

mechanisms, photophosphorylation, and pigment biosynthesis. The reader is introduced (systematically and logically) to the current biochemical and biophysical understanding of the capture of photons, the separation of primary charges, the photoinduction of electron flow, the establishment of proton gradients across a biomembrane, and the use of the established proton motive force via a chemiosmotic mechanism to synthesize ATP. The unique feature of this volume is that whenever appropriate the chapters are written by two experts, one dealing with plant photosynthesis and the other with bacterial photosynthesis. One comes away from these chapters with a strong impression of the similarities that exist in a wide variety of photosynthetic membranes. This is seen most significantly in reaction center processes, where the similarity between components of the bacterial and chloroplast systems has become obvious. Electron transfer through a chain of carriers that involves the *b* and *c* type cytochromes takes place in both the plant and the bacterial systems, and the recent characterization of isolated cytochrome complexes from these two types of organisms has revealed another similarity between the two systems. ATP synthetase also is similar in the plant and bacterial systems.

In a volume of this nature some duplication inevitably occurs. The composition of the bacterial reaction center is discussed in several chapters, for example. The book omits some of the most recent developments in the field; for example, the crystallization of the bacterial reaction center and the results that indicate a lateral heterogeneity of the chloroplast membrane complexes within different types of thylakoid membranes are not discussed. The latter findings have important implications for processes such as energy and electron transfer, which are discussed at great length in this volume. Finally, the elegant studies of regulatory mechanisms involving thylakoid phosphorylation are briefly described, but the most recent findings in this important field are not mentioned. On the whole, the coverage is comprehensive, with background and recent research results being presented to bring each subject into perspective.

The second volume, "Development, Carbon Metabolism, and Plant Productivity," not only describes basic biochemical pathways, such as those involved in the fixation of CO<sub>2</sub>, it covers the development, molecular biology, and genetics of photosynthetic systems and topics related to increasing plant produc-

tivity. The emphasis in this volume is more on higher plant systems, and the integrated approach used in volume 1 is not appropriate for many of the subjects discussed in volume 2, though it is used in chapters on CO<sub>2</sub> fixation, biogenesis of the photosynthetic apparatus, and molecular biology.

As is the case with the first volume, the coverage of topics in volume 2 is excellent and as up to date as is possible in a rapidly moving field. There are again developments that are not discussed because they were not available at the time of writing. The recent description of transformation systems in several plant systems is one such development.

An additional volume devoted entirely to molecular biology may be appropriate in a short time. In the meantime *Photosynthesis* will be a useful reference work and will serve as a more than basic introduction to this complex subject for students in many fields.

RICHARD MALKIN

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## Books Received

**Advances in Polyamine Research.** Vol. 4. Papers from a seminar, Kiryat Anavim, Israel, July 1982. Uriel Bachrach, Alvin Kaye, and Ralph Chayen, Eds. Raven, New York, 1983. xxiv, 808 pp., illus. \$58.

**Advances in Prostaglandin, Thromboxane, and Leukotriene Research.** Vol. 11 and Vol. 12. Papers from a conference, Florence, May 1982. Bengt Samuelsson, Rodolfo Paoletti, and Peter W. Ramwell, Eds. Raven, New York, 1983. Vol. 11. 546 pp., illus. \$60. Vol. 12. xxxvi, 534 pp., illus. \$60. The set, \$115.

**Advances in Protein Chemistry.** Vol. 35. C. B. Anfinsen, John T. Edsall, and Frederic M. Richards, Eds. Academic Press, New York, 1982. viii, 440 pp., illus. \$62.

**Advances in Quantum Chemistry.** Per-Olov Löwdin, Ed. Academic Press, New York, 1982. Vol. 15. x, 278 pp., illus. \$54. Vol. 16. xii, 286 pp., illus. \$56.

**The Agate Basin Site.** A Record of the Paleoindian Occupation of the Northwestern High Plains. George C. Frison and Dennis J. Stanford. Academic Press, New York, 1982. xx, 404 pp., illus. \$74.50. Studies in Archaeology.

**Aging Brain and Ergot Alkaloids.** Alessandro Agnoli, Gaetano Crepaldi, Pier Franco Spano, and Marco Trabucchi, Eds. Raven, New York, 1983. xxii, 442 pp., illus. \$45. Aging Series, vol. 23.

**Before It's Too Late.** The Challenge of Nuclear Disarmament. The Complete Record of the Public Hearing on Nuclear Weapons and Disarmament Organized by the World Council of Churches. Paul Abrecht and Ninan Koshy, Eds. World Council of Churches, Geneva, 1983 (U.S. distributor, Friendship Press, New York). xiv, 392 pp., illus. Paper, \$13.95.

**Biochemistry.** Frank B. Armstrong. Oxford University Press, New York, ed. 2, 1983. xxviii, 654 pp., illus. \$27.95.

**Biochemistry of Metabolic Processes.** Proceedings of a symposium, Madison, Wis., June 1982. Doris L. F. Lennon, Frederick W. Stratman, and Rainer N. Zahlten, Eds. Elsevier, New York, 1983. xxiv, 496 pp., illus. \$75.

**The Biolab Book.** Lundy Pentz. Johns Hopkins University Press, Baltimore, 1983. x, 128 pp., illus. Paper, \$9.95.

**The Birational Geometry of Degenerations.** Robert Friedman and David R. Morrison, Eds. Birkhäuser, Boston, 1983. x, 392 pp., illus. \$27.50. Progress in Mathematics, vol. 29.

**The Chemistry of the Allenes.** Stephen R. Landor, Ed. Academic Press, New York, 1982. Three vol-

umes. Vol. 1, Synthesis. xiv, 234 pp., illus., + index. \$66. Vol. 2, Reactions. xiv pp. + pp. 235-578, illus., + index. \$86. Vol. 3, Stereochemical, Spectroscopic and Special Aspects. xiv pp. + pp. 579-882, illus., + index. \$86. The set, \$200.

**Chimpanzee Politics.** Power and Sex among the Apes. Frans de Waal. Photographs and drawings by the author. Harper and Row, New York, 1983. 224 pp. \$16.50.

**Cipher Systems.** The Protection of Communications. Henry Beker and Fred Piper. Wiley-Interscience, New York, 1982. 428 pp., illus. \$34.95.

**Developmental Approaches to the Self.** Benjamin Lee and Gil G. Noam, Eds. Plenum, New York, 1983. viii, 400 pp. \$42.50. PATH in Psychology.

**Diarrhea and Malnutrition.** Interactions, Mechanisms, and Interventions. Papers from a conference, Bellagio, Italy, May 1981. Lincoln C. Chen and Nevin S. Scrimshaw, Eds. Plenum, New York, 1983. xvi, 318 pp., illus. \$39.50.

**Differential Geometric Control Theory.** Proceedings of a conference, Houghton, Mich., June 1982. Roger W. Brockett, Richard S. Millman, and Hector J. Sussmann, Eds. Birkhäuser, Boston, 1982. viii, 346 pp. \$25. Progress in Mathematics, vol. 27.

**Electron Transport and Oxygen Utilization.** Papers from a symposium, Airlie, Va., Apr. 1980. Chien Ho and seven others, Eds. Elsevier, New York, 1982. xxx, 446 pp., illus. \$80.

**The Electronic Epoch.** Elizabeth Antébi. Van Nostrand Reinhold, New York, 1983. 256 pp., illus. \$49.50.

**The Enchanted Loom.** Mind in the Universe. Robert Jastrow. Simon and Schuster, New York, 1983. iv, 186 pp., illus. Paper, \$6.95. Reprint of the 1981 edition. A Touchstone Book.

**Formation et Développement.** André Boutin. Mardaga, Brussels, 1983. 232 pp. Paper, 690 BF. Psychologie et Sciences Humaines, 115.

**Geometric Quantization in Action.** Applications of Harmonic Analysis in Quantum Statistical Mechanics and Quantum Field Theory. Norman E. Hurt. Reidel, Boston, 1983 (distributor, Kluwer Boston, Hingham, Mass.). xiv, 338 pp. \$49.50. Mathematics and Its Applications, vol. 8.

**Geophysics in the Affairs of Man.** A Personalized History of Exploration Geophysics and Its Allied Sciences of Seismology and Oceanography. Charles C. Bates, Thomas F. Gaskell, and Robert B. Rice. Pergamon, New York, 1982. xx, 492 pp., illus. Cloth, \$60; paper, \$25.

**The Great Evolution Mystery.** Gordon Rattray Taylor. Harper and Row, New York, 1983. viii, 280 pp., illus. \$15.95.

**The Great Extinction.** The Solution to One of the Great Mysteries of Science: The Disappearance of the Dinosaurs. Michael Allaby and James Lovelock. Doubleday, New York, 1983. x, 182 pp. \$13.95.

**Handbook of Microscopy.** Marcel Locquin and Maurice Langeron. Translated from the French edition (Paris, 1978). Harold Hillman, Transl. Ed. Butterworths, Boston, 1983. xii, 322 pp., illus. \$119.95.

**IRT 82.** Proceedings of a conference, London, Sept. 1982. Butterworths, Boston, 1982. vi, 92 pp., illus. Paper, \$24.95.

**James Clerk Maxwell.** A Biography. Ivan Tolstoy. University of Chicago Press, Chicago, 1983. viii, 184 pp. + plates. Cloth, \$17; paper, \$6.95.

**Joint U.S.A.-U.S.S.R. Ecosystem Investigation of the Bering Sea, July-August, 1977.** U.S. Fish and Wildlife Service, Washington, D.C., 1982. xx, 272 pp., illus. Paper.

**The Kinetic Theory of Electromagnetic Processes.** Yu. L. Klimontovich. Translated edition (Moscow, 1980) by A. Dobroslavsky. Springer-Verlag, New York, 1983. xii, 364 pp. \$44.50. Springer Series in Synergetics, vol. 10.

**Mathematical Analysis.** A Straightforward Approach. K. G. Binmore. Cambridge University Press, New York, ed. 2, 1983. xii, 362 pp., illus. Cloth, \$34.50; paper, \$12.95.

**The Mathematical Science of Christopher Wren.** J. A. Bennett. Cambridge University Press, New York, 1983. x, 148 pp., illus. \$29.95.

**Mathematical Snapshots.** H. Steinhaus. Oxford University Press, New York, ed. 3, 1983. viii, 312 pp., illus. Paper, \$7.95. Reprint of the 1969 edition.

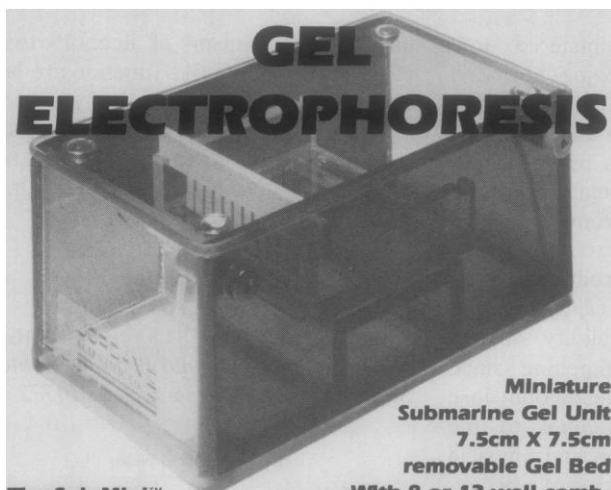
**Melatonin Rhythm Generating System.** Development Aspects. Papers from a symposium, Bethesda, Md., Jan. 1981. D. C. Klein, Ed. Basel, Karger, 1982. x, 250 pp., illus. \$94.75.

**The New High Ground.** Systems and Weapons of Space Age War. Thomas Karas. Simon and Schuster, New York, 1983. 224 pp. + plates. \$14.95.

**Organizational Effectiveness.** A Comparison of Multiple Models. Kim S. Cameron and David A. Whetten, Eds. Academic Press, New York, 1983. xiv, 294 pp., illus. \$29.50. Organizational and Occupational Psychology.

**The Origin and Evolution of Galaxies.** Proceedings of an institute, Erice, Italy, May 1981. B. J. T. Jones and J. E. Jones, Eds. Reidel, Boston, 1983 (distribu-

(Continued on page 682)



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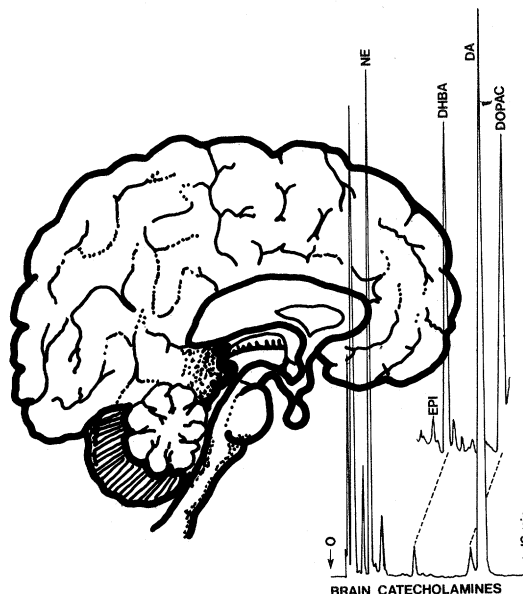
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## BOOKS RECEIVED

(Continued from page 643)

tor, Kluwer Boston, Hingham, Mass.). x, 358 pp., illus. Cloth, \$54.50; paper, \$24.50. NATO Advanced Study Institutes Series C, vol. 97.

**Parasitic Diseases.** Michael Katz, Dickson D. Depommier, and Robert W. Gwadz. Illustrations by John W. Karapelou. Photography by Eric V. Gravé. Springer-Verlag, New York, 1982. xii, 264 pp. \$27.75.

**Physics.** Building a World View. Gerald F. Wheeler and Larry D. Kirkpatrick. Prentice-Hall, Englewood Cliffs, N.J., 1983. xx, 556 pp., illus. \$21.95.

**The Physics of Vibration.** Vol. 2, Containing Part 2, The Simple Vibrator in Quantum Mechanics. A. B. Pippard. Cambridge University Press, New York, 1983. x, 208 pp., illus. \$39.50.

**Physicochemical Aspects of Polymer Surfaces.** Proceedings of a symposium, New York, Aug. 1981. K. L. Mittal, Ed. Plenum, New York, 1983. Two volumes. Vol. 1, xvi, 580 pp., illus., + index. \$65. Vol. 2, xvi pp. + pp. 581-1250, illus. \$65.

**The Pineal.** Vol. 7. Russell J. Reiter. Eden Press, St. Albans, Vt., 1982. viii, 240 pp. \$38. Annual Research Reviews.

**Plant Extinction.** A Global Crisis. Harold Koopowitz and Hilary Kaye. Stone Wall Press, Washington, D.C., 1983 (distributor, Stackpole Books, Harrisburg, Pa.). x, 240 pp., illus. \$16.95.

**Plant Pests and Their Control.** P. G. Fenemore. Butterworths, Boston, 1982. xviii, 272 pp., illus. Paper, \$29.95.

**The Political Economy of Growth.** Papers from a conference, College Park, Md., Dec. 1978. Dennis C. Mueller, Ed. Yale University Press, New Haven, Conn., 1983. viii, 286 pp. \$23.50.

**Pollution Control at Electric Power Stations.** Comparisons for U.S. and Europe. Richard D. Brown, Robert P. Ouellette, and Paul N. Cheremisinoff. Ann Arbor Science (Butterworths), Woburn, Mass., 1983. xiv, 114 pp. \$29.95.

**Precambrian Sulphide Deposits.** H. S. Robinson Memorial Volume. R. W. Hutchinson, C. D. Spence, and J. M. Franklin, Eds. Geological Association of Canada, Waterloo, 1982 (distributor, GAC Publication Division, Business and Economic Service, Toronto). viii, 792 pp., illus. C\$57; to members, C\$47. Geological Association of Canada Special Paper 25.

**Renal Immunology.** G. Lubec, Ed. Karger, Basel, 1983. vi, 192 pp., illus. Paper, \$58.25. Contributions to Nephrology, vol. 35.

**Research Techniques in Nondestructive Testing.** Vol. 6. R. S. Sharpe, Ed. Academic Press, New York, 1982. x, 316 pp., illus. \$49.50.

**Residue Reviews.** Residues of Pesticides and Other Contaminants in the Total Environment. Vol. 87. Francis A. Gunther and Jane Davies Gunther, Eds. Springer-Verlag, New York, 1983. x, 112 pp., illus. \$21.50.

**Resource Recovery Project Studies.** By Brown, Vence & Associates. Ann Arbor Science (Butterworths), Woburn, Mass., 1983. xviii, 166 pp., illus. \$29.95.

**The Rest of the Story . . . about Agriculture Today.** Harold Willis. Published by the author, P.O. Box 692, Wisconsin Dells, Wis. 53965, 1983. vi, 222 pp., illus. Paper, \$7.75.

**Risk by Choice.** Regulating Health and Safety in the Workplace. W. Kip Viscusi. Harvard University Press, Cambridge, Mass., 1983. xii, 200 pp., \$18.50.

**The Royal Society and Its Fellows, 1660-1700.** The Morphology of an Early Scientific Institution. Michael Hunter. British Society for the History of Science, Chalfont St. Giles, Bucks, England, 1982. vi, 270 pp. Paper, \$11. BSHS Monographs, 4.

**Rural Psychology.** Alan W. Childs and Gary B. Melton, Eds. Plenum, New York, 1983. xvi, 442 pp. \$39.50.

**Science and the Paranormal.** Probing the Existence of the Supernatural. George O. Abell and Barry Singer, Eds. Scribner, New York, 1983. xiv, 414 pp., illus. Paper, \$9.95. Reprint of the 1981 edition.

**Stress Reduction and Prevention.** Donald Meichenbaum and Matt E. Jaremkó, Eds. Plenum, New York, 1983. xii, 500 pp. \$32.50.

**Subcellular Biochemistry.** Vol. 9. Donald B. Roddy, Ed. Plenum, New York, 1983. xvi, 426 pp., illus. \$52.50.

**With Reference to Reference.** Catherine Z. Elgin. Hackett, Indianapolis, 1983. viii, 200 pp. Cloth, \$27.50; paper, \$12.75.

**World Climate Change.** The Role of International Law and Institutions. Papers from a conference, Denver, 1980. Ved P. Nanda, Ed. Westview, Boulder, Colo., 1983. x, 264 pp. \$20. A Westview Special Study.

**A Year in the Beeyard.** Roger A. Morse. Scribner, New York, 1983. x, 166 pp., illus. \$14.95.

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**Research Assistant.** M.S. Seeks research or industrial position. Present position emphasizes prostaglandin and arachidonic acid. Experience includes biochemistry, coagulation; preparative, analytical, RIA, HPLC, and GC-MS methods. Box 213, SCIENCE. 8/12, 19, 26

**Vertebrate Biologist.** Ph.D. 1981. Teaching experience: comparative chordate anatomy, human anatomy and physiology, introductory biology, vertebrate ecology. Research interests: physiological ecology, evolutionary biology. Publications, grants, active research program. Position sought: academic-teaching, research. Box 219, SCIENCE. 8/12, 19

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The Department of Anesthesiology, University of Nebraska College of Medicine, invites applications from qualified individuals with commitments to excellence in research to coordinate the department's research activities. The successful candidate must have a Ph.D. and/or M.D. degree(s) and will be expected to establish an independent research program. Teaching of medical and graduate students will be required. A strong background in cardiopulmonary physiology/pharmacology or neurosciences is essential. New laboratory facilities will be available together with start-up funds and departmental support. Inquiries, including curriculum vitae, career objectives, and names of three references, should be submitted to: **Dr. Jan D. Smith, Chairman, Department of Anesthesiology, University of Nebraska College of Medicine, 42nd and Dewey Avenue, Omaha, Neb. 68105.** University of Nebraska is an Equal Opportunity/Affirmative Action Employer.



## POSITIONS OPEN

The Section of Urology, Department of Surgery, Yale University School of Medicine, has available positions for **TWO ASSISTANT PROFESSORS** beginning 1 January 1984 or 1 July 1984. Applicants must be Board-certified or Board-eligible. Applications should be sent to: **Dr. Bernard Lytton, Chief, Section of Urology, Department of Surgery, Yale University School of Medicine, 789 Howard Avenue, New Haven, Connecticut 06504**, by 1 December 1983. *Yale University is an Equal Opportunity/Affirmative Action Employer. Qualified women and minority group members are encouraged to apply.*

### ASSISTANT PROFESSOR, ENDOCRINE/REPRODUCTIVE PHYSIOLOGY

State-funded, tenure-track faculty position available in the Department of Physiology, University of Arizona, College of Medicine. Consideration will be limited to applicants with research interest in reproductive endocrinology and physiology. Major responsibilities will be development of an active research program in reproduction and participation in departmental courses in human, cell, and/or reproductive physiology. Interest and ability in teaching students, as well as research potential, will be considered in evaluating applicants. Ph.D. or M.D. degree or equivalent and postdoctoral training are prerequisite. Send summary of research plans, curriculum vitae, and names of three references to: **Dr. Paul C. Johnson, Professor and Head, Department of Physiology, College of Medicine, University of Arizona, Tucson, Ariz. 85724**, by 1 October 1983. *The University of Arizona is an Equal Opportunity/Affirmative Action Employer.*

### ASSISTANT PROFESSOR OF ENTOMOLOGY

Tenure track. Teaching responsibilities may include both undergraduate and graduate courses in insect ecology, pesticides, urban/horticultural pests, livestock/medical entomology, and pest management depending on the background of the successful candidate. Research responsibilities may include agricultural entomology, urban/horticultural entomology, and/or ecology of the red imported fire ant again depending upon area of expertise of the successful candidate. Qualifications: Ph.D. in entomology or a closely related discipline with experience in applied entomology and a strong quantitative background. Ability to work as a member of an interdisciplinary team is important. Good oral communication skills and teaching experience are desired. Application deadline: 31 August 1983. Send letter of application, transcripts, résumé, and three letters of recommendation to: **Dr. Jeff Whitworth, Department of Entomology, Texas Tech University, Lubbock, Texas 79409**. *Texas Tech is an Affirmative Action/Equal Opportunity Employer.*

The Department of Poultry Science at Oregon State University invites applications for a position at the **ASSOCIATE PROFESSOR/PROFESSOR** level in the area of poultry extension and training subproject team leader in the Yemen Arab Republic. The Ph.D. degree is required. Salary is commensurate with experience and qualifications. The position will be available 1 April 1984. Application deadline: 30 September 1983. *Oregon State University is an Affirmative Action/Equal Opportunity Employer and complies with section 504 of the Rehabilitation Act of 1973.* For information about the department and the requirements for the position, write:

**Don H. Helfer, Director  
Yemen Poultry Subproject  
Department of Poultry Science  
Oregon State University  
Corvallis, Ore. 97331**

### BIOCHEMISTRY/BIPHYSICS FACULTY POSITIONS UNIVERSITY OF ARIZONA

The University Department of Biochemistry and Biophysics is seeking two tenure-track faculty members. The prime criterion for appointment will be demonstrated (or potential for) excellence in research and teaching. At least one of the appointments will probably be at the assistant professor level; among equally qualified candidates, the areas of biophysics and nucleic acid biochemistry will be preferred.

Candidates should send curriculum vitae, a one- or two-page summary of future research plans, and three letters of recommendation to: **Dr. John W. Little, Search Committee, University Department of Biochemistry and Biophysics, Biosciences West, University of Arizona, Tucson, Ariz. 85721**. Deadline for applications is 30 September 1983. *An Equal Opportunity/Affirmative Action Employer.*

12 AUGUST 1983

## POSITIONS OPEN

**APPLICATIONS ARE INVITED FOR A TENURE-TRACK ASSISTANT PROFESSOR IN A NEW INSTITUTE FOR ENVIRONMENTAL STUDIES, DIVISION OF TOXICOLOGY.** Person must hold a Ph.D. in chemistry or biochemistry and postdoctoral experience is highly desirable. The candidate must have demonstrated research capability in molecular-level mechanisms in free radical biology. Preferred areas of emphasis include: oxidative enzymes; SOD; autoxidation; carcinogen activation by 1-electron mechanisms; protective effects of antioxidants; radical components in chlorocompound toxicity. The position can start as early as fall 1983. It largely involves research but also involves developing a course in free radicals and toxicology. Applicants should submit three letters of recommendation and a complete curriculum vitae. Applications must be received by 1 September 1983 and should be sent to: **Dr. William A. Pryor, Boyd Professor of Chemistry and Biochemistry, Louisiana State University (LSU), Baton Rouge, Louisiana 70803**. *LSU is an Equal Opportunity Employer.*

### ASSISTANT OR ASSOCIATE PROFESSOR OF PHYSIOLOGY

The Department of Medicine, Michael Reese Hospital—University of Chicago, is seeking a Ph.D.—physiologist to establish and supervise a new laboratory in renal research in collaboration with two senior M.D.—investigators. Preference will be given to candidates with at least 2 years of postdoctoral training and with research experience in acid-base and electrolyte physiology. Familiarity with external balance and clearance techniques desirable. To apply, please send curriculum vitae, bibliography, and names of three references to:

**Serafino Garella, M.D., Associate Chairman  
Department of Medicine  
Michael Reese Hospital and Medical Center  
31st at Lake Shore Drive  
Chicago, Illinois 60616**

### ASSOCIATE OR FULL PROFESSOR

The Department of Pharmacology of Case Western Reserve University has available a senior faculty position for an internationally recognized scientist with a well-funded research program in molecular pharmacology. The research area is not specified but preference may be given to endocrinology or neurobiology. Applications/nominations should include curriculum vitae, a statement of research interests, and the names of three referees and should be sent to: **Dr. Alan G. Goodridge, Department of Pharmacology, School of Medicine, Case Western Reserve University, Cleveland, Ohio 44106**. *Equal Opportunity/Affirmative Action Employer.*

### MEDICAL COLLEGE OF GEORGIA, AUGUSTA

Clinical Nutrition Research Unit (CNRU) is seeking applicants for a **BASIC SCIENTIST** to head the Nutrition Laboratory and graduate program. Applicants must have a Ph.D. in biochemistry, physiology, or pharmacology, at least 5 years of relevant experience, and a record of publications and independent research with grant funding. Rank and salary open. Submit résumé and three letters of reference by 1 September 1983 to: **E. B. Feldman, M.D., Director, CNRU, Department of Medicine, Medical College of Georgia, Augusta, Ga. 30912**. *An Equal Opportunity Employer.*

**BIOCHEMISTRY—FACULTY POSITIONS.** Applications are invited for tenure-track appointments to the rank of assistant or associate professor of biochemistry at the Albany Medical College. Preference will be given to candidates with research experience in contemporary molecular biology, especially recombinant DNA techniques, although scientists qualified in other areas of biochemistry will also be given serious consideration. Current major foci of research interests in the department include molecular endocrinology, complex carbohydrates and glycolipids, protein chemistry, neurochemistry, and enzymology. A commitment to excellence in teaching medical and graduate students as well as evidence of accomplishment or scientific potential is required. The Albany area offers the advantages of a cosmopolitan life-style in a suburban-rural setting. Starting date is open. If interested, please forward curriculum vitae, outline of research interests, names of three references, and indication of when available, to: **Dr. Leo E. Reichert, Professor and Chairman, Department of Biochemistry, Albany Medical College of Union University, Albany, New York 12208**.

# Molecular Biologist

Whatman, a world leader in filter and chromatography products, is seeking an individual with experience in the biotechnology field, specifically **GENETIC ENGINEERING and PURIFICATION PROCESSES**. Candidate will have an MS or PhD plus 2-5 years experience in genetic engineering (industrial) and purification. This person will be involved in the development of our biotechnology purification businesses and systems design.

We offer an excellent salary and comprehensive benefits package. Please forward resume and salary history in confidence to: **Louise Crandell**.



**Whatman Inc.**

**9 Bridewell Place  
Clifton, New Jersey 07014**

An Equal Opportunity Employer, M/F

## NEW ZEALAND UNIVERSITY OF CANTERBURY

The Council of the University invites applications for the following position:

### CHAIR OF ZOOLOGY

Applicants with research and teaching interests and qualifications in any of the major aspects of zoology will be considered. These need not necessarily be in fields of current activity within the department.

The appointee will take up the position on 1 February 1984 or at such later date as may be arranged.

At present the salary for a professor is within the range of N.Z.\$41,937 to N.Z.\$52,482 per annum. The commencing or subsequent salary of the appointee may be increased as a result of the review of individual professorial salaries which the University makes at the beginning of each year.

Applications close on 30 November 1983.

Further particulars and conditions of appointment may be obtained from: **W. Hansen, Registrar, University of Canterbury, Private Bag, Christchurch, New Zealand**.

## POSITIONS OPEN

**ASSISTANT/ASSOCIATE PROFESSOR OF SOILS**—The Department of Agronomy and Soils seeks a Ph.D. to teach undergraduate and graduate courses in soil chemistry and to conduct a research program in soil chemistry. Salary open; application review begins 1 October 1983. Submit résumé, statement of career interests, academic transcripts, and names of five personal/program evaluators to:

**Dr. J. C. Engibous, Chairman**  
Department of Agronomy and Soils  
Washington State University  
Pullman, Wash. 99164-6420

*An Equal Opportunity/Affirmative Action Employer*

### ATMOSPHERIC SCIENTIST/UCLA

The Department of Atmospheric Sciences and the Institute of Geophysics and Planetary Physics invite applications for a tenure-level (associate or full professor) joint faculty appointment. Preference will be given to applicants with a proven record of research accomplishments in the fields of atmospheric chemistry, climate dynamics, ocean/atmosphere interactions, and planetary atmospheres. The position entails the development of a strong research program with emphasis on guidance of graduate student research.

Applications should be sent before 1 November to:

**Chairman**  
Department of Atmospheric Sciences  
University of California (UCLA)  
405 Hilgard Avenue  
Los Angeles, Calif. 90024

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

### BASIC RESEARCH RELATED TO ARTERIOSCLEROSIS

Postdoctoral positions are available at The Hormel Institute, University of Minnesota, through a training grant awarded by the USPHS National Heart, Lung and Blood Institute. The program is intended to provide research training in areas of lipid biochemistry, membrane biophysics, and cell biology related to cardiovascular disease. Participating faculty members are: Drs. W. J. Baumann, H. L. Brockman, M. P. Cleary, R. T. Holman, H. M. Jenkin, D. R. Pfeiffer, O. S. Privett, H. Schlenk, and H. H. O. Schmid. Applicants select a faculty sponsor specialized in their area of research interest. Collaboration with other faculty members is encouraged. Appointments are annually renewable and currently provide a minimum stipend of \$16,400. Applicants must be U.S. citizens, noncitizen nationals, or permanent U.S. residents with a Ph.D., M.D., or equivalent degree. Applications should include curriculum vitae, list of publications, and the names of three references. Submission deadline: 15 September 1983. For further information or to apply, write to: **Dr. R. T. Holman, Professor and Director, The Hormel Institute, University of Minnesota, Austin, Minn. 55912. Telephone: 507-433-8804. The University of Minnesota is an Equal Opportunity Educator and Employer and specifically invites and encourages women and minority applicants.**

### BIOCHEMIST

Position of associate researcher open for recent Ph.D. to study the role of site-specific DNA adducts in mutagenesis [see *Nucleic Acid Res.* 11, 15 (1983)]. Molecular biology background desirable. Send curriculum vitae and three references to: **Dr. Gerhard Stöhrer, Department of Chemical Carcinogenesis, Sloan-Kettering Institute, 145 Boston Post Road, Rye, N.Y. 10580.**

### CHAIRPERSON DEPARTMENT OF PHARMACOLOGY

The Ohio State University College of Medicine, Columbus, Ohio, is seeking qualified candidates for the position of chairperson, Department of Pharmacology, to begin no later than 1 July 1984. Salary commensurate with qualifications. Qualified persons interested in this position are invited to submit curriculum vitae documenting teaching, research, administrative, and program leadership experiences, postmarked no later than 15 October 1983. Please submit curriculum vitae to:

**James S. King, Ph.D.**  
Chairperson, Search Committee  
The Ohio State University College of Medicine  
370 West Ninth Avenue  
Columbus, Ohio 43210

*An Affirmative Action/Equal Opportunity Employer*

## POSITIONS OPEN

### CELL BIOLOGISTS

Two tenure-track positions at the assistant professor level are to be filled at the University of Pittsburgh School of Medicine, Department of Anatomy and Cell Biology, between September 1983 and July 1984. One position is for a cell biologist with experience in teaching medical histology and graduate cell biology. Preference will be given to candidates who are applying innovative approaches to the study of cell membranes or structural proteins. The second position is for a cell or molecular biologist applying modern approaches to study of the nervous system. Teaching duties will be either histology or neurosciences to medical students, as well as contribution to the graduate program.

Applications accompanied by curriculum vitae and a list of three references should be sent to the following address and received no later than 15 September 1983:

**Dr. Raymond D. Lund, Chairman**  
Department of Anatomy and Cell Biology  
University of Pittsburgh School of Medicine  
820 Scaife Hall  
3550 Terrace Street  
Pittsburgh, Pa. 15261

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

### CEREBROVASCULAR RESEARCH

The Section of Cardiovascular Neurobiology, Division of Research, Cleveland Clinic Foundation, is seeking applicants for a faculty position in the Cerebrovascular Research Laboratory. Applicants must have an M.D. or Ph.D. degree and experience in cerebrovascular research. Individuals with a background in neurochemistry, autoradiography and/or cerebral blood flow measurement are preferred. The position also requires participation in the postgraduate neuroscience education program and an interest in clinical neuroscience.

Candidates should submit their curriculum vitae, bibliography, and three references to: **Carlos M. Ferrario, M.D., Department of Cardiovascular Research, Division of Research, Cleveland Clinic Foundation, 9500 Euclid Avenue, Cleveland, Ohio 44106.**

### CHIEF OF ANATOMY

Senior tenured faculty position as director of the Section of Gross Anatomy in the Department of Surgery. Research interests and experience desirable. Available as of 1 September 1983. *Yale University is an Equal Opportunity/Affirmative Action Employer.*

Submit curriculum vitae and bibliography to:

**Clarence Sasaki, M.D.**  
Chairman, Search Committee on Anatomy  
Department of Surgery  
Yale University School of Medicine  
P.O. Box 3333  
New Haven, Conn. 06510

**CHIEF OF CLINICAL PATHOLOGY** at The George Washington University Hospital, Washington, D.C. Full-time faculty position in the Department of Pathology for academically oriented person with experience and expertise in clinical pathology. Send résumé to: **Dr. H. Sidransky, Chairman, Department of Pathology, The George Washington University Medical Center, Washington, D.C. 20037. An Equal Opportunity Employer.**

### BERKELEY Engineering Reference Librarian

Provide reference, instructional, and on-line services in engineering and applied science. Assist in the management of the Engineering Library's operations and personnel. In charge of the unit in the absence of the head librarian.

Requires M.L.S. degree and recent experience in reference, instructional, or on-line services. Knowledge of DIALOG, BRS, and RLIN and experience with engineering and physical sciences literature and technical reports desirable. Supervisory ability required.

Full job description mailed on request. Salary range from \$17,412 to \$22,284 per annum. Starting date: 1 November 1983 or as soon thereafter as possible. To apply, send résumé, including names and addresses of three professional references, by 20 September 1983 to:

**William E. Wenz, Library Personnel Officer**  
Room 447 General Library  
University of California  
Berkeley, California 94720

*An Equal Opportunity/Affirmative Action Employer*

## POSITIONS OPEN

**DIRECTOR, CLINICAL BIOCHEMISTRY LABORATORY.** Position in the Biochemistry Department is available at assistant or associate professor level. The applicant should have a M.D. degree with specialty in clinical biochemistry. Proficiency in French is essential. Duties could include direction of the laboratory. It is expected that the candidate will be active in teaching and research. Applicants must provide curriculum vitae, summary of research interests, and three letters of reference no later than 31 October 1983 to: **Dr. J. G. Lehoux, Département de Biochimie, Faculté de Médecine, Université de Sherbrooke, Sherbrooke, Québec, Canada J1H 5N4. Canadian Immigration requires that priority be given to Canadian citizens and landed immigrants.**

**ENTOMOLOGIST.** U.S. Department of Agriculture, Fresno, California, is seeking scientist to determine the efficacy of conventional and alternative fumigants and various other treatments against insects that cause postharvest losses. Permanent federal position. Must be U.S. citizen. Salary: \$24,508 to \$29,374. For required qualifications and application instructions, telephone: **Rita Millard at 415-273-4281**, by 19 September 1983. *Equal Opportunity/Affirmative Action Employer.*

**Environmental Engineering/Toxicology.** Postdoctoral position, 1 September, to focus on chemical risks to ground water; work in an interdisciplinary project concerned with community assessment and management of public risks associated with ground water. An engineering background in ground-water solute transport modeling and an interest in environmental toxicology are desired. Send curriculum vitae and names of two references to: **K. S. Porter, CER Hollister Hall, Cornell University, Ithaca, N.Y. 14853.**

### FACULTY POSITION—TOXICOLOGIST DEPARTMENT OF ANIMAL, DAIRY AND VETERINARY SCIENCES

A faculty position is available immediately for an animal toxicologist in the Department of Animal, Dairy and Veterinary Sciences. Applicants must hold a Ph.D. degree with a record of productivity in research, preferably in the area of analytical, biochemical/molecular, or immunotoxicology. Candidates will be considered for a tenure-track position if qualified. The person selected would be teaching various departmental courses, participate in the interdepartmental curriculum in toxicology (leading to M.S. and Ph.D. degrees), and establish an independent research program. Well furnished laboratories are available. Accomplishments in research, professional activities, and ability to obtain outside research funding are highly desirable. The rank and salary are negotiable. Application, including detailed curriculum vitae, bibliography, statement of research interest and plans, selected reprints, and the names and addresses of three references should reach the undersigned by 15 September 1983. Applications may be accepted after this deadline until a suitable candidate is located. Address correspondence to: **S. J. Kleinschuster, Professor and Head, Department of Animal, Dairy and Veterinary Sciences, Utah State University, UMC 48, Logan, Utah 84322. Telephone: 801-750-2146. An Affirmative Action/Equal Opportunity Employer.**

### MARINE ORNITHOLOGIST

Postdoctoral position for a behavioural ecologist with strong research record and interests in energetics, modelling, foraging behaviour, and seabird-fisheries interactions to work within a developing interdisciplinary program concerning Newfoundland seabirds and their prey. Appointment for 1 year, with possibility of renewal for a second, is jointly with the Department of Psychology and NICOS. Apply before 30 September 1983 by letter, stating research aims, résumé, and three letters of reference to:

**R. L. Haedrich, Director**  
Newfoundland Institute for Cold Ocean Science  
Memorial University of Newfoundland  
St. John's, Newfoundland, Canada A1B 3X7

**MEDICAL PHYSICIST/ENGINEER**—The Ontario Cancer Foundation requires a physicist or electronics engineer with experience in medical applications, preferably radiation therapy. Primary duties will be support of the therapy program for a new 25 MV linear accelerator. There are additional opportunities in a wide range of radiological physics, and for basic and applied research. Applications (plus three references) by 16 September 1983 to: **Dr. B. C. Wilson, Department of Physics, OCTRF, Hamilton, Ontario, Canada L8V 1C3**, from whom further information may be obtained (telephone: 416-387-9495).

## POSITIONS OPEN

### INSECT-PLANT INTERACTIONS SPECIALIST (Tenure-Track Position—12-Month Basis)

Ph.D. in entomology, biochemistry, or related field required. Candidate should have interest and capability for developing a vigorous research program on the physiology and biochemistry of insect-plant interactions. Collaboration with entomologists and plant breeding specialists is expected. Teaching responsibilities (5 to 10 percent) will involve development of a course compatible with appointee's interests and needs of the department. Salary will be commensurate with training and experience. Application deadline is 30 September 1983. Send detailed curriculum vitae, transcripts, list of publications with selected reprints, Ph.D. thesis summary, and three letters of recommendation to: **Dr. Don C. Peters, Head, Department of Entomology, 501 Life Science West, Oklahoma State University, Stillwater, Okla. 74078.** An Equal Opportunity/Affirmative Action Employer.

**POSTDOCTORAL POSITION** available immediately for Ph.D. in biochemistry or molecular biology for research on the control of gene expression. Experience with recombinant DNA preferred. The appointment will be for a period of 1 to 3 years and may be joint with the Harvard Medical School. Please send curriculum vitae and the names of three referees to: **Dr. V. Volloch, Boston Biomedical Research Institute, 20 Staniford Street, Boston, Mass. 02114.** An Equal Opportunity Employer.

**POSTDOCTORAL POSITION IN PULMONARY PHYSIOLOGY** available immediately. The candidate should be interested in the mechanics of the respiratory system and in pulmonary gas exchange. The program has a long-standing interest in the response of the respiratory system to general anesthesia and muscle paralysis, with particular emphasis on the response of the chest wall. Interested candidates should send curriculum vitae, bibliography, and three letters of reference to: **Dr. Kai Rehder, Department of Physiology and Biophysics and Anesthesiology, Mayo Clinic, Rochester, Minnesota 55905.** Mayo Clinic is an Affirmative Action/Equal Opportunity Institution.

## POSITIONS OPEN

### MICROBIOLOGIST/MYCOLOGIST

Research scientist position available with the Institute for Natural Resource Biotechnology, Michigan Technological University. Seek individual with a background and experience in microbial degradation of wood and knowledge of cellulose and lignin biochemistry. Qualifications: Ph.D. in microbiology or mycology and experience in the isolation and mode of action of cellulose and lignin degrading microorganisms. Application deadline: 1 September 1983. Send letter of application, résumé, and names and addresses of three references to: **Dr. Bert Whitten, Director, BioSource Institute, Michigan Technological University, Houghton, Mich. 49931.**

*Michigan Technological University is an Equal Opportunity Educational Institution/Equal Opportunity Employer.*

**OCEANOGRAPHERS.** Assistant professor, tenure-track position for applicants with recent Ph.D. and competence and interest in marine radioactivity and trace metal biogeochemistry. Duties will include development of research projects and some teaching. Salary negotiable depending upon experience and qualifications. Submit résumé and names and addresses of three references by 1 September 1983 to: **G. Ross Heath, Dean, School of Oceanography, Oregon State University, Corvallis, Ore. 97331.** An Affirmative Action/Equal Opportunity Employer.

**PHARMACOLOGIST**—The Department of Physiology/Pharmacology at The University of South Dakota is recruiting an individual with expertise in renal pharmacology with experience in renal micropuncture techniques. The candidate must have a Ph.D. or M.D. degree and should have demonstrated excellence in teaching and a proven record of obtaining research funds. Teaching responsibilities will include both medical and graduate students. Appointment will be made at the associate or professor level. Send curriculum vitae and names of three references to: **Chairman, Department of Physiology/Pharmacology, The University of South Dakota School of Medicine, Vermillion, S.D. 57069.** Salary commensurate with training and experience. Closing date for application is 30 August 1983. *Affirmative Action/Equal Opportunity Employer.*

## POSITIONS OPEN

**NEUROPHYSIOLOGIST/NEUROPHARMACOLOGIST.** Tenure-track position at rank commensurate with qualifications for individual with minimum of 2 years of postdoctoral experience. Research specialization should be on synaptic mechanisms and utilize combined state-of-the-art electrophysiological, biochemical, and morphological approaches. The use of immunological or genetic probes and tissue culture is desirable. Primary consideration will be given to individual with established and funded research programs and demonstrated success as teachers. A letter describing current research, a list of references, and curriculum vitae addressed to: **Neurological Search Committee, Department of Physiology 206H, University of North Carolina, Chapel Hill, N.C. 27514,** should be received by 20 September 1983. *The University of North Carolina is an Equal Opportunity/Affirmative Action Employer. Females and minorities are encouraged to apply.*

**PHYSICS.** Instructor or assistant professor. Position available August 1983. Teaching responsibilities for general physics and physical chemistry. Some background in computers. Rank and salary based on degree and education. Contact:

**Sister Barbara Baer  
Saint Mary of the Plains College  
Dodge City, Kansas 67801  
Telephone: 316-225-4171,  
or after 5:00 p.m.: 316-225-1732**

**POSTDOCTORAL POSITION** available immediately for recent Ph.D. in an active cancer research program. Current projects include studies of the mechanisms of action and metabolism of anticancer drugs, mechanisms of organs specific toxicity of anticancer drugs, and the effect of organ damage on metastasis. Previous research experience in the biochemistry and pharmacology of anticancer drugs is highly desirable. Salary commensurate with experience. Send curriculum vitae and names of three references to: **Dr. Miles P. Hacker, Vermont Regional Cancer Center, 1 South Prospect Street, Burlington, Vt. 05401.** Telephone: 802-656-2559. *An Affirmative Action Employer. Women and minorities encouraged to apply.*

## AAAS Report VIII Research & Development, FY 1984

by Willis H. Shapley, Albert H. Teich,  
and Jill P. Weinberg

**AAAS R&D Reports** are the major source of timely, detailed, and objective information on R&D in the federal budget. This year's **Report** includes the proceedings of the 1983 AAAS Colloquium on R&D and Public Policy, presenting the views of leaders of government, industry, and the scientific and engineering communities. 256 pp. 1983 Paper \$8.50

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NW, Wash., DC 20005.** MasterCard & Visa customers include acct. no., exp. date, and signature. AAAS members: 10% discount on prepaid orders. Orders under \$10 must be prepaid.

## RESEARCH FELLOW IN SEDIMENT DYNAMICS

### INTERUNIVERSITY INVESTIGATION OF SEDIMENTATION NORTHERN GREAT BARRIER REEF, AUSTRALIA

This fellowship forms part of an interuniversity team of geologists, sedimentologists, and so forth, conducting a systematic study of part of the Great Barrier Reef (14°30'S to 12°S). The aim of the study is to determine sediment dispersal patterns and rates, by combining quantitative measurements with geological data from the sediment deposition record. Sediment sources and dynamic processes include river input, carbonate reefs, continental shelf, and Coral Sea interactions. The multidisciplinary emphasis is enhanced by the association with the project of a physical oceanographer and the availability of oceanographic data and interpretations. Appropriate field and laboratory facilities are available.

This is one of the major projects funded by Marine Sciences and Technologies Grants Scheme and include five universities. The project began in 1980 with emphasis on geological studies. Emphasis is now shifting to sediment dynamics.

The research fellow will be expected to contribute to an understanding of the regional and temporal dispersal of, and deposition of, suspended and seabed sediments. Duties will include:

- Assisting with the planning and conduct of data-acquisition programmes, including short-term profiling at stations and deployment of long-term bottom tripod systems; and
- Analysis of data, and interpretation and synthesis of dynamic processes, sediment dispersal patterns and rates, and so forth, and their temporal variations.

The appointee should have experience in aspects of nearshore and/or continental shelf sedimentation preferably involving tidal and other currents and wave activity. Interest and ability in working in a multidisciplinary project is important. Applications are invited from those with any appropriate basic training, such as sedimentology, engineering, and so forth. A Ph.D. degree in a suitable field is essential.

The research fellow will be based primarily at the University of Melbourne but will also spend some time at the University of Queensland in Brisbane. Participation in field programmes is necessary.

Salary range: A\$22,430 to A\$24,442. Level of appointment according to experience. Superannuation benefits are available. One economy air fare to and from Melbourne, Australia, will be provided for the appointee only. The appointment is for 2 years. **Quote Reference Number 19183, 19 September 1983.** Applications should be forwarded to: **The Staff Officer, University of Queensland, St. Lucia, Queensland 4067 Australia.**

## POSITIONS OPEN

### FACULTY POSITION—CELL BIOLOGIST/MOLECULAR GENETICIST

The Division of Biomedical Sciences, School of Graduate Studies, Meharry Medical College, has a tenure-track position available at the assistant or associate professor level. We are seeking an individual with research interest in regulation of eukaryotic gene expression, and are particularly interested in a person with expertise in recombinant DNA and/or monoclonal antibody technologies. Applications are invited from persons with a Ph.D. or M.D. degree and relevant postdoctoral experience, who are available for appointment during the 1983–1984 academic year. The successful applicant will be expected to contribute to graduate and medical student teaching, to develop a strong independent research program, and to contribute to interdisciplinary training and research programs in cell biology.

The Division of Biomedical Sciences provides training for graduate students who are studying to receive their Ph.D. or M.D./Ph.D. at Meharry Medical College. Salary is negotiable.

Applicants should submit curriculum vitae and brief description of their teaching interests and proposed research by 1 October 1983, and should arrange to have three letters of recommendation sent to: **Dr. George C. Hill, Director, Division of Biomedical Sciences, Meharry Medical College, 1005 D. B. Todd, Jr., Boulevard, Nashville, Tenn. 37208.** An Equal Opportunity/Affirmative Action Employer.

### MOLECULAR BIOLOGIST/BIOCHEMIST MOLECULAR/BIOCHEMICAL PARASITOLOGY POSITION

The Division of Biomedical Sciences, School of Graduate Studies, Meharry Medical College, has a tenure-track position available at the assistant or associate professor level, for an individual with research interest in the area of molecular biology or biochemistry of malarial parasites or other parasitic systems. Applications are invited from persons with a Ph.D. or M.D. degree and relevant postdoctoral experience, who are available for appointment during the 1983–1984 academic year. The appointee will be expected to maintain an active externally funded research program, contribute to graduate and medical student teaching, and participate in an interdisciplinary program of predoctoral and postdoctoral training in tropical diseases.

The Division of Biomedical Sciences provides training for graduate students who are studying to receive their Ph.D. or M.D./Ph.D. at Meharry Medical College. Salary is negotiable.

Applicants should submit curriculum vitae and a brief description of their teaching interests and proposed research by 1 October 1983, and should arrange to have three letters of recommendation sent to: **Dr. George C. Hill, Director, Division of Biomedical Sciences, Meharry Medical College, 1005 D. B. Todd, Jr., Boulevard, Nashville, Tenn. 37208.** An Equal Opportunity/Affirmative Action Employer.

**PHARMACOLOGIST.** Emory University has a position open at the assistant professor or associate professor rank. Candidates must have doctoral or equivalent degree; for assistant professor rank at least 1 year of postdoctoral research experience and potential to develop an independent research program; for associate professor rank, five or more years of experience in teaching and research in pharmacology or related discipline, evidence of excellent independent research, and current grant support. Strong commitment to teaching and research is essential. Preferred research interests are molecular and cellular pharmacology or neuropharmacology. Curriculum vitae, description of career goals, proposed research program, and three letters of recommendation must be received by 1 October 1983. Address to: **Dr. Neil C. Moran, Chairman, Department of Pharmacology, Emory University, Atlanta, Ga. 30322.**

An Affirmative Action/Equal Opportunity Employer

**POSTDOCTORAL POSITION** available after 1 September 1983 at the California Institute of Technology for research on the mechanism of phospholipid vesicle recognition and uptake by phagocytic cells. Ph.D. in biochemistry, biology, or related disciplines required. Fellowship restricted to U.S. citizens or permanent residents. Applicants should send their résumé and three letters of recommendation to:

**Dr. John D. Baldeschweier**  
Division of Chemistry and Chemical Engineering  
California Institute of Technology  
Pasadena, Calif. 91125

Equal Opportunity/Affirmative Action Employer

## POSITIONS OPEN

### PHYSIOLOGIST

The Department of Biological Sciences, Purdue University, invites applications for a tenure-track faculty position in physiology. Although the appointment is likely to be made at the assistant professor level, appointment at a higher rank is not excluded if a suitable candidate is found. Applicants with research experience in the following areas are encouraged to apply: basic neurophysiology, molecular neurobiology, molecular endocrinology, integrative neurophysiology, genetic and developmental physiology. The successful candidate will be expected to teach an upper-level undergraduate course in physiology. Send curriculum vitae, including a brief description of research experience and plans, and the names of three references to: **Physiology Search Committee, Department of Biological Sciences, Purdue University, West Lafayette, Ind. 47907.** Applications should be submitted by 15 September 1983.

Purdue University is an Equal Opportunity/Affirmative Action Employer.

**POSTDOCTORAL IN DENITRIFICATION.** Biochemistry and enzymology of denitrifying bacteria, particularly characterization of redox enzymes and catalysis of nitrosyl transfer. One year with yearly reappointments possible, available September 1983. Send résumé, publications, and references to: **Dr. Thomas C. Hollocher, Department of Biochemistry, Brandeis University, Waltham, Massachusetts 02254.** An Equal Opportunity/Affirmative Action Employer.

**POSTDOCTORAL ASSISTANT:** Ph.D. or equivalent degree in biochemistry, cell biology, molecular biology, or developmental biology. To study development of avian cornea and wound healing in ocular tissue. Experience in recombinant DNA techniques preferred but not necessary. Send résumé and two references to: **Winston Wy Kao, Ph.D., Director of Ophthalmic Research, Department of Ophthalmology, University of Cincinnati, College of Medicine, 231 Bethesda Avenue, Number 527, Cincinnati, Ohio 45267.** Telephone: 513-872-5151.

### POSTDOCTORAL ASSOCIATE

To study **MEMBRANE LIPID AND LIPID-PROTEIN INTERACTIONS** using **MULTINUCLEI NMR TECHNIQUES**. Experience in membrane biophysics and/or FT-NMR is desirable. Annual stipend (\$16,400 minimum) and position (Hormel fellow, research associate) dependent upon previous experience. Submit before 30 September 1983, curriculum vitae, names of three references, research summary, and a brief outline of research goals to: **Dr. Wolfgang J. Baumann, The Hormel Institute, University of Minnesota, Austin, Minn. 55912.** Telephone: 507-433-8804. The University of Minnesota is an Equal Opportunity Educator and Employer and specifically invites and encourages women and minority applicants.

**POSTDOCTORAL FELLOW.** ESR spectroscopist. Ph.D. in physical chemistry or equivalent with knowledge of ESR and free radical chemistry required to work in interdisciplinary laboratory starting September 1983. Individual will work on free radical intermediate metabolites of antitumor agents and assist in various projects. Salary compatible with experience. Inquiries to: **Dr. Peter L. Gutierrez, Developmental Therapeutics, University of Maryland Cancer Center, 655 West Baltimore Street, Baltimore, Md. 21201.**

**POSTDOCTORAL FELLOW.** Lipid chemist. Ph.D. or equivalent with experience in lipid extraction and analysis (GC, HPLC, TLC) required to work in interdisciplinary laboratory starting September 1983. Salary compatible with experience. Inquiries to: **Dr. Peter L. Gutierrez, Developmental Therapeutics, University of Maryland Cancer Center, 655 West Baltimore Street, Baltimore, Md. 21201.**

**POSTDOCTORAL POSITION** to study **LYSOPHOSPHOLIPID-MEDIATED REGULATORY MECHANISMS IN MEMBRANES AND CELLS**. Experience relevant to the project may be in the areas of phospholipid metabolism, membrane biochemistry, lipoproteins, cell culture, or platelets. Annual stipend (\$16,400 minimum) and position (Hormel fellow, research associate) dependent upon previous experience. Submit, before 15 September 1983, curriculum vitae, names of three references, research summary, and a brief outline of research goals to: **Dr. Wolfgang J. Baumann, The Hormel Institute, University of Minnesota, Austin, Minn. 55912.** Telephone: 507-433-8804. The University of Minnesota is an Equal Opportunity Educator and Employer and specifically invites and encourages women and minority applicants.

## POSITIONS OPEN

**PEPTIDE AND OLIGONUCLEOTIDE SYNTHESIS.** Manage university core facility at assistant specialist level. M.S. in chemistry or equivalent experience. Salary dependent on qualifications. Write to: **Dr. R. F. Doolittle, Department of Chemistry D-006, University of California, La Jolla, Calif. 92093,** by 30 August 1983. The University of California is an Equal Opportunity/Affirmative Action Employer.

**POSTDOCTORAL POSITION.** Available 1 November 1983 to join an interdisciplinary team involved in studies of the mechanism of substrate reduction nitrogenase. The successful candidate could be a biochemist interested in enzyme kinetics and mechanisms or possibly an analytical chemist wishing to explore an enzyme system. Salary range is \$15,500 to \$16,500. Send curriculum vitae and three letters of recommendation to: **Barbara K. Burgess, C. F. Kettering Research Laboratory, 150 East South College Street, Yellow Springs, Ohio 45387.** Equal Opportunity/Affirmative Action Employer.

**POSTDOCTORAL POSITION** available to study the regulation of enzymes of mevalonate biosynthesis. Techniques include somatic cell genetics, genomic cloning, and enzymology. Experience in molecular biology desirable. Send résumé and references to: **Dr. Michael Sinensky, Senior Fellow, Eleanor Roosevelt Institute for Cancer Research and Associate Professor, Department of Biochemistry, Biophysics and Genetics, University of Colorado Health Sciences Center, 4200 East Ninth Avenue, Box B-129, Denver, Colorado 80262.**

An Affirmative Action/Equal Opportunity Employer Institution.

**POSTDOCTORAL POSITION** available 1 September 1983 for biochemist or cell biologist to study regulation of protease production and secretion by endothelial cells. Special emphasis is placed on protease receptosomes on the cell surface. Salary: \$16,000 to \$18,000 depending on experience and training. Send curriculum vitae, bibliography, and names of three references to: **Dr. Walter Laug, Division of Hematology-Oncology, Childrens Hospital of Los Angeles, 4650 Sunset Boulevard, Los Angeles, California 90027.** An Equal Opportunity/Affirmative Action Employer.

**POSTDOCTORAL POSITION** in *Drosophila* DNA enzymology available immediately to study enzymes of *Drosophila* required for DNA recombination and repair. Included will be enzyme purification and characterization and identification, cloning and mutational analysis of the genes encoding these proteins. Applicants should submit curriculum vitae and two letters of recommendation to: **Dr. John Chase, Department of Molecular Biology, or Dr. Scott Hawley, Department of Genetics, Albert Einstein College of Medicine, 1300 Morris Park Avenue, Bronx, New York 10461.**

**POSTDOCTORAL POSITION** in the area of molecular biology to study the biochemical genetics of F plasmid replication, its control, and plasma partitioning is available immediately. Projects include cloning, DNA sequencing, in vitro replication, and regulation of plasmid gene expression. Background in biochemistry, genetics, or molecular biology preferred. The position is part of an NCI training grant and therefore only U.S. citizens or permanent residents can be considered. Send curriculum vitae and names of references to: **Dr. Bruce C. Kline, Section of Microbiology, Department of Cell Biology, Mayo Clinic, Rochester, Minnesota 55905.** An Equal Opportunity/Affirmative Action Institution.

**POSTDOCTORAL POSITION** available immediately in biochemical and clinical pharmacology. Studies will focus on anthracycline metabolism, uptake and mechanisms of resistance in human cell lines. Research experience in biochemistry, enzymology, tissue culture, and protein purification is preferred. Submit application with detailed curriculum vitae and the names of three references to: **Dr. Nahed Ahmed, Assistant Member, St. Jude Children's Research Hospital, Box 318, Memphis, Tenn. 38101.** An Equal Opportunity/Affirmative Action Employer.

**POSTDOCTORAL POSITION.** Candidates must have a good knowledge of molecular biology and good experience in statistical studies of DNA evolution or in theoretical population genetics. Telephone: 713-792-4619, or send curriculum vitae and names and telephone numbers of three references to: **Dr. Wen-Hsiung Li, Center for Demographic and Population Genetics, University of Texas, P.O. Box 20334, Houston, Texas 77225.** The University of Texas is an Equal Opportunity Employer. Women and minorities are encouraged to apply.





## Molecular Genetics & Microbiology Faculty Position

The Department of Molecular Genetics and Microbiology, University of Massachusetts Medical School, has a tenure-track position for a Eukaryotic Geneticist. Applicants should have a strong background in classical genetics as well as significant postdoctoral experience in genetics and molecular biology of eukaryotes and should plan to continue independent research in this general field. Shared teaching responsibilities involve instructing medical and graduate students in genetics, microbiology and molecular biology.

Research interests in the department involve cellular and structural immunology, eukaryotic gene organization and regulation, molecular biology of animal viruses, bacteriophage regulation and recombination, and bacterial and yeast gene regulation.

Applicants should provide curriculum vitae, a short statement of the proposed research program, and the names of three scientists willing to write letters of recommendation.

### Send applications to:

**Eukaryotic Genetics Search Committee**  
Department of Molecular Genetics and Microbiology  
55 Lake Avenue North  
Worcester, MA 01605

**University of Massachusetts  
Medical Center**

The University of Massachusetts is an equal opportunity/affirmative action employer. Minority candidates and women are especially encouraged to apply.

## INTERNATIONAL SYMPOSIUM ON SISTER CHROMATID EXCHANGE

25 Years of Experimental Research

4 to 8 December 1983

Biology and Medical Departments  
Brookhaven National Laboratory  
Upton, Long Island, N.Y. 11973

In 1958, J. H. Taylor and his colleagues at Brookhaven National Laboratory published their first contribution on the nature of the sister chromatid exchanges (SCE) detected cytologically in plant root-tip cells. Twenty-five years later, scientific interest in the nature, significance, and usefulness of this phenomenon continues to expand. The purpose of this symposium is to honor the initial research on SCE at Brookhaven by bringing together interested scientists to present and discuss:

- Current knowledge on the induction and formation of SCE and their relationship to other biological end points,
- Optimal strategies for the utilization of SCE in genetic toxicology testing schemes,
- The most valid statistical methods for evaluating SCE data,
- Their relevance as an indicator of human diseases, inherited and acquired, and of progress in disease treatment, and
- Their usefulness as an indicator of human exposure to genotoxic agents and their relevance as a prognosticator of future adverse health outcomes.

Oral presentations will be by invited speakers. Poster sessions, relating to the various topics mentioned above, are open for contribution (deadline for application: 30 September). Selected poster presentations will be included as full-length contributions in the symposium proceedings. Registration fee (includes four dinners, accommodations, and symposium proceedings): \$225 (nonrefundable after 15 November). For information and registration/poster session forms, contact:

**H. Z. Kondratuk**  
Biology Department  
Brookhaven National Laboratory  
Upton, Long Island, N.Y. 11973

### Program Committees:

**United States:** A. Hollaender, \* R. R. Tice, \* J. W. Allen, A. V. Carrano, S. A. Latt, S. Wolff.

**Europe:** B. Lambert, \* A. Brogger, B. Kihlman, A. T. Natarajan, G. Obe, E. Passarge, P. Perry, H. W. Rudiger, M. Sorsa.

**Japan:** K. Morimoto, \* S. Abe, A. Awa, Y. Fujiwara, A. Koizumi, A. Oikawa, M. Sasaki, Y. Shiraishi, T. Utakoji.

\*Chairman

## DIRECTOR/ National Center for Advanced Materials

### Salary Open

A search committee has been formed to identify and recommend a DIRECTOR for the National Center for Advanced Materials (NCAM).

**Duties:** Reporting to the Laboratory Director and also serving as an Associate Director of Lawrence Berkeley Laboratory, the NCAM Director will provide overall scientific and technical leadership and direction in the design, planning and establishment of the new center and its research programs. The NCAM Director's major responsibility will be the formulation and implementation of scientific programs in close collaboration with advisory groups comprised of representatives from industry and universities. Other responsibilities will include decision-making and problem-solving on staffing, funding, facilities, planning and utilization, organizational structure and management liaison with the University of California and the U.S. Department of Energy.

**Requirements:** Must have a distinguished record of scientific achievement and management of major scientific programs. Proven leadership background is also necessary. The successful candidate should also have a proven record of interaction with a combination of academic institutions, scientific laboratories, private industry and the federal government. Must have a Ph.D. in Physical Sciences or Engineering with a strong research background related to Materials Science. Requires strong management skills in planning, decision-making, problem-solving, verbal and written communications, staffing, funding, facilities planning and utilization, and in the establishment and monitoring of performance expectations that result in achievement. "Position is subject to the financial disclosure requirements of the California Political Reform Act of 1974."

Please submit two copies of resume including, salary history and the names and addresses of references to: Search Committee, Lawrence Berkeley Laboratory,



**LAWRENCE  
BERKELEY  
LABORATORY**

Employment Office, One Cyclotron Road, Building 65, Berkeley, CA. 94720. Refer to Job #A/2102. Resumes must be received in the Employment Office by 8/31/83. 5:00 PM. An equal opportunity employer, m/f/h.

## Tumor Biologist

Expansion of Pfizer's Central Research Division has created a position for a tumor cell biologist/immunologist to pursue research aimed at the discovery of new therapeutic agents for the control of tumor invasion and metastasis. This person will be expected to implement innovative and clinically relevant *in vivo* models of metastasis to characterize biological response modifying agents emanating from our multidisciplinary molecular, biochemical, cellular and immunological discovery programs.

Applicants must have a Ph.D. in cell biology, biochemistry or immunology and complete at least one postdoctoral fellowship working with *in vivo* models of primary and metastatic cancer.

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



An equal  
opportunity employer

## POSITIONS OPEN

**POSTDOCTORAL POSITION** available for 2 to 3 years, starting at \$15,000, to study biochemistry and molecular biology of chemotaxis, a primitive sensory/response system, in *Bacillus subtilis*. The sensory response to attractants involves demethylation of membrane protein esters. We are using both genetics and biochemistry to study the coupling of the stimulus to the behavioral response. We have cloned most of the pertinent genes. Persons with background in enzymology or molecular biology preferred. Send résumé and three letters of recommendation to: **Dr. George W. Ordal, Department of Biochemistry, University of Illinois, Urbana, Ill. 61801.** For more information, write or telephone: 217-333-9098. *Affirmative Action/Equal Opportunity Employer.*

**POSTDOCTORAL POSITION** in immunology for individual with expertise in membrane biochemistry to study antigen-induced membrane events and differentiation of murine and human B cell lines. Send letter and curriculum vitae to: **Dr. R. B. Bankert, Department of Molecular Immunology, Roswell Park Memorial Institute, 666 Elm Street, Buffalo, N.Y. 14263.** *An Equal Opportunity Employer, M/F.*

### POSTDOCTORAL POSITION IN PHYSICS

Postdoctoral position in biophysics available immediately. The research involves application of Mössbauer and EPR spectroscopies to obtain structural and functional information about metalloproteins. Recent doctorates in physics or physical chemistry are invited to apply. Experience in Mössbauer spectroscopy is desirable. Send résumé and names of three references to: **Dr. B. H. Huynh, Physics Department, Emory University, Atlanta, Ga. 30322.** *An Equal Opportunity/Affirmative Action Employer*

**POSTDOCTORAL POSITION—MOLECULAR BIOLOGICAL APPROACH TO ANTICANCER DRUG RESISTANCE.** A research position is available for a person recently obtaining a doctoral degree in molecular biology, biochemistry, cell biology, or closely related area. Research will be on molecular mechanisms of clinical resistance to specific anticancer drugs and will employ techniques of molecular biology. Experience in the latter is an advantage. There will be opportunities for collaborative studies and interactions with a number of investigators working in this research area. Send curriculum vitae and three references to: **Dr. Raymond L. Blakley, Chairman, Division of Biochemical and Clinical Pharmacology, St. Jude Children's Research Hospital, 332 North Lauderdale, Memphis, Tenn. 38101.** *An Equal Opportunity/Affirmative Action Institution.*

**POSTDOCTORAL POSITION**—The Dana-Farber Cancer Institute is seeking to fill one research position at the postdoctoral level to study molecular biology of human T cell differentiation. Experience in recombinant DNA technology desirable. Joint appointment will be held in an appropriate department at the Harvard Medical School. Send curriculum vitae and names of three references to: **Dr. Cox Terhorst, DANA-FARBER CANCER INSTITUTE, 44 Binney Street, Boston, Mass. 02115.** *An Affirmative Action/Equal Opportunity Employer.*

**TWO POSTDOCTORAL POSITIONS** available immediately to study (i) protein and/or neurotransmitter metabolism in aging and (ii) the role of opioid peptides in obesity and appetite regulation. Candidates should have a Ph.D. or equivalent and a background in nutrition, biochemistry, or related disciplines. Send curriculum vitae and names of three references to:

**Dr. S. Jaime Rozovski (position i) or  
Dr. Robin Marks-Kaufman (position ii)  
Institute of Human Nutrition  
Columbia University  
701 West 168 Street  
New York, N.Y. 10032**

*An Equal Opportunity/Affirmative Action Employer*

**TWO POSTDOCTORAL POSITIONS IN REPRODUCTIVE BIOCHEMISTRY** are open immediately for study of hormonal regulation of Sertoli and spermatogenic cell function. Extensive background in biochemistry or immunology required. Knowledge of cell culture, gel electrophoresis, protein purification, monoclonal antibodies, or immunocytochemistry desirable. Send curriculum vitae and three letters of reference to: **Dr. Madhwa H. G. Raj, Department of Obstetrics-Gynecology and Pharmacology, Old Clinic Building 226-H, University of North Carolina, School of Medicine, Chapel Hill, N.C. 27514.**

## POSITIONS OPEN

### POSTDOCTORAL POSITION

Available now for projects related to reactivity of blood vessels in vitro. Preference given to those with an electrophysiological interest. Stipend: \$16,000 to \$17,000, depending on postdoctoral experience. Send curriculum vitae and references to: **Dr. Gordon Ross, Department of Physiology, University of California, Los Angeles, School of Medicine, Center for the Health Sciences, Los Angeles, Calif. 90024.**

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

### POSTDOCTORAL POSITIONS IN EARTH SCIENCES

The Earth Sciences Division of Lawrence Berkeley Laboratory, University of California, anticipates openings for postdoctoral research scientists in geochemistry, reservoir engineering, hydrogeology, geophysics, and geomechanics. Appointments are for a 1-year term and are normally renewable for a second year. Currently, some 50 staff scientists within the division are involved in a variety of fundamental and applied investigations that include field, laboratory, analytical, and numerical aspects. The selected candidates will be working in one of the following project areas: geological problems in nuclear waste disposal, geothermal reservoir engineering, flow in fractured and porous media, geophysical exploration technology, toxic element or radionuclide transport and reactions, borehole geophysics, or similar projects. A close working relationship exists in many of the research programs with the faculty and graduate students of the adjacent University of California, Berkeley, campus. A Ph.D. degree in a related field and zero to 3 years of research experience beyond the Ph.D. thesis are essential. Please send two copies of your curriculum vitae and publication list to: **Employment Office, Lawrence Berkeley Laboratory, One Cyclotron Road, Building 65, Berkeley, Calif. 94720.** Please specify Job Number A/2237 in all correspondence. *An Equal Opportunity Employer, M/F/H.*

**POSTDOCTORAL POSITION** available to study the molecular biology and regulation of CO<sub>2</sub> fixation in photosynthetic bacteria. Familiarity and experience with recombinant DNA technology, genetics, and biochemistry desired. Send curriculum vitae and three references to: **Dr. F. R. Tabita, Center for Applied Microbiology and Department of Microbiology, The University of Texas at Austin, Austin, Texas 78712.** *Equal Opportunity/Affirmative Action Employer.*

**POSTDOCTORAL POSITION** available to study the bioactivation and testicular toxicity of gossypol and dibromochloropropane. We seek candidates with a background in medicinal chemistry, biochemistry, or pharmacology. Send curriculum vitae and three letters of reference to: **Dr. M. W. Anders, Department of Pharmacology, University of Rochester Medical Center, 601 Elmwood Avenue, Rochester, N.Y. 14642.** *Equal Opportunity Employer, M/F.*

**POSTDOCTORAL POSITION** available for a pharmacologist/medical chemist immediately to study in vitro and in vivo the metabolism and mode of action of antineoplastic drugs. Relevant research experience preferred. Salary: \$16,000 to \$18,000. Send curriculum vitae and three letters of reference to: **Dr. A. Mohsin Mian, Comprehensive Cancer Center, University of Miami School of Medicine, P.O. Box 016960 (D8-4), Miami, Florida 33101.**

**Two POSTDOCTORAL POSITIONS** are available in the Department of Pharmacology and Interdisciplinary Toxicology, University of Arkansas for Medical Sciences, 4301 West Markham, Little Rock, Ark. 72205. One position is available in September to study the effects of drugs and environmental contaminants on reproduction and liver function (contact: **Dr. Raymond Harbison**), and the other position is available in October to study the behavioral toxicology of alkyltins and the behavioral pharmacology of drugs of abuse (contact: **Dr. Donald McMillan**).

*An Affirmative Action Employer*

**POSTDOCTORAL POSITIONS (two)** available immediately (i) to evaluate effects of metal residues in waterfowl and (ii) to evaluate effects of terrestrial biocides on indicator, small mammals. Both require laboratory and field study. Background in physiology, behavior, ecology, and statistics preferred. Beginning salary: \$20,000. Submit letter of application, résumé, transcripts, and three references to: (i) **R. A. Malecki** or (ii) **M. E. Richmond, New York Cooperative Wildlife Research Unit, Fernow Hall, Cornell University, Ithaca, N.Y. 14853.**

## POSITIONS OPEN

**POSTDOCTORAL POSITION** available immediately for study of phospholipid metabolism by in vitro cultured lung cells. Experience in lipid biochemistry desirable. Stipend up to \$20,000 per year for 2 years. Send curriculum vitae to: **Dr. W. J. Martin, Division of Thoracic Diseases and Internal Medicine, Mayo Clinic, Rochester, Minnesota 55905.** *An Equal Opportunity/Affirmative Action Institution.*

**POSTDOCTORAL POSITION** available with multidisciplinary group developing a standardized rat model of spinal cord contusion injury. Background in mammalian neuroanatomy required. Send statement of research interests, curriculum vitae, and names of three references to: **Dr. Jean Wrathall, Department of Anatomy, Georgetown University, Washington, D.C. 20007.** Telephone: 202-625-2347. *Georgetown University is an Affirmative Action/Equal Opportunity Employer.*

**POSTDOCTORAL POSITION** available immediately to work on development of retina. Experience in biochemical or immunological techniques desirable. U.S. citizenship or permanent residence required. Send curriculum vitae and references to:

**P. Vijay Sarthy, Ph.D.  
Department of Ophthalmology, RJ-10  
University of Washington  
Seattle, Wash. 98195**

*An Affirmative Action/Equal Opportunity Employer*

**POSTDOCTORAL POSITIONS**—NSF postdoctoral in plant organelle isolation and nonprotein amino acid biochemistry, effective September 1983. NIH postdoctoral, in association with Dr. R. Rhoades, Biochemistry Department, to study nonprotein amino acids and translation and protein synthesis. Forward curriculum vitae to: **Dr. Gerald Rosenthal, School of Biological Sciences, 101 T. H. Morgan Building, University of Kentucky, Lexington, Kentucky 40506-0225.** Telephone: 606-257-2652. *An Equal Opportunity/Affirmative Action Employer.*

**POSTDOCTORAL RESEARCH ASSOCIATE: VIROLOGY.** The Department of Entomology, Texas A & M University, invites applications for a research position starting immediately. Applicants should have background in molecular biology or virology to conduct studies on baculovirus gene structure and expression. Salary starts at \$20,000. Further details are available from: **Dr. Max D. Summers, Department of Entomology, Texas A & M University, College Station, Texas 77843.** Applications in the form of curriculum vitae should include names and addresses of three references.

**PROJECT DIRECTOR FOR EPIDEMIOLOGIC RESEARCH.** Forty hours per week; \$22,000 per year. Plans, directs, and coordinates research and methods used in epidemiologic study in cancer field. Epidemiologic case control study, protocol eligibilities compilation, computer selection of protocols, clinical trials, protocol follow-up, cancer data collection, tumor registry automation, survival data analysis, prognostic factor analysis. Minimum requirements: master's in epidemiology, 1 year as epidemiologist or as tumor registry technician, 1 year of working experience in tumor registry and in computer-applied cancer research plus 15 hours of biostatistical related studies. Contact: **The Oklahoma State Employment Service, 515 Northwest 23, Oklahoma City, Okla. 73103.** Telephone: 405-538-7241. Job Order Number 090306.

### RESEARCH ASSISTANT PROFESSOR

The Department of Surgery at the University of North Carolina School of Medicine invites applications for this position to be filled effective 1 January 1984. Preference will be given to candidates with degrees in anatomy or pathology and a minimum of 2 years of postdoctoral experience in steroid autoradiography. Candidates should have an interest in identifying hormone receptors on human target cells and tissues primarily related to breast, prostate, and thyroid cancer. The successful candidate is expected to develop a productive research program with external funding. Send curriculum vitae, an outline of research interests, and the names of three references to:

**Dr. James F. Newsome  
Department of Surgery  
University of North Carolina  
School of Medicine  
Chapel Hill, North Carolina 27514**

*The University of North Carolina is an Affirmative Action/Equal Opportunity Employer. Women and minority candidates are encouraged to identify themselves voluntarily.*

## THE FIRST WORD IN... IMMUNODIAGNOSTICS

Abbott Laboratories is a worldwide leader in the research of advanced medical technologies. Our pioneering spirit combined with a strong financial commitment provides an exceptional environment for the scientist oriented towards basic research.

### PhD BIOCHEMISTRY

We seek an individual with at least 1-3 years post-doctoral experience in protein chemistry and immunochemistry research to work with an interdisciplinary research team on the investigation of novel immunoassay technologies. Experience in protein isolation and purification, chemical modifications and protein coupling reactions is essential. Familiarity with protein — lipid interactions and immunochemical methods is preferred.

Abbott is headquartered in an attractive suburban community on the Lake Michigan shoreline, 30 miles north of Chicago. We offer an excellent salary and full benefits including profit sharing, stock retirement plan and relocation assistance. For consideration, send resume with salary history in confidence to: **Jeffrey B. Luke/Corporate Placement**. Abbott is an Affirmative Action Employer.



THE FIRST WORD IN...SUCCESS

## Molecular Microbiologist Physiology/Protein Secretion

Genentech, a recognized leader in the field of recombinant DNA research and development, has a position for a Scientist in the area of procaryotic molecular microbiology. This position will involve developing new microbiologically-based biotechnology processes in a team environment.

Qualified applicants will have a PhD in microbiology, molecular biology or biochemistry. Expertise in a combination of the following areas is required: microbial physiology, molecular biology of protein secretion, membrane biochemistry, and bacterial genetics. We would consider exceptionally talented individuals with a Master's degree and 2 years directly related research experience. Must be accompanied by a strong record of scientific accomplishment.

The successful candidate will be a self-motivated individual who is interested in fundamental areas of microbiology as they apply to biotechnology processes.

We offer excellent salaries and benefits, as well as a stimulating and challenging work environment. For immediate consideration please send curriculum vitae and the names of three references to **HUMAN RESOURCES**, referring to **Position SCI-436**.

Genentech, Inc.  
Genentech, Inc.  
Genentech, Inc.  
Genentech, Inc.  
Genentech, Inc.

460 Point San Bruno Blvd.,  
South San Francisco,  
CA 94080.

We are an equal opportunity employer m/f

**GENEX CORP.**, an innovative biotechnology firm located in Gaithersburg, Md., is seeking scientists who possess a Ph.D. to fill the following positions:

**Molecular Geneticist/Biochemist** with a strong background of independent research on control of transcription and/or translation in *E. coli*. Candidates should be qualified to design and carry out research on regulation of gene expression with applications to construction of gram-negative bacterial strains of commercial importance. Applications are invited from senior investigators as well as from candidates with recent postdoctoral experience.

**Molecular Biologist** to lead a research group in the cloning of eukaryotic genes. Applicants must have at least five years direct experience with techniques for cDNA synthesis and cloning, and a variety of methods used for identification of specific cDNA clones. Experience with M13 cloning, in vitro mutagenesis, oocyte injection techniques, and expression of eukaryotic genes desirable.

GENEX offers a stimulating, cooperative research and business environment, competitive salaries and fringe benefits and excellent research facilities. A curriculum vitae describing your scientific background, publications and containing three professional references should be submitted by September 1 to:



Dept. R-O  
6110 Executive Blvd.  
Rockville, Md. 20852

Principals Only - EOE

## Drug Metabolism

**Smith Kline & French Laboratories**, a leader in pharmaceutical research and development, is seeking a senior level scientist to perform drug metabolism studies including isolation and characterization of metabolites and to establish a research program which will assist in drug development and drug discovery.

Candidates must have a doctoral degree in biochemistry or related disciplines and a strong background in organic chemistry (MS or BS) with 2 to 5 years of industrial or academic experience in isolation and identification of in vivo or in vitro metabolites. Familiarity with mass spectrometry, NMR, HPLC, GC and radioisotope methodology is required. Applicants should also have proven records of research ability evidenced by publications and excellent verbal and written communication skills.

We offer an excellent salary and benefits including an outstanding relocation policy. Please send your C.V. in confidence to: **Mr. C.J. Elder**, Smith Kline & French Laboratories, a division of, **SMITHKLINE BECKMAN CORPORATION**, 1522 Spring Garden Street, Philadelphia, PA 19101. We are an equal opportunity employer, M/F/H/V.

**SK&F**

A SmithKline Beckman Company

## POSITIONS OPEN

**RESEARCH ASSOCIATE.** A position available from September 1983 to a candidate possessing a Ph.D. in biochemistry and at least 3 years of research experience in the field of glycoprotein synthesis in herpesvirus-infected cells. Applicants should have a strong background in biochemistry and virology. Minimum salary is \$18,000. Research will be in the area of sequencing oligosaccharides, biosynthesis, lipid-linked intermediates, and glycoproteins in virus-infected cells. Send curriculum vitae and names of three references to: **Dr. H. A. Blough, Scheie Eye Institute, University of Pennsylvania, 51 North 39th Street, Philadelphia, Pa. 19104.**

### TEMPORARY RESEARCH ASSOCIATE POSITION

The Physics Department at Kansas State University (KSU) has an opening for a 9-month position at \$1200 per month beginning immediately. A Ph.D. physicist with experience in accelerator operation and experimental atomic collision physics is required. Duties include half-time teaching and half-time research. Deadline for applications is 27 August 1983. Apply with curriculum vitae to: **Professor C. P. Bhalla, Head, Department of Physics, Kansas State University, Manhattan, Kans. 66506.** KSU is an Equal Opportunity/Affirmative Action Employer.

**RESEARCH BIOLOGIST/BIOCHEMIST**—Position immediately available for Ph.D. biologist/biochemist with experience in methods of gel filtration, protein purification including affinity chromatography, gel electrophoresis, isoelectric focusing, tissue culture, and cell kinetics to work in the area of folate metabolism. Send curriculum vitae to:

**Dr. Sheldon P. Rothenberg**  
Brooklyn Veterans Administration Medical Center  
800 Poly Place  
Brooklyn, New York 11209

### UNIVERSITY OF ALBERTA DEPARTMENT OF PHYSIOLOGY RESEARCH SCHOLAR

The Department of Physiology invites applications for a position as research scholar at the assistant/associate professor rank. The successful candidate must have Ph.D. and/or M.D. degree(s) and at least 2 years of postdoctoral experience and have demonstrated outstanding ability for independent research. Preference will be given to investigators interested in aspects of cellular and molecular physiology including neurophysiology. This position will be funded through an external agency such as The Alberta Heritage Foundation for Medical Research (AHFMR), but the successful candidate will enjoy the privileges of the university academic rank at which the appointment is made. AHFMR also offers establishment grants for setting up a well-equipped laboratory and for initial operating expenses to the successful candidate. *The University of Alberta is an Equal Opportunity Employer, but in accordance with Canadian employment and immigration regulations, this advertisement is directed to Canadian citizens and permanent residents.* Interested applicants should send their curriculum vitae, outlines of their proposed research, and three names of referees before 30 September 1983 to: **The Chairman, Department of Physiology, University of Alberta, Edmonton, Alberta, Canada T6G 2H7.**

### RESEARCH SCIENTISTS/ENGINEERS

**The U.S. Army Cold Regions Research and Engineering Laboratory (USACRREL)** is the free world's foremost research institution in cold regions science and technology. Our world-renowned staff performs basic and applied research on the nature and effects of cold on military and civil works activities and develops measures to minimize its adverse effects. Current staffing needs include mechanical engineer (transportation), materials engineer (low-temperature effects), general engineer (ice suppression), and geophysicists (seismic, acoustic); bachelor's degree plus a minimum of 3 years of experience; salary ranges: \$26,959 to \$38,185. Also hydraulic engineer (river navigation); bachelor's degree plus a minimum of 2 years of experience; salary ranges: \$20,256 to \$24,981. Send résumé by 26 August 1983:

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## POSITIONS OPEN

**POSTDOCTORAL RESEARCH ASSOCIATE POSITION** available in neuroendocrinology of reproduction from fall 1983; with interest in steroid feedback, neuropeptide and neurotransmitter interactions. Strong background in neurochemistry desirable. Send curriculum vitae and three references to: **Dr. S. P. Kalra, Department of Obstetrics and Gynecology, University of Florida College of Medicine, Gainesville, Florida 32610.**

**RESEARCH ASSOCIATE OR TECHNICIAN** to help with ongoing project to study blood flow through the gut of humans and animals. Must have experience in handling radioactive materials, sterile techniques, chromatography, and computer systems. Also prefer someone who feels at ease with mathematics and is an intelligent individual with ability to learn. Contact: **R. L. Wechsler, telephone: 412-681-9397.**

**RESEARCH SCIENTIST**, Department of Human Genetics. To investigate the role of developmentally regulated cellular genes in the molecular mechanisms of parvovirus pathogenesis and specific tissue-tropism. Candidates must have proven experience in the biology and biochemistry of parvoviruses, the development of infectivity assays, and the analysis of parvovirus-host cell interactions at the molecular level. The position requires extensive expertise in tissue culture, including experience in the culture of teratocarcinoma cells and other in vitro differentiation systems. Candidates must have a Ph.D. in viral biochemistry, and proven experience in the techniques of nucleic acid and protein biochemistry, and at least 2 years of postdoctoral experience. Full-time position with annual salary of \$27,500. Interested applicants should submit their résumés to: **Dr. David C. Ward, Yale University School of Medicine, Department of Human Genetics, I-1 48B SHM, 333 Cedar Street, New Haven, Conn. 06510.** An Equal Opportunity/Affirmative Action Employer.

The Department of Plant Biology, Carnegie Institution of Washington, is inviting applications for a **STAFF POSITION**, to join a group studying physiological plant ecology, plant adaptation, and stress physiology, with an emphasis on interdisciplinary approaches—physiological, biochemical, molecular, genetic. The appointment may be made at a junior or senior level, though a more junior appointment is preferred. Applicants should send their curriculum vitae, the names and addresses of three references familiar with their current research, and a brief paragraph on their future research objectives to: **Dr. Winslow R. Briggs, Director, Department of Plant Biology, Carnegie Institution of Washington, 290 Panama Street, Stanford, Calif. 94305.** Application deadline is 30 September 1983.

**STAFF SCIENTIST II:** The Applied Science Division of Lawrence Berkeley Laboratory is seeking a professional to work with the Passive Solar Project. Your duties will be: (i) to perform building energy simulations using detailed building energy analysis computer programs to determine the heating, cooling, and lighting impacts of solar apertures; (ii) to conduct experiments to measure illumination distributions and radiation gains in scale models of buildings; and (iii) to assist in the planning of future solar water heater studies and in writing of related proposals. Requires (i) experience using detailed building energy analysis computer programs (BLAST experience preferred); (ii) background in fluid mechanics and heat transfer; and (iii) an ability to write computer programs for analysis and data reduction. In addition, experience in solar water heater experimentation desirable. Ph.D. degree in science preferred. Please send two copies of résumé to: **Employment Office, Building 65, Lawrence Berkeley Laboratory, Berkeley, Calif. 94720.** Please specify Job Number A/2148. An Equal Opportunity Employer, M/F/H.

## WORKSHOP

A **Workshop on Measurement of Technology** will be held by the University of Dayton, with funding from the Science Indicators Program of the National Science Foundation, 12 to 14 October 1983. The workshop will focus on methodological rather than substantive issues. Participation by researchers in this and allied fields is desired. No funds will be available to defray expenses of those responding to this announcement. Interested persons should contact: **Dr. Joseph P. Martino, University of Dayton Research Institute, Dayton, Ohio 45469,** before 26 August 1983.

## FELLOWSHIPS

**POSTDOCTORAL FELLOWSHIP** to study bovine coronavirus: characterization of antigens involved in immune recognition; and the identification of genes for coding for these antigens and their expression in suitable prokaryotes. A strong background in biochemistry is essential and experience in cloning is preferred. Salary: \$21,000 per annum. *Canadian citizens and landed immigrants will be given first consideration but others are encouraged to apply.* Send curriculum vitae and the telephone numbers of three references to: **Dr. Geoffrey Hudson, 124 Veterinary Road, University of Saskatchewan, Saskatoon, Saskatchewan, Canada S7N 0W0.**

**POSTDOCTORAL FELLOWSHIP** available immediately for 3 years to study control of morphogenesis of the neural crest. Experience with electron microscopy, production of monoclonal antibodies, and antibody localization techniques desirable. Send curriculum vitae and three letters of reference to:

**Dr. Carol A. Erickson**  
Department of Zoology  
University of California  
Davis, Calif. 95616

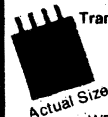
**POSTDOCTORAL FELLOWSHIPS** in neurochemistry at the Missouri Institute of Psychiatry (MIP), Department of Biochemistry, University of Missouri-Columbia, to study interrelationship between LSD and serotonin; ganglioside-mediated cholera toxin internalization; regulation of isoprenoids (dolichol, cholesterol, isopentenyl adenine) biosynthesis; cell culture of neural cells; and molecular mechanism of the response of ligand-receptor interaction. Please send curriculum vitae, area of interest, and three references to: **Dr. Ingming Jeng, Unit Chief, Neurochemistry Research Unit, MIP, 5400 Arsenal Street, St. Louis, Mo. 63139-1494.** An Affirmative Action/Equal Opportunity Employer.

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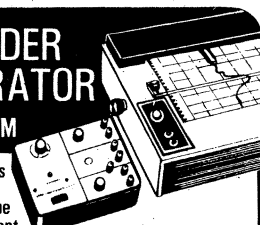
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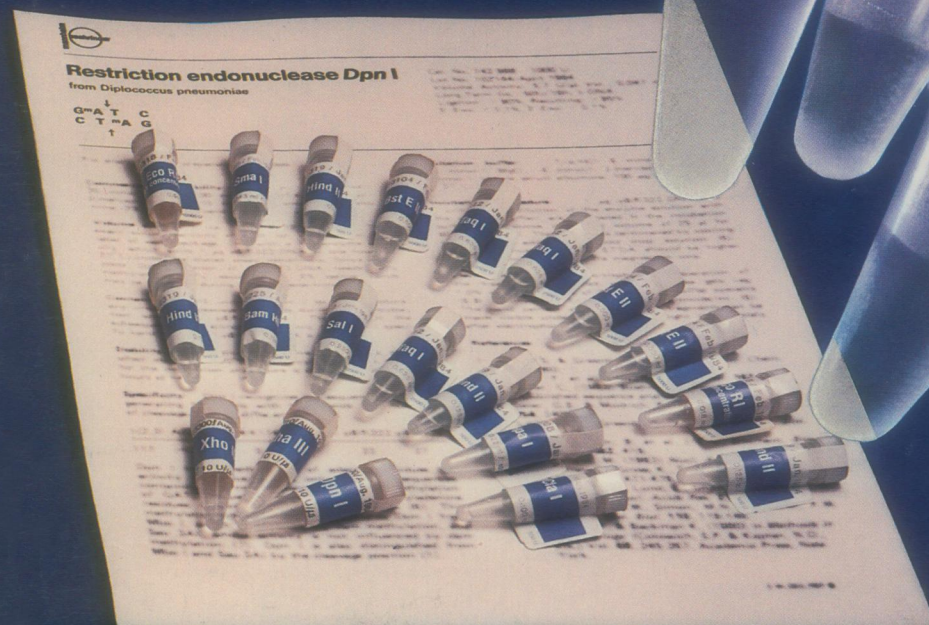
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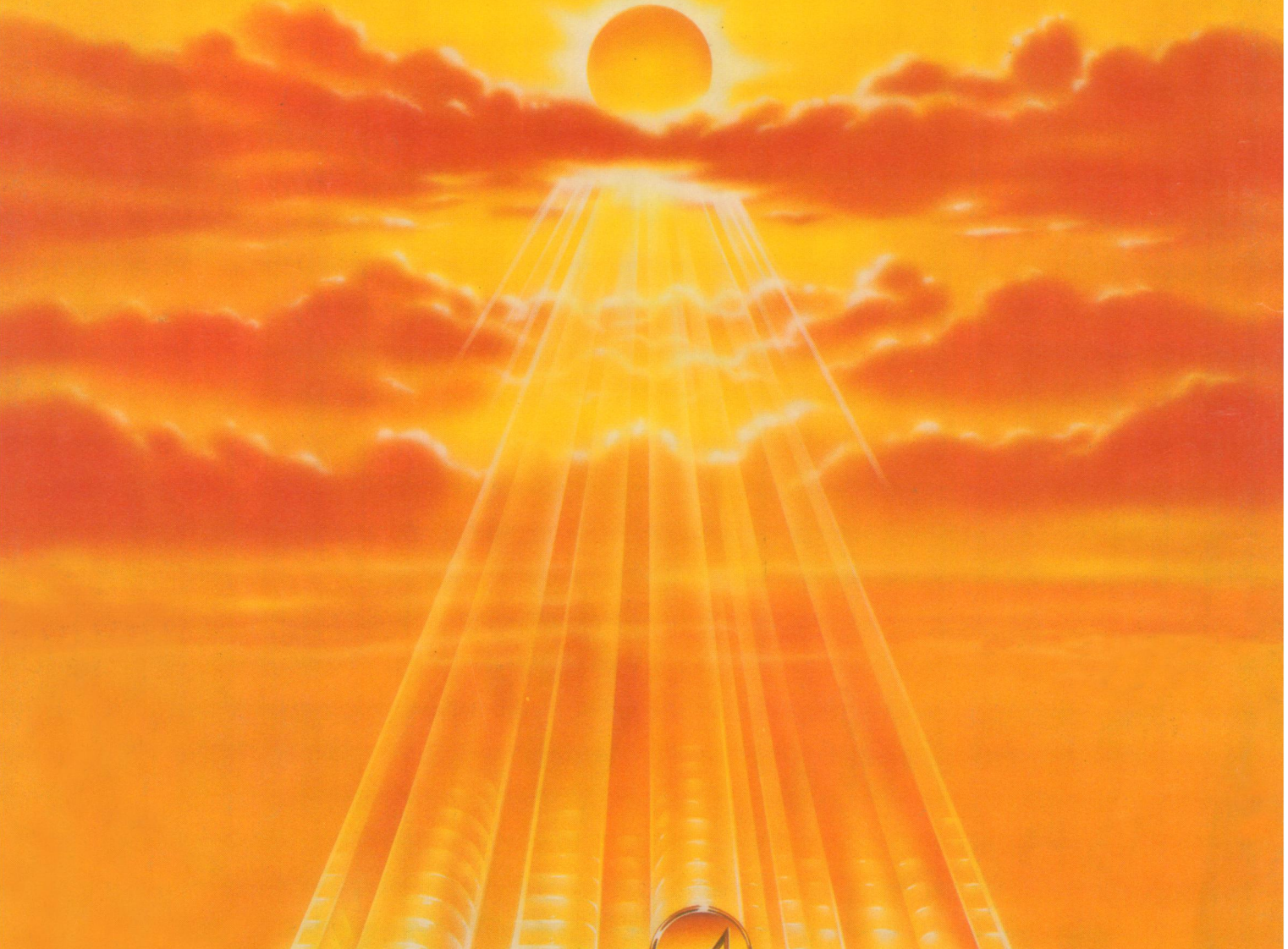
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