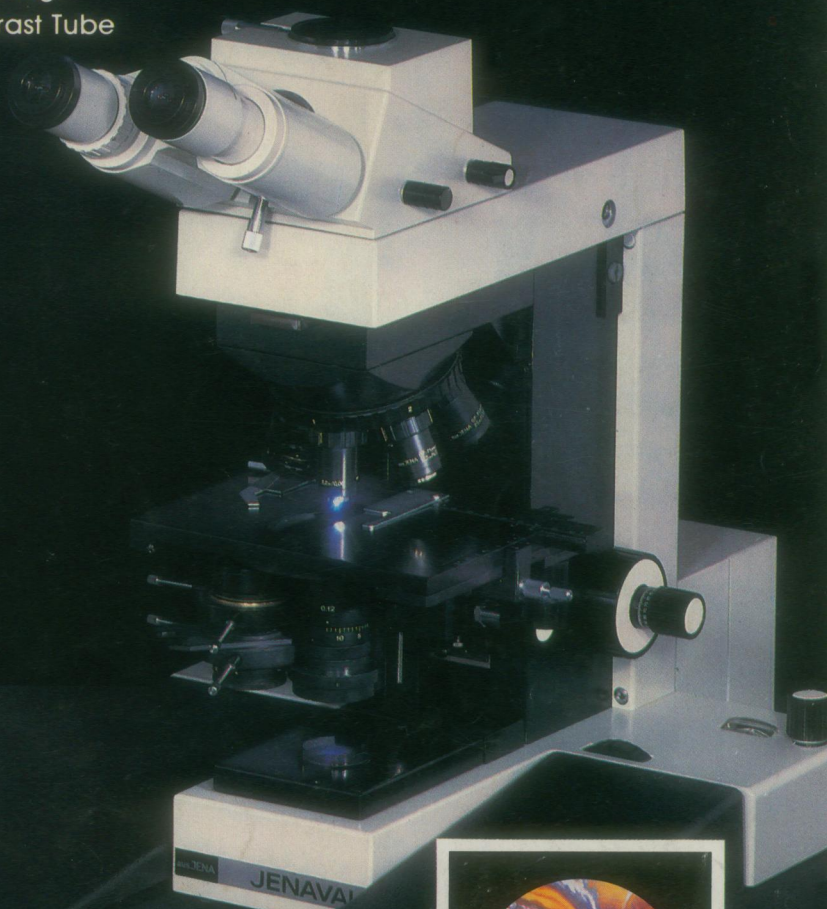
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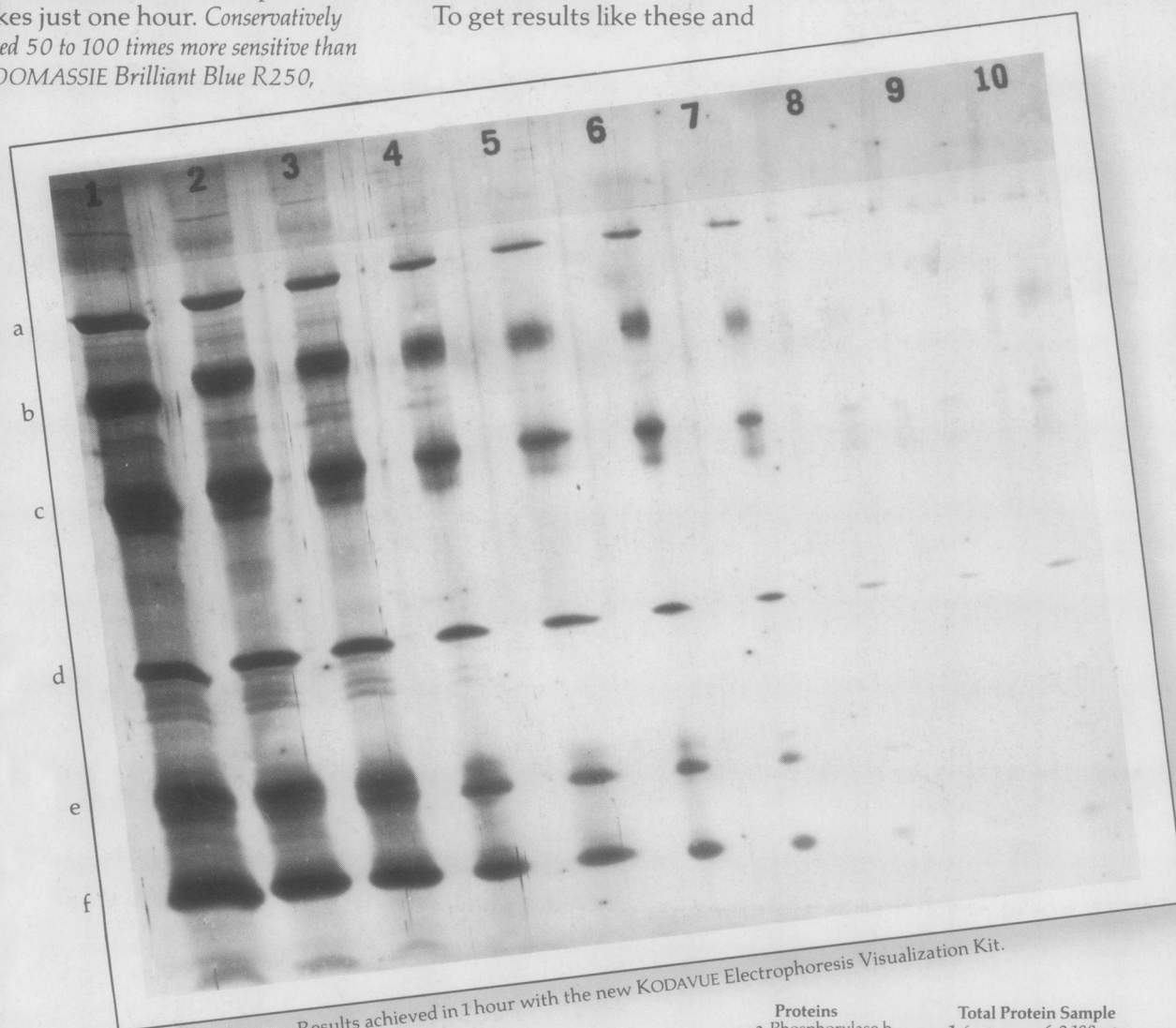
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e Trypsin inhibitor	5 0.375 µg	10 0.01 µg
f α-Lactalbumin		

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