

modern fossils, using his own observations on them wherever possible—tedious reading for the non-specialist perhaps, but thoroughly admirable. The conclusions drawn from the analysis of pathologies and from the specifics of muscle origins, insertions, and morphological details are also admirable and thought-provoking.

Unfortunately the attempt to squeeze large-scale interpretations from tiny samples leads to less admirable results. There are pronouncements concerning stasis and change of postcranial, dental, and craniofacial aspects over 15,000 years or possible more at Shanidar, where one end of the span is anchored by only three individuals and the other by four relatively incomplete ones. Then there is the prolonged effort to deal with the significance of the supposed fact that the Neanderthal gestation period was 11 or 12 months rather than the normal human nine—a conclusion extrapolated from a grand total of two female pubic bones and five male ones distributed between Europe and the Middle East over a time span of perhaps 30,000 years.

Also, basically, the question of what is a Neanderthal is never thoroughly treated. Early in the book Trinkaus denotes the Neanderthals as regionally and temporally restricted archaic *Homo sapiens* sharing a set of features “that have been traditionally termed *classic Neanderthal*.” What these features are and who established them as traditional designators—and on what basis—is not initially mentioned. This is partly rectified by emendations scattered throughout the text, but these are incomplete and do not make up for the lack of a competent treatment of the “Neanderthal problem.”

The thorny issue of Neanderthal phylogenetic relations with previous and subsequent populations is relegated to confusion right at the beginning with the decision to call certain fossil groups “Early Neandertals” although they are not considered Neanderthals, whereas others that are in fact early are not so labeled because they *are* considered Neanderthals.

Although there are interpretative weaknesses and the publisher has saved space by cramming illustrations together, the basic presentation of the skeletal anatomy is exemplary, and this book joins the ranks of those classic monographs that now serve as the basis for our understanding of the course of human evolution.

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## Photosynthesis

C<sub>3</sub>, C<sub>4</sub>. Mechanisms, and Cellular and Environmental Regulation, of Photosynthesis. GERRY EDWARDS and DAVID WALKER. University of California Press, Berkeley, 1983. x, 542 pp., illus. \$65.

Photosynthesis is often portrayed as being made up of separate and distinct processes, labeled either light or dark reactions. Although photosynthesis involves the capture and conversion of radiant energy to produce useful chemical compounds, the dark reactions are not simply “turned on.” Indeed, they are regulated by signals, other than the increased availability of ATP and NADPH, from the light reactions—pH and ion changes in the chloroplast and cytoplasmic compartments as well as modulation of the activities of enzymes involved in the reductive pentose phosphate (C<sub>3</sub>) pathway and the dicarboxylic acid (C<sub>4</sub>) pathway. A unique and important feature of the volume under review is a discussion of recent advances demonstrating how the dark reactions involving CO<sub>2</sub> fixation to sucrose and starch formation are metabolically regulated.

Over the last decade the authors of the book have each contributed significantly to the study of photosynthetic carbon assimilation. Rather than review contributions from the entire field, they have written from a personal point of view emphasizing their own observations.

Walker has used isolated and intact chloroplasts to investigate the mechanisms and regulation of carbon flow during C<sub>3</sub> photosynthesis. He considers first the essential features of the C<sub>3</sub> pathway and then aspects of its regulation and the relationship of the movement of metabolites between the chloroplast and the cellular environment. The delayed induction of the photosynthetic process, seen when going from dark to light, receives considerably more emphasis than is warranted. The delay occurs because substrates must be built up before the autocatalytic process (regeneration of the acceptor for CO<sub>2</sub>) becomes efficient. Light activates some of the enzymes during the lag.

Walker interprets his experiments using a multitude of curves each lacking an accompanying measurement of intermediate pools, enzyme activities, or both. The intermediate pools in isolated chloroplasts are considerably lower than in chloroplasts of intact leaves, making any predictions of the cause of induction in leaves questionable.

Edwards has contributed significantly to the understanding of C<sub>4</sub> photosynthe-

sis. A large number of the higher plants produce as the initial products of CO<sub>2</sub> fixation four-carbon dicarboxylic acids (oxaloacetate, malate, or aspartate). These products move from the mesophyll cells to specialized bundle sheath cells surrounding the vascular tissue. Decarboxylation occurs in the bundle sheath cells, and the CO<sub>2</sub> is refixed by the reductive pentose phosphate cycle. C<sub>4</sub> photosynthesis serves as an addendum to the C<sub>3</sub> cycle to concentrate CO<sub>2</sub> in the bundle sheath cells. The historical formulation and function of this pathway are discussed in the book, as are the compartmentation and regulation of enzymes, the transport of metabolites, and the physiological and environmental implications of the diversity of C<sub>4</sub> plants. Photosynthesis by succulent plants, called CAM (crassulacean acid metabolism), is discussed in light of C<sub>3</sub>- and C<sub>4</sub>-type metabolism.

The first part of the book attempts to provide a concise, elementary description of the photochemical apparatus and events that generate the assimilatory power (ATP and NADPH). Though the treatment of carbon assimilation is well organized and thorough, written to be understood by a graduate student, the discussion of the basic energy processes is oversimplified. It could give a reader the impression that the book is written for a popular audience, which is not the case.

C<sub>3</sub>, C<sub>4</sub> presents a well-integrated description of the processes of photosynthesis and accompanying metabolism. It is the first book that clearly shows how the C<sub>3</sub> and C<sub>4</sub> pathways of carbon flow relate the processes of energy capture and conversion to the agronomic and environmental aspects of plant photosynthesis and production.

RICHARD G. JENSEN

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## Books Received

**Alcohols Toxicology.** William W. Wimer, John A. Russell, and Harold L. Kaplan. Noyes, Park Ridge, N.J., 1983. x, 278 pp., illus. \$36.

**Animals as Navigators.** E. W. Anderson. Van Nostrand Reinhold, New York, 1983. 208 pp., illus., + plates. \$19.50.

**Annual Reports on NMR Spectroscopy.** Vol. 14. G. A. Webb, Ed. Academic Press, New York, 1983. viii, 406 pp., illus. \$90.

**Annual Review of Biophysics and Bioengineering.** Vol. 12. Lorin J. Mullins, William A. Hagins, Carol M. Newton, and Gregorio Weber, Eds. Annual Reviews, Palo Alto, Calif., 1983. xii, 520 pp., illus. \$47.

**Applied Nutrition for Health Professionals: Basic Nutrition.** John J. B. Anderson, Ed. Health Sciences Consortium, Carrboro, N.C., 1983. iv, 308 pp., illus. Paper, \$14.95.

**Approximations Diophantiennes et Nombres Transcendants.** Papers from a colloquium, Luminy, June 1982. D. Bertrand and M. Waldschmidt, Eds. Birk-

häuser, Boston, 1983. viii, 336 pp. \$27.95. Progress in Mathematics, vol. 31.

**The Assessment of Psychotherapy Outcome.** Michael J. Lambert, Edwin R. Christensen, and Steven S. DeJulio, Eds. Wiley-Interscience, New York, 1983. xviii, 668 pp. \$39.95. Wiley Series on Personality Processes.

**Autoimmune Endocrine Disease.** Terry F. Davies, Ed. Wiley-Interscience, New York, 1983. x, 280 pp., illus. \$59.95.

**Basic Chemical Thermodynamics.** E. Brian Smith. Clarendon (Oxford University Press), New York, ed. 3, 1982. xii, 162 pp., illus. Cloth, \$21.95; paper, \$9.95. Oxford Chemistry Series, 31.

**Basic Computational Techniques for Engineers.** R. A. Adey and C. A. Brebbia. Wiley-Interscience, New York, 1983. xii, 208 pp., illus. \$24.95.

**Beachheads in Space.** A Blueprint for the Future. Jerry Grey, Macmillan, New York, 1983. xii, 274 pp. \$14.95.

**The Behaviour of Beef Suckler Cattle (*Bos Taurus*).** Marthe Kiley-Worthington and Susan de la Plain. Birkhäuser, Boston, 1983. 196 pp., illus. Paper, \$20.95. Animal Management, vol. 14.

**Better Crops for Food.** Papers from a symposium, London, Sept. 1982. Pitman, London, 1983 (U.S. distributor, Medical Education Division, CIBA Pharmaceutical Co., West Caldwell, N.J.). viii, 248 pp., illus. \$35. Ciba Foundation Symposium 97.

**Beyond Health and Normality.** Explorations of Exceptional Psychological Well-being. Roger Walsh and Deane H. Shapiro, Jr., Eds. Van Nostrand Reinhold, New York, 1983. xii, 516 pp. \$28.50.

**Ceramic Science for Materials Technologists.** I. J. McCollm. Leonard Hill, Glasgow, 1983 (U.S. distributor, Methuen, New York). x, 358 pp., illus. \$85.

**Chemical Demonstrations.** A Handbook for Teachers of Chemistry. Vol. 1. Bassam Z. Shakhshiri, Ed. University of Wisconsin Press, Madison, 1983. xxiv, 355 pp., illus. \$25.

**Chemical Signals in Vertebrates 3.** Proceedings of a symposium, Sarasota, Fla., Apr. 1982. Deitland Müller-Schwarze and Robert M. Silverstein, Eds. Plenum, New York, 1983. x, 368 pp., illus. \$52.50.

**Chemistry Made Easy.** A Programmed Course for Self-Instruction. J. Nentwig, M. Kreuder, and K. Morgenstern. Translated from the German edition (1971) by Dennis H. Rouvray. Verlag-Chemie, Deerfield Beach, Fla., 1983. Two volumes. Part 1. viii, 652 pp., illus. Paper, \$19.50. Part 2. xiv, 692 pp., illus. Paper, \$22.50.

**Chemistry of Pesticides.** K. H. Büchel, Ed. Translated from the German edition (Stuttgart, 1977) by Graham Holmwood. Wiley-Interscience, New York, 1983. xiv, 518 pp., illus. \$90.

**Chromosome Mutation and Neoplasia.** James German, Ed. Liss, New York, 1983. xxxiv, 452 pp., illus. \$96. The Chromosomes Series.

**Chronic Granulomatous Disease.** John I. Gallin and Anthony S. Fauci, Eds. Raven, New York, 1983. x, 262 pp., illus. \$45. Advances in Host Defense Mechanisms, vol. 3.

**Circular Dichroic Spectroscopy.** Exiton Coupling in Organic Stereochemistry. Nobuyuki Harada and Koji Nakanishi. University Science Books, Mill Valley, Calif., 1983. xiv, 460 pp., illus. \$32.

**Coevolution.** Papers from a symposium, Chicago, May 1982. Matthew H. Nitecki, Ed. University of Chicago Press, Chicago, 1983. x, 392 pp., illus. Cloth, \$30; paper, \$17.

**The Cognitive Structures and Processes of Human Motivation and Personality.** Vernon Hamilton. Wiley, New York, 1983. xii, 352 pp., illus. \$39.95.

**Combinatorial Enumeration.** I. P. Goulden and D. M. Jackson. Wiley-Interscience, New York, 1983. xxvi, 570 pp. \$47.50. Wiley-Interscience Series in Discrete Mathematics.

**Commercial Applications of Wind Power.** Paul N. Vosburgh. Van Nostrand Reinhold, New York, 1983. xiv, 280 pp., illus. \$24.95.

**Common Diseases of Small Grain Cereals.** A Guide to Identification. F. J. Zillinsky. International Maize and Wheat Improvement Center, Mexico City, 1983. (U.S. distributor, Agribookstore, IADS Operations, 1611 North Kent Street, Arlington, Va.) x, 142 pp., illus. Paper, \$18.75.

**The Complete University Medical Diet.** Maria Simonson and Joan Rattner Heilman. Rawson, New York, 1983. xiv, 242 pp. \$13.95.

**Environmental Carcinogens.** Selected Methods of Analysis. Vol. 5. Some Mycotoxins. H. Egan and six others, Eds. International Agency for Research on Cancer, Lyon, 1982 (U.S. distributor, WHO Publications Centre USA, Albany, N.Y.). xlviii, 460 pp. \$30. IARC Publications No. 44.

**Environmental Effects of Off-Road Vehicles.** Impacts and Management in Arid Regions. Robert H. Webb and Howard G. Wilshire, Eds. Springer-Verlag, New York, 1983. xxii, 534 pp., illus. \$49.80. Springer Series on Environmental Management.

**Genetics of the Immune Response.** Proceedings of a symposium, Saltsjöbaden, Sweden, June 1982. Erna Möller and Göran Möller, Eds. Plenum, New York,

1983. viii, 316 pp., illus. \$42.50. Nobel Foundation Symposia, 55.

**Geochemistry of Sedimentary Ore Deposits.** J. Barry Maynard. Springer-Verlag, New York, 1983. xii, 306 pp., illus. \$29.80.

**Heparin.** New Biochemical and Medical Aspects. Proceedings of a symposium, Breisgau, Germany, June 1981. Irene Witt, Ed. Walter de Gruyter, New York, 1983. xvi, 372 pp., illus. \$70.50.

**Heterosis.** Reappraisal of Theory and Practice. R. Frankel, Ed. Springer-Verlag, New York, 1983. x, 290 pp., illus. \$51. Monographs on Theoretical and Applied Genetics, 6.

**Higher Mathematics from an Elementary Point of View.** H. Rademacher. D. Goldfeld, Ed. Birkhäuser, Boston, 1983. viii, 138 pp., illus. \$29.95.

**Highlights of Astronomy.** Vol. 6. Papers from a meeting, Patras, Greece, Aug. 1982. Richard M. West, Ed. Reidel, Boston, 1983 (distributor, Kluwer Boston, Hingham, Mass.). viii, 818 pp., illus. Cloth, \$93.50; paper, \$43.50.

**Hillslope Materials and Processes.** M. J. Selby. Oxford University Press, New York, 1982. xii, 264 pp., illus. Cloth, \$46; paper, \$24.

**Integral Equation Methods in Scattering Theory.** David Colton and Rainer Kress. Wiley-Interscience, New York, 1983. xiv, 272 pp. \$37.50. Pure and Applied Mathematics.

**Integral Equations in Elasticity.** V. Z. Parton and P. I. Perlin. Translated from the Russian edition (Moscow, 1977). Mir, Moscow, 1982. (U.S. distributor, Imported Publications, Chicago). 304 pp. \$9.95.

**Introduction to Photoelectron Spectroscopy.** Pradip K. Ghosh. Wiley-Interscience, New York, 1983. xii, 378 pp., illus. \$55. Chemical Analysis, vol. 67. Based on *A Whiff of Photoelectron Spectroscopy* (1978).

**Introduction to Polymer Viscoelasticity.** John J. Aklonis and William J. MacKnight. Wiley-Interscience, New York, ed. 2, 1983. xviii, 296 pp., illus. \$39.95.

**Ion Exchange Membranes.** Papers from a symposium. D. S. Flett, Ed. Published for the Society of Chemical Industry by Horwood, Chichester, England, 1983 (U.S. distributor, Halsted [Wiley], New York). 210 pp., illus. \$49.50.

**Ion Formation from Organic Solids.** Proceedings of a conference, Münster, Germany, Sept. 1982. A. Benninghoven, Ed. Springer-Verlag, New York, 1983. x, 270 pp., illus. \$29.50. Springer Series in Chemical Physics, 25.

**Laws of the Game.** How the Principles of Nature Govern Chance. Manfred Eigen and Ruthild Winkler. Translated from the German edition by Robert and Rita Kimber. Harper and Row, New York, 1983. xvi, 348 pp., illus. Paper, \$8.95. Harper Colophon Books. Reprint of the 1981 edition.

**The Learning Brain.** E. A. Asratyan and P. V. Simonov. Translated from the Russian edition (1982) by Anatoli Rosenzweig. M. E. Varga, Transl. Ed. Mir, Moscow, 1983 (U.S. distributor, Imported Publications, Chicago). 222 pp., illus. Paper, \$7.45. Advances in Science and Technology in the U.S.S.R., Medical Series.

**Malting and Brewing Science.** Vol. 2. Hopped Wort and Beer. J. S. Hough, D. E. Briggs, R. Stevens, and T. W. Young. Chapman and Hall, London, ed. 2, 1982 (U.S. distributor, Methuen, New York). x pp. + pp. 389-814, illus. \$63.

**Mapping the Land.** Aerial Imagery for Land Use Information. James B. Campbell. Association of American Geographers, Washington, D.C., 1983. viii, 96 pp., illus. Paper, \$5. Resource Publications in Geography.

**The Marsh Flies of California (Diptera: Sciomyzidae).** T. W. Fisher and R. E. Orth. University of California Press, Berkeley, 1983. viii, 118 pp., illus. Paper, \$20. Bulletin of the California Insect Survey, vol. 24.

**Mass Transfer in Engineering Practice.** Aksel L. Lydersen. Wiley-Interscience, New York, 1983. xiv, 322 pp., illus. \$39.95.

**Mathematical Methods in the Physical Sciences.** Mary L. Boas. Wiley, New York, ed. 2, 1983. xxii, 794 pp., illus. \$32.95.

**Mathematical Modeling of Water Quality.** Streams, Lakes, and Reservoirs. Gerald T. Orlob, Ed. Wiley-Interscience, New York, 1983. xx, 518 pp., illus. \$105. International Series on Applied Systems Analysis, 12.

**Mathematical Models in the Social and Behavioral Sciences.** Anatol Rapoport. Translated from the German edition (Würzburg, 1980). Wiley-Interscience, New York, 1983. xii, 508 pp., illus. \$49.95.

**Mechanics of Composites.** I. F. Obraztsov and V. V. Vasil'ev, Eds. Translated from the Russian by V. I. Ilyushchenko. Mir, Moscow, 1982 (U.S. distributor, Imported Publications, Chicago). 280 pp., illus. Paper, \$7.45. Advances in Science and Technology in the USSR, Mathematics and Mechanics Series.

**Mechanisms of Inorganic and Organometallic Reactions.** Vol. 1. M. V. Twigg, Ed. Plenum, New York, 1983. xvi, 374 pp., illus. \$49.50.

**Mineralogy.** Concepts, Descriptions, Determinations. L. G. Berry and Brian Mason. Second edition revised by R. V. Dietrich. Freeman, New York, ed. 2, 1983. xii, 562 pp., illus. \$29.95.

**Physiological Mechanisms of Marine Pollutant Toxicity.** Proceedings of a symposium, Columbia, S.C., Nov. 1981. Winona B. Vernberg, Anthony Calabrese, Frederick P. Thurberg, and F. John Vernberg, Eds. Academic Press, New York, 1982. xiv, 564 pp., illus. \$45.

**Phytotelmata.** Terrestrial Plants as Hosts for Aquatic Insect Communities. Papers from a symposium, Kyoto, Japan, Aug. 1980. J. H. Frank and L. P. Lounibos, Eds. Plexus, Medford, N.J., 1983. viii, 294 pp., illus. Paper, \$24.95.

**Planetary Nebulae.** Papers from a symposium, London, Aug. 1982. D. R. Flower, Ed. Reidel, Boston, 1983 (distributor, Kluwer Boston, Hingham, Mass.). xxii, 558 pp., illus. Cloth, \$65; paper, \$30.50. International Astronomical Union Symposium no. 103.

**Plant Reproductive Ecology.** Mary F. Willson. Wiley-Interscience, New York, 1983. x, 282 pp., illus. \$35.

**Prevention of Spina Bifida and Other Neural Tube Defects.** Papers from a workshop, Broadway, England, Oct. 1982. John Dobbing, Ed. Academic Press, New York, 1983. xvi, 252 pp., illus. \$29.

**Problem Complexity and Method Efficiency in Optimization.** A. S. Nemirovsky and D. B. Yudin. Translated from the Russian edition (Moscow, 1979) by E. R. Dawson. Wiley-Interscience, New York, 1983. xvi, 388 pp. \$49.95. Wiley-Interscience Series in Discrete Mathematics.

**Problems and Laboratory Experiments in Inorganic Chemistry.** N. Akhmetov, M. Azizova, and L. Badygina. Translated from the Russian edition (1979) by Aleksander Rosinkin. Mir, Moscow, 1982 (U.S. distributor, Imported Publications, Chicago). 256 pp., illus. \$8.95.

**Progress in Organic Chemistry.** Vol. 14. Robert W. Taft, Ed. Interscience (Wiley), New York, 1983. x, 374 pp., illus. \$70.

**Project Y: The Los Alamos Story.** Part 1, Toward Trinity. David Hawkins. Part 2, Beyond Trinity. Edith C. Truslow and Ralph Carlisle Smith. Tomash Publishers, Los Angeles, 1983. xxvi, 508 pp., illus., + plates. In slipcase, \$46. The History of Modern Physics, 1800-1950, vol. 2. Reprint of the 1961 edition.

**Psychology and Mathematics.** An Essay on Theory. Clyde H. Coombs. University of Michigan Press, Ann Arbor, 1983. viii, 112 pp. \$12.50.

**Pulse Circuits.** V. T. Frolikin and L. N. Popov. Translated from the Russian edition (Moscow, 1980) by Boris V. Kuznetsov. Mir, Moscow, 1982 (U.S. distributor, Imported Publications, Chicago). 392 pp., illus. \$9.45.

**Reproductive Biology of Invertebrates.** Vol. 1, Oogenesis, Oviposition, and Oosorption. K. G. and Rita G. Adiyodi, Eds. Wiley-Interscience, New York, 1983. xxvi, 770 pp., illus. \$110.

**Reptilian Lungs.** Functional Anatomy and Evolution. Steven F. Perry. Springer-Verlag, New York, 1983. viii, 84 pp., illus. Paper, \$21.50. Advances in Anatomy, Embryology and Cell Biology, vol. 79.

**Research on Technological Innovation, Management and Policy.** A Research Annual. Vol. 1. Richard S. Rosenbloom, Ed. Jai Press, Greenwich, Conn., 1983. xii, 156 pp. \$42.50.

**Social Costs, Economic Development and Environmental Disruption.** K. William Kapp. John E. Ullmann, Ed. University Press of America, Lanham, Md., 1983. xiv, 208 pp. Cloth, \$21.75; paper, \$11.50.

**The Sociogenesis of Language and Human Conduct.** Bruce Bain, Ed. Plenum, New York, 1983. xxiv, 582 pp., illus. \$50.

**Space-Perception and the Philosophy of Science.** Patrick A. Heelan. University of California Press, Berkeley, 1983. xiv, 384 pp., illus. \$28.50.

**Stirling Engines.** Graham T. Reader and Charles Hooper. Spon, London, 1983 (U.S. distributor, Methuen, New York). xii, 392 pp., illus. \$48.

**To Quench Our Thirst.** The Present and Future Status of Freshwater Resources of the United States. David A. Franco and Robert G. Wetzel. University of Michigan Press, Ann Arbor, 1983. viii, 148 pp. Cloth, \$20; paper, \$8.50.

**Trace Atmospheric Constituents.** Properties, Transformations, and Fates. Stephen E. Schwartz, Ed. Wiley-Interscience, New York, 1983. xvi, 548 pp., illus. \$60. Advances in Environmental Science and Technology, vol. 12.

**Transient Analysis Aided by Network Theory.** Harry E. Stockman. Sercolab, Arlington, Mass., 1983. vi, 176 pp., illus. Spiral bound, \$12.

**Transient Two-Phase Flow.** Proceedings of a meeting, Pasadena, Calif., Mar. 1981. Milton S. Plesset, Novak Zuber, and Ivan Catton, Eds. Hemisphere, Washington, D.C., 1983. xiv, 736 pp., illus. \$75.

**UFOs.** The Public Deceived. Philip J. Klass. Prometheus Books, Buffalo, N.Y., 1983. viii, 310 pp. + plates. \$17.95.

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**Social Kineticist** seeks consulting position with persons or institution interested in finding effective solutions to urgent social problems. Box 309, SCIENCE. 12/2, 9

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**Immunologist**, Ph.D. Publications in transplantation, immunogenetics, autoimmunity, and reproductive immunology. Desires to relocate to a strong immunology group with projects in molecular immunogenetics and/or immune regulation. Competitive renewal at \$100,000 per year, Fiscal Year 1984. Box 326, SCIENCE. 12/2, 9, 16, 23

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**Microbiologist**, Ph.D. 1984. Experienced in molecular biology and related techniques. Seeks postdoctoral position in molecular virology, viral immunology, molecular parasitology, or vaccine production for animal diseases using molecular biology techniques. Box 320, SCIENCE. X

**Microvascular Surgeon** of small rodents. B.S. Ten years of surgical experience in organ (heart, kidney, spleen, thymus, and so forth) transplant in the rat and mouse. Strong research background on prolongation of allograft survival. Publications. Desires industrial or academic research position. Box 319, SCIENCE. X

**Zoologist** (Ph.D.): Former college/university teacher of undergraduate/graduate biology courses desires to return to teaching after 9 years of high-tech and government experience. Wants to teach the subject matter of vertebrate biology using lectures, laboratories, and microcomputers. Box 322, SCIENCE. X

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**ANALYTICAL CHEMIST**, Ph.D. required by fall 1984. Teaching and/or research experience in spectroscopy and/or instrumentation. Tenure-track faculty. Salary to \$36,540. Send curriculum vitae, undergraduate and graduate transcripts, statement of your research, teaching experience, and goals, three letters of recommendation, and a completed application (all to be postmarked by 30 December 1983) to: **Chairman, Analytical Recruitment Committee, Chemistry Department, California State Polytechnic University, 3801 West Temple Avenue, Pomona, Calif. 91768. Affirmative Action/Equal Opportunity Employer.**

### ANATOMY FACULTY POSITION

**Anatomy**. Department head. Teach classes in gross anatomy and some physiology; 15 hours regular load. Salary range: \$24,000 to \$28,000. Position to be filled 1 January 1984. Closing date for applications: 16 December 1983. Send applications to: **Academic Dean, Sherman College, Spartanburg, S.C. 29304.**

**TWO CHEMISTRY FACULTY POSITIONS**, Ph.D. required by fall 1984. Tenure track. (i) **Organic chemist**. (ii) **Biochemist**. Must have the ability and desire to teach clinical chemistry. Research interests in areas other than clinical, such as plant, agricultural, physical, and nucleic acid biochemistry. Salary to \$36,540. Send curriculum vitae, undergraduate and graduate transcripts, statement of your research, teaching experience, and goals, three letters of recommendation, and a completed application (all to be postmarked by 30 January 1984) to: **Chairman, Organic Recruitment Committee, or to: Chairman, Biochemistry Recruitment Committee, Chemistry Department, California State Polytechnic University, 3801 West Temple Avenue, Pomona, Calif. 91768. Affirmative Action/Equal Opportunity Employer.**

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*Equal Opportunity Employer*

### ASSISTANT DIRECTOR, CLINICAL MICROBIOLOGY Division of Laboratory Medicine Department of Pathology and Laboratory Medicine University of Pennsylvania School of Medicine

Applications are invited from qualified individuals for a full-time position at the assistant/associate professor level in the Department of Pathology and Laboratory Medicine at the University of Pennsylvania. Applicants should have an M.D. and/or Ph.D. degree, postdoctoral training in clinical microbiology, and be able to present evidence of prior research accomplishments. Individuals will join an existing staff of two in directing the operations of the Clinical Microbiology Laboratory of the Hospital of the University of Pennsylvania and will be responsible primarily for the Mycology/Mycobacteriology/Parasitology sections. Other duties will include teaching of residents, fellows, and medical students. The qualified applicant will be required to pursue an active research program. Interested individuals should send their current curriculum vitae and the names of three reference to:

**Daniel L. Kacian, Ph.D., M.D.**  
Associate Professor, Pathology and Laboratory Medicine  
Director, Division of Clinical Microbiology  
Hospital of the University of Pennsylvania  
4 Gates/G1  
3400 Spruce Street  
Philadelphia, Pa. 19104

*The University of Pennsylvania is an Equal Opportunity Employer.*

### ASSOCIATE PROFESSOR/PROFESSOR

The Department of Microbiology and Immunology at Louisiana State University Medical Center invites applications for two tenure-track positions at the associate professor or professor level. Applicants should have an M.D. or Ph.D. degree, a strong research program and an established funding record in either molecular virology or bacterial genetics. Individuals will participate in teaching virology or bacterial genetics to medical and dental students. Interested parties should submit curriculum vitae, representative reprints, and names of three references to: **Dr. Ronald B. Luftig, Professor and Head, Department of Microbiology and Immunology, Louisiana State University Medical Center, 1901 Perdido Street, New Orleans, Louisiana 70112, by 31 December 1983. An Equal Opportunity/Affirmative Action Employer.**

### ASSISTANT PROFESSOR, BACTERIOLOGIST/MYCOLOGIST

The Department of Microbiology/Immunology, Oral Roberts University School of Medicine, is seeking applicants for an assistant professor of medical microbiology. Applicants must have a Ph.D. in microbiology and postdoctoral experience is desirable. Responsibilities include teaching bacteriology and mycology to medical and graduate students and having an active research program in his/her area of expertise. Send curriculum vitae and the names and addresses of three references to: **Dr. Richard A. Gilmore, Associate Dean for Biomedical Sciences, Oral Roberts University School of Medicine, Tulsa, Okla. 74171.**

*Oral Roberts University is a Christian ministry that employs without regard to race, color, sex, age, handicap, national origin, or status as a veteran.*

## ASSOCIATE PROVOST FOR RESEARCH TEXAS A & M UNIVERSITY

Texas A & M University is seeking applicants and nominations for a new administrative position. **Associate Provost for Research.** This officer will assume general responsibility, under the direction of the president and provost, for the welfare and quality of the research programs of the University, their future development, and their coordination with research done in other parts of the Texas A & M University System.

Specific duties of the associate provost for research will include, but not be limited to, implementing research policies and recommending new policies, developing a long-range strategy for the University's research mission, representing the University in its relationship with other research programs of the Texas A & M University System and with the Texas A & M University Research Foundation, and supervising the operations of the dean of the Graduate College and of other units of the University as may be assigned by the provost.

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

Candidates must be available to assume the position no later than 1 September 1984. Nominations and applications, with résumés and names of references, must be submitted on or before 15 December 1983 to:

**Dr. Charles E. McCandless**  
Associate Provost  
Texas A & M University  
College Station, Texas 77843

*Texas A & M University is an Equal Opportunity/Affirmative Action Employer.*

**BIOLOGY FACULTY.** In a comprehensive university of 25,000 on-campus students, in a department of 37 full-time faculty. Five positions anticipated for August 1984. The first four are tenure-track assistant professorships, for which a Ph.D. is required in biology, postdoctoral experience is desirable, and faculty are expected to engage in productive personal research and to direct M.S. and Ph.D. students in an area of biology complementary to other faculty and present programs.

**Invertebrate Zoologist:** Expertise in invertebrate ecology or systematics; knowledge of marine invertebrates desirable; to teach general zoology each semester and an occasional course in invertebrate zoology.

**Plant Molecular Geneticist:** Expertise in plant somatic cell genetics; to teach two courses per year on tissue culture, molecular biology methods, recombinant DNA technology, cell biology, or cytogenetics.

**Biologist:** Expertise in some area of biology, plus a demonstrated commitment to secondary school science education; half-time responsibility both to supervise students preparing for secondary school science teaching certification and to teach a course in contemporary biology teaching methods.

**Anatomist:** Expertise in some area of biology; experience in human dissection required; to teach gross human anatomy, with prosection, each semester to undergraduate physical education majors.

**Anatomy Faculty Assistant:** A master's degree and experience in human dissection are required; to assist professional faculty in laboratory teaching and prosection in an undergraduate gross anatomy course each semester for physical education majors, and in one once a year for physical therapy majors; position is renewable.

For all five positions, apply by 15 January 1984; send curriculum vitae, statement of research goals (if applying for one of the first four positions), and names, addresses, and telephone numbers of at least three references, to: **Jerrold H. Zar, Chair, Department of Biological Sciences, Northern Illinois University, DeKalb, Ill. 60115-2854.** *An Equal Opportunity/Affirmative Action Employer.*

## POSITIONS OPEN

### UNIVERSITY OF ROCHESTER SCHOOL OF MEDICINE AND DENTISTRY DEPARTMENT OF PHYSIOLOGY ASSISTANT PROFESSOR

Applications for a tenure-track research and teaching position are invited from individuals with postdoctoral research experience. Neurophysiologists or neurobiologists working in areas of interneuronal communications, information processing, or control by neuronal systems will be considered. Applicants should be involved in the development of new concepts or techniques or their application to systems not previously studied. Specific area of interest is less important than the potential for creative work using approaches at the forefront of the field. Curriculum vitae, description of research interests, and a list of four or more references should be sent to:

**Dr. Paul Horowicz**  
Department of Physiology  
Box 642  
University of Rochester  
School of Medicine and Dentistry  
Rochester, N.Y. 14642

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

Harvard Medical School, Department of Neurobiology, **ASSISTANT OR ASSOCIATE PROFESSOR.** Applications are invited for the position of assistant or associate professor in the Department of Neurobiology at Harvard Medical School. Candidates should have a strong background in cell biology and the use of biophysical techniques to examine membrane function and mechanisms of cellular transduction in the nervous system. The position will involve active participation in the teaching of neuroscience to medical and graduate students. Applicants should submit curriculum vitae, statement of research interests, and the names of three references to: **Search Committee, Department of Neurobiology, Harvard Medical School, Boston, Mass. 02115,** by 15 January 1984. *Harvard Medical School is an Equal Opportunity/Affirmative Action Employer.*

**ASSISTANT/ASSOCIATE OR HORTICULTURE/PLANT PHYSIOLOGY.** Fairbanks, Alaska. Appointee to this tenure-track position will be involved in 95 percent research and 5 percent teaching. Research emphasis in the Agricultural Experiment Station will be on the physiological response of horticultural crops to temperature and photoperiod, particularly under greenhouse conditions. Opportunities will be available for teaching; participation in extension programs is expected, but is not a formal assignment. A Ph.D. with major emphasis in horticulture and plant physiology, and evidence of recent research and scholarly publication are required. Experience in greenhouse management is desirable. Salary commensurate with qualifications and experience. Send résumé, university transcripts, and a statement supporting your ability to carry out the responsibilities of the position, and have three letters of reference sent to: **Dean James V. Drew, School of Agriculture and Land Resources Management, 309 O'Neill Resources Building, University of Alaska-Fairbanks, Fairbanks, Alaska 99701.** Closing date is 1 February 1984. *University of Alaska is an Equal Opportunity/Affirmative Action Employer and Educational Institution.*

The Institute of Marine Resources at the Scripps Institution of Oceanography, University of California, San Diego, anticipates an opening for an **ASSISTANT RESEARCH CHEMIST** (salary range: \$22,900 to \$26,800) in the Food Chain Research Group. The primary responsibility of the position is to carry out fundamental research in marine organic chemistry in association with other IMR oceanographers.

Applicants must have: (i) a Ph.D. in organic chemistry, marine chemistry, or chemical oceanography and at least 2 years of postdoctoral experience in marine chemistry; (ii) an ability to carry out independent research in the ocean as demonstrated by an active publication record in refereed journals; and (iii) experience in work at sea with modern sampling and analytical methods.

Send résumé and names of three referees by 1 March 1984 to:

**Dr. Fred N. Spiess, Director**  
Institute of Marine Resources, A-028  
Scripps Institution of Oceanography  
University of California, San Diego  
La Jolla, California 92093

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

## CSIRO

**IMMUNOLOGIST**  
**A\$23,340 to A\$34,330**  
**DIVISION OF TROPICAL ANIMAL SCIENCE**  
**INDOOROOPIILLY, QUEENSLAND**  
**AUSTRALIA**

CSIRO conducts scientific and technological research in laboratories located throughout Australia and employs about 7500 staff, of whom some 2900 are professional scientists. The organization's research activities are grouped into five Institutes: Animal and Food Sciences, Biological Resources, Energy and Earth Resources, Industrial Technology, and Physical Sciences. The CSIRO Division of Tropical Animal Science is a member of the Institute of Animal and Food Sciences.

**GENERAL:** The Division of Tropical Animal Science undertakes research activities on the improvement of animal production, particularly cattle production, in tropical Australia. It has programs on breeding and management, disease and parasite control, and nutrition.

The Divisional headquarters is at the Long Pocket Laboratories in the Brisbane suburb of Indooroopilly, where excellent animal accommodation and laboratory facilities for the study of parasitic and microbial diseases of cattle are available. Research in progress includes programs in the immunology of helminth and tick and tick-borne diseases, the biochemistry of acaricide resistance, and veterinary virology. The current emphasis is on the development of experimental vaccines against these diseases and consequently biochemical and immunological aspects of the host/parasite relationships are priority studies.

The cattle *Babesia* vaccine program is aimed at the identification of protective antigens for use in non-living vaccines to be produced by recombinant DNA technology. This study incorporates protein chemistry, immunology, monoclonal antibody production, and recombinant DNA technology. A number of candidate antigens have already been identified and a productive monoclonal antibody unit established.

**DUTIES:** To undertake research to isolate, purify, and characterise candidate immunogens from crude extracts of the intraerythrocytic parasites *Babesia bovis* and *Anaplasma marginale* with the view to producing a killed vaccine for commercial exploitation.

**QUALIFICATIONS:** A Ph.D. degree or equivalent qualifications in an appropriate field plus proven research ability.

**TENURE:** A term of 3 years. Australian Government superannuation benefits available.

**APPLICATIONS:** Stating full personal and professional details, the names of at least two referees, and quoting reference number A6678, should be directed to:

**The Chief**  
**CSIRO Division of Tropical Animal Science**  
**Private Mailbag Number 3**  
**Indooroopilly, Queensland 4068, Australia**

By 30 December 1983.

## POSITIONS OPEN

### ASSISTANT PROFESSOR OF AGRICULTURAL METEOROLOGY

Applications are invited for a tenure-track faculty position available 1 July 1984. Responsibilities include: developing and directing research programs which focus on interactions between the atmosphere and the biosphere; teaching agricultural meteorology or biometeorology at the undergraduate and graduate level; and serving as a consultant and resource person on the subject of meteorological data and its applications to agricultural research and extension work. The division of effort is approximately 50 percent teaching and 50 percent research.

Applications should submit curriculum vitae, transcripts, and the names and addresses of three references to: **Dr. R. F. Lucey, Chairman, Department of Agronomy, Cornell University, Ithaca, N.Y. 14853.**

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### ASSISTANT PROFESSORSHIPS IN ANIMAL PHYSIOLOGY AND ECOLOGY

The Department of Biological Sciences has two positions open with initial appointments for 3 years beginning September 1984. Applicants should have a Ph.D. and a strong commitment to research and undergraduate teaching as well as an interest in directing independent student research. The physiologist should have an area of specialty OTHER THAN neurophysiology and endocrinology which are presently represented in the department. The successful applicant will participate in teaching either an introductory course in HUMAN BIOLOGY or GENERAL BIOLOGY, an intermediate course in COMPARATIVE ANATOMY and/or CELL PHYSIOLOGY, and an advanced course in VERTEBRATE PHYSIOLOGY, with the opportunity to teach a seminar in his/her area of specialization. Some of these courses are team-taught.

The ecologist should have experience with animal related systems, preferably with a background in any one of the following: evolutionary ecology, invertebrate biology, or marine/aquatic biology. The successful applicant will participate in teaching introductory courses in ORGANISMAL and/or CELL BIOLOGY, intermediate level courses in ECOLOGY and INVERTEBRATE BIOLOGY and an advanced course in ECOLOGY with the opportunity to teach a seminar in his/her area of specialization. Some of these courses are team-taught.

Credentials will be reviewed when complete. Qualified individuals should send their curriculum vitae, undergraduate and graduate transcripts, brief outline of research plans, one letter of recommendation, and the names of two additional referees to: **Dr. Mary D. Coyne, Chairman, Department of Biological Sciences, Wellesley College, Wellesley, Mass. 02181.**

*Wellesley College is an Equal Opportunity/Affirmative Action Employer.*

### ASSISTANT PROFESSOR

Department of Anatomy, School of Medicine  
University of Pennsylvania

Two tenure-track positions are available in the area of molecule developmental biology. Preference will be given to candidates applying modern approaches such as those in molecular genetics to problems in developmental cell biology and developmental neurobiology. Teaching responsibility will be in gross anatomy. Prior teaching experience in gross anatomy is desirable but not necessary. Send summary of current and future research plans, curriculum vitae, and names and addresses of three references to: **Dr. Frank A. Pepe, Chairman, Department of Anatomy/G3, School of Medicine, University of Pennsylvania, Philadelphia, Pa. 19104.**

### ASSISTANT PROFESSOR, MOLECULAR GENETICS

Applications/nominations are sought for a tenure-track position involving teaching and research in the **Department of Biochemistry, Biophysics and Genetics, University of Colorado Health Sciences Center, Denver, Colorado.** Responsibilities include development of an independent research program in molecular genetics and teaching (principally in genetics) in the Medical and Graduate Schools. Applications/nominations will be received until the position is filled. Applicants should provide curriculum vitae, bibliography, and the names of three references to whom inquiries can be addressed. All correspondence should be directed to: **Search Committee-Molecular Genetics, Department of Biochemistry, Biophysics and Genetics, University of Colorado Health Sciences Center, 4200 East Ninth Avenue, Denver, Colorado 80262.** *The University of Colorado is an Equal Opportunity/Affirmative Action Employer.*

# There's No Place Quite Like Syva.

## For Opportunities In The Healthcare Industry.

Syva, a leader in immunodiagnostics, is looking for exceptional, creative research biochemists, physical chemists, organic chemists, and immunochemists to put together novel immunoassay techniques. At this time, we have the following open positions:

### Physical Biochemist

We're looking for a very strong, innovative physical chemist with a biochemistry background to apply practical and theoretical physical chemistry principles to the development of new, high sensitivity assay methods for clinical chemistry and diagnostic microbiology. You should have a PhD with at least two years of postdoctoral experience, and you must have a proven record of publications. Opportunity No. 096.

### Biochemist

You should have a PhD, with at least two years of postdoctoral experience, and a proven record of publications and/or patents to put together innovative assay techniques based on enzyme-labeled DNA probes. Opportunity No. 413.

### Organic Chemist

You will need a PhD, plus one to two years' postdoctoral work and synthetic experience, preferably with nucleotides, to work on novel assay techniques involving DNA probes. Some biochemical experience is desirable. Opportunity No. 999.

Syva offers an attractive benefits package that includes medical and dental insurance. Please send your resume, indicating appropriate Opportunity No., to Syva Company, Human Resource Staffing, P.O. Box 10058, Palo Alto, CA 94303. We are committed to an equal opportunity hiring policy, m/f/h.

Syva/a Syntex company worldwide



## No place like it.



# Three Intense Laboratory Workshops In Nucleic Acid Technology

## Chemical Synthesis of DNA Oligonucleotides

Students will synthesize oligos of their own design of length 12-14 bases. The liquid triester condensation method will be employed. The product will be sequenced for verification.

Tuition: \$1,000

May 14-23

To apply: Send a brief description of your research interests and the relevance of our course to your plans. Include a brief resumé of your training and institutional affiliation. Please include a contact telephone number. Respond to: Dr. John Newbold, Workshop Coordinator, Program in Molecular Biology & Biotechnology, The University of North Carolina at Chapel Hill, 125 MacNider Building 202H, Chapel Hill, North Carolina 27514. Application deadline: March 5, 1984. Acceptance notification by March 30, 1984. Inexpensive air conditioned dormitory housing is available.

## The Carolina Workshops, May Through July, 1984

### Human Genetics/General DNA Technology

General DNA techniques such as sub-cloning, vector and genomic DNA preparation, electrophoretic analyses, Southern and nick-translations. Techniques special to human genetics such as in situ chromosome hybridization, linkage analysis, chromosome library construction, and the use of biotinylated probes. Intensive lab work and lectures on the applications of DNA technology to human genetics.

Tuition: \$1,200

June 4-20

### DNA Sequencing

Extensive experience in chemical cleavage and dideoxy sequencing techniques. High resolution gel electrophoresis (including gradient gels) will be used in sequence analysis. Cloning into plasmid and M 13 phage vectors. Generation of libraries for rapid sequence analysis. Instruction will include computer-assisted analysis of the sequence data utilizing public-access data banks. You may bring your own cloned DNA sample to sequence.

Tuition: \$1,200

July 2-18



University of North Carolina at Chapel Hill  
919/966-4161

Program in Molecular Biology & Biotechnology

## POSITIONS OPEN

### ASSISTANT PROFESSOR

The Department of Biological Chemistry of the University of Illinois at Chicago invites applications from candidates for the position of assistant professor beginning in the academic year 1984-1985 to develop a research program in the area of metabolism of membrane lipids or glycoproteins with interest in the enzymology of metabolic responses to membrane-mediated hormone or immune system events. Candidates should possess a Ph.D. degree with a strong chemical background, at least 2 years of postdoctoral experience, and published evidence of ability to design productive experiments in this field of investigation. Curriculum vitae and three supporting letters of recommendation should be sent to: Search Committee, Department of Biological Chemistry, University of Illinois at Chicago, 1853 West Polk A-312 CMW, Chicago, Illinois 60612.

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

### ASSISTANT PROFESSOR OF PHYSIOLOGY

The Department of Physiology at Oral Roberts University will have an opening for an assistant professor effective 1 August 1984. The successful applicant must hold a Ph.D. or M.D. degree from an accredited institution and be willing and qualified to teach in several areas of organ systems physiology (that is, G.I., respiration and/or endocrine) to dental, medical, and graduate students. A strong interest in developing a sound research program will be expected. Special consideration will be given to applicants whose research interests complement existing programs. Application letters, including curriculum vitae, list of publications, statement of research interests, names of three or more references, and a statement of career goals, should be sent to: Dr. Robert Bond, Chairman, Department of Physiology, Oral Roberts University, 7777 South Lewis Avenue, Tulsa, Oklahoma 74171. Oral Roberts University is a Christian Ministry that employs without regard to race, color, sex, age, handicap, national origin, or status as a veteran.

### ASSISTANT PROFESSOR, VERTEBRATE BIOLOGY

The Department of Biology, University of California, Riverside, seeks to fill a tenure-track assistant professor position beginning 1 July 1984. We are looking for an individual with research interests in physiological ecology, evolutionary ecology, and/or functional morphology of vertebrates, who will complement our strong and interactive group of physiological ecologists and evolutionary biologists. A vigorous research program and a willingness to contribute enthusiastically to teaching at the graduate and undergraduate levels are required; undergraduate teaching will include a course in vertebrate functional morphology. Postdoctoral research experience is highly desirable. Applications, including complete curriculum vitae, copies of important publications, a statement of teaching and research interests, and at least three letters of reference, should be sent by 15 January 1984 to:

Professor Edward Platzter, Acting Chairman  
Department of Biology  
University of California  
Riverside, California 92521

*The University of California is an Equal Opportunity/Affirmative Action Employer. Applications are invited from all qualified individuals.*

### ASSISTANT RESEARCH MOLECULAR GENETICIST III OR IV (Level Commensurate With Experience)

A molecular geneticist to conduct research in molecular biology of rhizobia. A Ph.D. in genetics or molecular biology is required. The research will require recombinant DNA techniques such as molecular cloning analysis, DNA sequence analysis as well as experience with handling root nodule bacteria such as *Rhizobium japonicum*.

A nontenure-track position funded by extramural sources. Submit resumé, transcripts, publication list and reprints, and names and addresses of three references to:

Dr. R. C. Valentine  
Plant Growth Laboratory  
University of California  
Davis, Calif. 95616

Application deadline: 28 February 1984.

Position available: 1 July 1984.

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

## Senior Microbiologist, PhD

Becton Dickinson—a billion dollar health care company in the forefront of microbiology, hematology and immunology technologies—is assembling a new project team.

Your role will be central to the success of this undertaking. Responsibilities will include developing project plans and directing overall R&D for clinical biological products utilizing flow cytometry; developing test methods to assure quality of stains and other reagents; and supervising up to 6 microbiologists and/or chemists.

Credentials should include: PhD in Microbiology, a minimum of 3 years in fluorescent stain technology and/or instrumentation. You should have experience in applying computer technology to lab procedures. As a member of technical staff you'll interact with other Becton Dickinson units and recommend sources and technological transfers.

Send us a resume that inspires our confidence and we will further describe our project and the outstanding potential it holds for major contributors. Please write to: Mr. Martin J. Nodilo, Becton Dickinson, 383 Hillen Road, Towson, Maryland 21204. An equal opportunity/affirmative action employer.

Caring for people is our business

**BECTON  
DICKINSON**

## POSITIONS OPEN

### ASSISTANT PROFESSOR Department of Physiology and Biophysics The University of Iowa College of Medicine

Applications are invited for new tenure-track positions at the assistant professor level available on or after 1 June 1984. Applicants must have the Ph.D. and/or M.D. degree and at least two years of post-doctoral experience, with a strong record of research productivity. We seek individuals with interests and expertise in membrane structure and function, cellular neurobiology and neurochemistry, or mechanisms of endocrine regulation. Experience in cellular and molecular biological approaches to gene and membrane regulation desirable. Screening will begin 15 February 1984. Please send curriculum vitae, description of research plans, and the names of three references to: **Dr. Robert E. Fellows, Department of Physiology and Biophysics, The University of Iowa, Iowa City, Iowa 52242.**

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

Brown University seeks an **ASSISTANT PROFESSOR OF PSYCHOLOGY** with specialization in vision. This is a tenure-track appointment, initially for 3 years, beginning 1 July 1984. Responsibilities include teaching at the undergraduate and graduate levels, directing research, and developing a strong basic research program. Applications should include curriculum vitae, copies of research publications, reprints and preprints of scholarly publications, and three letters of recommendation. Submit all applications by 15 December 1983 to: **The Search Committee, c/o Dr. B. R. Wooten, Walter S. Hunter Laboratory of Psychology, Brown University, Providence, R.I. 02912.** *Brown University is an Equal Opportunity/Affirmative Action Employer. Applications from women and minority persons are encouraged.*

### ASSISTANT PROFESSOR IN SURGERY

Applications are invited for a scientist to head an experimental myocardial preservation laboratory at the University of Connecticut Health Center. The applicant must have a Ph.D. or M.D.; a record of scientific accomplishment; experience with HPLC and spectrophotometry; training in operative technique, including experimental cardiopulmonary bypass and myocardial contractility; and **expertise in lipid metabolism.** The individual is expected to participate in an ongoing NIH research grant entitled "Myocardial preservation during cardiopulmonary bypass" which centers on the influence of cardioplegia in lipid metabolism. The applicant is also expected to generate additional research funding.

Submit letters of inquiry, curriculum vitae, and names of three references to: **Richard M. Engelman, M.D., Chief of Cardiac Surgery, Baystate Medical Center, 759 Chestnut Street, Springfield, Mass. 01107.**

### ATMOSPHERIC CHEMISTRY

National Center for Atmospheric Research, Atmospheric Chemistry and Aeronomy Division, seeks experienced Ph.D. researcher with record of sustained productivity in theory and modeling of atmospheric chemistry. Primary interest is in gaseous photochemistry and coupled chemical/meteorological models, but all specialties will be considered along with scientific breadth. Appointment is at scientist III or senior scientist level. Apply with résumé to: **Dr. R. Ciccerone, National Center for Atmospheric Research, P.O. Box 3000, Boulder, Colorado 80307,** by 20 December 1983. *Equal Opportunity Employer, M/F.*

**BIOCHEMIST—CELL BIOLOGIST.** Position available for investigator with postdoctoral experience to participate in two ongoing areas of study: the study of myocardial metabolic changes during recovery from ischemia and the events that trigger cell proliferation. Independent research interests encouraged. Applicants should be experienced in enzyme assays, chromatography (HPLC), electrophoresis, cell culture, radioimmunoassays, and methods development. Quality NMR collaboration is available. Faculty rank will depend on experience and academic qualifications. Applicants should include a résumé of research interests, curriculum vitae, bibliography, and the names of three references. Submit all application materials by 1 January 1984. **John Foker, M.D., Ph.D., Department of Surgery, Box 495 Mayo, University of Minnesota Hospitals, Minneapolis, Minn. 55455.** *The University of Minnesota is an Equal Opportunity Educator and Employer and specifically invites and encourages applications from women and minorities.*

# U.S. Department of Energy Master's Thesis Research Nuclear Waste Management 1984-1985 Academic Year

**DESCRIPTION:** The U.S. Department of Energy in association with Argonne National Laboratory, will offer ten awards for Master's thesis research on nuclear waste management in applicable areas of engineering or the physical sciences. The purpose of these awards is to enable graduate students in disciplines related to nuclear waste management to obtain practical research experience. Each of the ten research programs will be conducted at the academic institution with which the student is enrolled, under the guidance of the student's research professor. Any resources required for the research must be available on campus. The student will be required to provide to Argonne National Laboratory brief quarterly technical progress reports and a final detailed report at the conclusion of the research. Journal publication of the research is encouraged. The awards will be disbursed approximately June 1, 1984.

**AREAS OF RESEARCH:** The management of all types of nuclear waste is of interest including high-level, low-level, transuranic, airborne, and mill tailings. Typical research areas of interest include waste form properties, interactions with geologic media, and environmental safety aspects of waste treatment, transportation, and final disposal.

**ELIGIBILITY:** An award recipient must currently be a U.S. citizen and accepted as a full-time graduate student at an accredited U.S. college or university. The proposed research must have the approval of the applicant's research professor and the department chairperson. Selections will be by peer review and will be based on academic record, availability of research facilities and faculty guidance, and applicability of the proposed research to the objectives and programs of the Department of Energy.

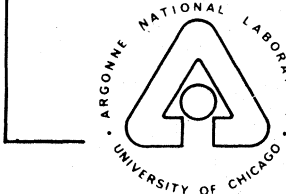
**FINANCIAL ASSISTANCE:** The Department of Energy will provide up to a total of \$12,000 for each accepted research proposal, payable to the academic institution where the research is performed.

**APPLICATIONS:** Each student applicant should provide to Argonne National Laboratory, at the address shown below, a 200–300 word summary of the proposed research, along with an undergraduate grade transcript and brief statements regarding citizenship status, availability of required research facilities and availability of qualified faculty guidance. The application must carry written endorsement of the student's research advisor and department chairperson.

**APPLICATION DEADLINE:** March 15, 1984

**MAILING ADDRESS:** Research proposals and requests for further information should be directed to:

**J. Howard Kittel  
Manager, Office of Waste  
Management Programs  
Argonne National Laboratory  
9700 South Cass Avenue  
Argonne, Illinois 60439  
(312) 972-6677**



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# Research Scientist

The Bristol-Myers Company Pharmaceutical Research and Development Division has an excellent opportunity for an Associate Research Scientist. As a member of our Immunochemistry Department, which is committed to the targeting of drugs using monoclonal antibodies, your responsibilities will include: analyses of immunochemical and biochemical properties of monoclonal antibodies (MoAb)-drug conjugates; production and purification of MoAbs from tissue culture fluids and ascites fluids; studying the mechanisms of action of MoAb-drug conjugates.

To qualify, you will need a MS/BS degree in Immunology, Cell Biology, Biochemistry or related area in addition to 4+ years of relevant experience in tissue cell culture, basic immunochemical and biochemical techniques/assays including ELISA, protein purification, RIA, etc. Experience in microbiology and with computers desirable.

We offer a competitive starting salary, comprehensive benefits and a working environment conducive to your professional growth. For prompt, confidential consideration, forward your resume with salary history and requirement, to: EMPLOYMENT RECRUITER



**BRISTOL-MYERS COMPANY  
RESEARCH AND DEVELOPMENT DIVISION**

P.O. Box 4755, Syracuse, New York 13221

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## POSTDOCTORAL RESEARCH BIOPHYSICAL/MOLECULAR OPTICS SECTION NAVAL RESEARCH LABORATORY

The National Research Council will receive applications, conduct panel reviews, and make awards, in 1984 for guest research under the Cooperative Research Associateship Program. Research Associates in the Biophysical/Molecular Optics Section conduct investigations utilizing optical spectroscopies and other optical probing methods to study a variety of systems. Current research opportunities include studies of lipid model membranes (including those constituted from polymerizable lipids), lipid-protein interactions, the effect of pressure upon membranes and membrane proteins, the use of lipid vesicles in

encapsulation and sensor technologies, and the interaction of surfactant molecules with surfaces. The program is open to U.S. citizens who have had their Ph.D. for no more than five years. Further research opportunity details may be obtained by contacting Dr. R. Priest, Naval Research Laboratory, Code 6510, Washington, D.C. 20375, (202) 767-4653. Stipend is currently \$24,500 per annum. Application deadline is January 15, 1984. For information on application procedures write for Naval Research Laboratory application materials to:

### Associateship Programs National Research Council

2101 Constitution Avenue, N.W.  
Attention: Code 608NC-5(S)  
Washington, D.C. 20418

## POSITIONS OPEN

Office of Sea Grant and Extramural Programs (SG), OAR, National Oceanic and Atmospheric Administration (NOAA), announces a vacancy for the position of **ASSISTANT PROGRAM DIRECTOR** (animal aquiculture) GM-401-13 or **ASSOCIATE PROGRAM DIRECTOR** (animal aquiculture) GM-301-14, Rockville, Maryland. Vacancy closes 3 January 1984. Incumbent directs SG programs in animal aquiculture and maintains cognizance of all SG efforts nationally. Directs and develops national programs in this field. Monitors and develops programs oriented toward development and management of marine resources. Responsible for whole cycle of grants program including negotiating grants. Persons interested in applying **MUST** request a copy of Vacancy Announcement by writing to: NOAA, 6001 Executive Boulevard, Rockville, Md. 20852, attention: V. Peters, AT/PER11, or by telephoning: 301-443-8373. NOAA is an Equal Opportunity Employer. Applications should be submitted on Standard Form 171.

**ASSOCIATE/FULL PROFESSOR/ENVIRONMENTAL HEALTH SCIENCE PROGRAM DIRECTOR:** Master's program seeks applicants with doctorate or equivalent in environmental public health or occupational health for senior tenure-track position. Excellence in teaching, experience in administration, and sponsored research required. Successful candidate will serve as program director and will be responsible for teaching graduate courses in area of specialty; program planning and promotion; community, professional, and college service; and research. *Women and minorities urged to apply.* Submit letter of application, curriculum vitae and names of three references to: Search Committee, Box 629, Hunter College (City University of New York) School of Health Sciences, 425 East 25 Street, New York, N.Y. 10010.

*Equal Opportunity/Affirmative Action Employer*

**THE UNIVERSITY OF CALIFORNIA, IRVINE,** Department of Psychiatry and Human Behavior, under the direction of William E. Bunney, M.D., chairman, is seeking applicants at the **ASSOCIATE OR FULL PROFESSOR** level, for a position in **PSYCHOPATHOLOGY**. Applicants should have a Ph.D. in psychology and research experience in biological psychiatry as related to vulnerability to affective disorders and schizophrenia, measuring of psychopathological dysfunctions, personality assessment, and topographic electroencephalography. Applicants should have a minimum of 8 years of experience in all of the above areas. Salary commensurate with academic rank.

Interested parties should send curriculum vitae and three references to: **Monte Buchsbaum, M.D., Professor, University of California, Irvine, Medical Center, 101 City Drive South, Orange, California 92668.**

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

Tenure-track job, **CLINICAL PSYCHOLOGY**. Undergraduate teaching: introductory psychology, personality and abnormal psychology, and assessment and psychotherapy. Development of undergraduate fieldwork desirable. Possible work with doctoral students in general and counseling psychology. For new Ph.D.'s and those with several years of experience. Send letter of interest, three references, curriculum vitae, and papers by 15 January 1984 to: **Ramsay Liem, Department of Psychology, Boston College, Chestnut Hill, Mass. 02167.** We encourage applications from women and minorities.

### DEAN SCHOOL OF SCIENCE

California State Polytechnic University, Pomona, invites inquiries and applications for the position of Dean of Science. The dean is responsible for the academic, administrative, and financial leadership of the Departments of Biological Sciences, Chemistry, Computer Science, Earth Sciences, Mathematics, and Physics with approximately 170 faculty and staff members. Candidates must hold an earned doctorate in an appropriate scientific discipline; have demonstrated skills in administration, teaching, and research; and qualify for a faculty position at the full professor level. Applicants are required to submit a completed application form, current résumé, three letters of reference, and official confirmation of highest degree earned, postmarked no later than 15 February 1984. All inquiries and documents should be sent to: **Dean of Science Search Committee, c/o Dr. Paul F. Weller, California State Polytechnic University, 3801 West Temple Avenue, Pomona, Calif. 91768, attention: Lucy Fernandez.** *Equal Opportunity/Affirmative Action Employer.*



## POSITIONS OPEN

**BIOLOGY:** Tenure-track position, assistant professor level, beginning September 1984. Principle teaching responsibilities in developmental biology. Other areas of teaching include microbiology, anatomy, and general biology. Ph.D. required and recent postdoctoral experience in some aspect of gene expression desirable. Send curriculum vitae, three letters of recommendation, and graduate and undergraduate transcripts to: **Dr. Richard Sherwin, Chairman, Department of Biology, Emory & Henry College, Emory, Va. 24327**, by 20 January 1984. *Equal Opportunity Employer.*

**CELL BIOLOGIST.** Department of Anatomy with modern research facilities at a new state medical school campus seeks candidates for a faculty position at the assistant or associate professor level. Candidates must have advanced postdoctoral training and the capability to successfully compete for research support. Preference will be given to individuals who utilize cellular and molecular approaches to investigate biological structure-function relationships. The appointment emphasizes research and an academic background which will permit participation in team-taught departmental courses as well as advanced graduate courses. Salary level is very competitive and depends upon previous experience. For full consideration, candidates must respond by 15 January 1984 with curriculum vitae, a statement of past and planned research activity, and the names and addresses of three references to: **Dr. David O. DeFouw, Chairman of Search Committee, Department of Anatomy, UNIVERSITY OF MEDICINE AND DENTISTRY OF NEW JERSEY-New Jersey Medical School, 100 Bergen Street, Newark, N.J. 07103.** *Applications from women and minority candidates are encouraged. An Equal Opportunity/Affirmative Action Employer.*

### THE FLINDERS UNIVERSITY OF SOUTH AUSTRALIA

#### CHAIR OF HUMAN MORPHOLOGY

Applications are invited for appointment to the Chair of Human Morphology (a full professorship) in the School of Medicine. Preference will be given to applicants who are medically qualified. The School of Medicine is an integral part of the Flinders Medical Centre, a 500-bed teaching hospital on a site adjoining the University which serves a dual role as a regional community hospital.

**Salary:** A\$48,997 per annum.

Depending upon the extent of clinical involvement, an appointee who is medically qualified may also be eligible for a clinical loading of up to A\$8,761 per year.

Enquiries of an academic nature may be directed to the chairman and dean of the school: **Professor G. J. Fraenkel.** Further information about the position, the conditions of appointment, and details required of applicants may be obtained from: **The Registrar, The Flinders University of South Australia, Bedford Park, South Australia, 5042, Australia**, with whom applications should be lodged in duplicate by 31 December 1983.

#### DEAN FOR THE COLLEGE OF SCIENCE

Southern Illinois University at Carbondale invites applications or nominations for the position of Dean of the College of Science. Candidates should qualify for a tenured appointment at the rank of professor in one of the departments of the college (Botany, Chemistry and Biochemistry, Geology, Microbiology, Physics and Astronomy, or Zoology), demonstrate academic leadership potential, and provide evidence of scholarly achievements in teaching and research. Previous administrative experience is desirable. The appointment will be effective 1 July 1984.

The college has approximately 100 faculty, more than 1000 undergraduate students, and 340 graduate students, and offers both master's and doctoral degrees. It is part of a comprehensive state university enrolling 23,000 students. Applicants should submit a cover letter of personal philosophy and a complete résumé, and have three letters of reference sent to:

**Donald Ugent, Chair  
College of Science Dean Search Committee  
Office of the Vice President for  
Academic Affairs and Research  
Southern Illinois University at Carbondale  
Carbondale, Ill. 62901**

Completed applications should be received by 1 March 1984.

*Southern Illinois University at Carbondale is an Affirmative Action/Equal Opportunity Employer.*

2 DECEMBER 1983

# RESEARCH PHYSICISTS

**GM-1310-14 • \$41,277 to \$53,661 per annum**

(Salary dependent upon qualifications)

The Optical Sciences Division is seeking two (2) Research Physicists for its optical sensor program.

**65-061: Head, Optical Sensor Section.** Organizes, directs, and participates in research efforts in fiber propagation studies, laser noise investigations and development of fiber couplers as well as practical fiber optic hydrophones, spectrophones, gyroscopes and accelerometers.

**65-051: Research Physicist.** Leads research efforts in optical propagation in fibers and the development of fibers with special characteristics and practical fiber optic magnetometers.

Qualifications required are knowledge of general physics, laser physics, optical materials as well as research experience with fiber optic sensors and optical propagation in fibers evidenced by publications and presentations.

Interested applicants should submit a Personal Qualifications Statement (SF-171) or detailed resume prior to 31 December 1983 to:

### Naval Research Laboratory

**Civilian Personnel Office • Att.: 65-061 or 65-051 (S)  
4555 Overlook Avenue, S.W. • Washington, D.C. 20375  
An Equal Opportunity Employer • U.S. Citizenship Required**

## SCIENTIST, MICROBIOLOGY RESEARCH

Warner-Lambert, a worldwide respected leader in the development, manufacturing and marketing of pharmaceutical, consumer and health care products, offers key research role in our Diagnostics division.

Broad responsibilities include planning and conducting research and development projects in diagnostic microbiology leading to the development of new products in the areas of bacterial identification and antimicrobial susceptibility.

Our requirements include a Ph.D in Microbiology with up to three years direct experience in the development of bacterial identification antimicrobial susceptibility systems using microtiter methodology. Training in computer programming/operations is highly desirable.

As a progressive organization, we offer a competitive salary and benefits package. Please send resume and salary history in confidence to: Mr. Robert A. Borsdorf, Diagnostics Human Resources; Dept. 10MR, Warner Lambert Company, 170 Tabor Road, Morris Plains, NJ 07950.

# WARNER LAMBERT

Equal opportunity in action! M/F

**CLARKSON COLLEGE  
DEPARTMENT OF BIOLOGY**

Announces the

**BAYARD D. AND VIRGINIA C. CLARKSON CHAIR  
and an**

**Opening for a Second Faculty Position**

The Clarkson College Department of Biology invites applications and nominations for this newly endowed Chair and for a second faculty position.

Clarkson has well-established Ph.D. programs in Chemistry, Physics, Mathematics and Engineering, and a young undergraduate program in Biology. The Bayard D. and Virginia C. Clarkson Professor will be expected to play the leading role in developing Biology's contribution to an interdisciplinary graduate program in Chemical and Physical Biology, culminating in the offering of a Ph.D. degree in Biology. The candidate may be considered for the position of Chairperson of the Biology Department, if desired. A new research facility will be occupied late in 1984. Several additional appointments will be made during the next few years in addition to the positions advertised here.

The candidate for the Clarkson Chair must be a distinguished research scientist. The candidate for the second position for which the rank is open must be capable of developing or maintaining a vigorous, quality research program. The research areas are open although preference will be given to Biochemistry, Cell Biology, Microbiology, Biophysics, Mathematical Biology, Bioengineering and other areas which could interface with existing programs in Chemistry, Physics, Mathematics and Engineering. Excellence in teaching is essential.

Please send CV and the names of three references to:

Department of Biology Search Committee  
Clarkson College  
Potsdam, New York 13676

to arrive not later than January 15, 1984. Please specify which position is sought. Equal Opportunity Employer.

**POSTDOCTORAL RESEARCH AWARDS**

**Sponsored by the  
BALLISTIC RESEARCH LABORATORY  
in association with  
THE NATIONAL RESEARCH COUNCIL**

The National Research Council will make awards in April, July and November of 1984 under the Resident Associateship Program, which provides awardees with opportunities to conduct experimental and theoretical research as visiting scientists and engineers in the fields of

Applied Computer Sciences  
Applied Mathematics  
Probability Theory and Stochastic Processes  
Combustion Research  
Fluid Mechanics  
Continuum Mechanics  
Materials Sciences  
Nuclear and Radiation Physics  
Physical Chemistry  
Quantum Chemistry

in the Ballistic Research Laboratory complex located in the beautiful Chesapeake Bay country of Maryland, within easy driving distance of the metropolitan centers of Baltimore, Philadelphia, and Washington, D.C. Some programs are open to senior investigators as well as recent doctorates. Most programs require U.S. citizenship.

Further details on research programs can be obtained from Dr. L. J. Puckett, (301) 278-6246, at the Ballistic Research Laboratory, Aberdeen Proving Ground, MD 21005.

For application materials and details on specific research opportunities, write promptly giving areas of interest to:

Associateship Office (JH-610-E-15)  
NATIONAL RESEARCH COUNCIL  
2101 Constitution Avenue, NW  
Washington, DC 20418

Postmark deadlines for application are January 15, April 15 and August 15, 1984, respectively.

**POSITIONS OPEN**

**BIOCHEMISTRY/MOLECULAR BIOLOGY**

Two tenure-track positions (assistant or associate professor) are available fall 1984 in the Department of Biochemistry, University of Kentucky. Areas of interest include physical biochemistry/biophysics, macromolecular structure and function, enzymology, membrane-related studies, or molecular biology. Send résumé, brief synopsis of current and proposed research, and names of three references by 16 January 1984 to:

Dr. Thomas C. Vanaman  
Chairman, Department of Biochemistry  
University of Kentucky College of Medicine  
Lexington, Ky. 40536-0084  
*An Equal Opportunity Employer*

**DEAN OF THE FACULTY  
OF ARTS AND SCIENCES  
NEW BRUNSWICK CAMPUS**

Rutgers, The State University of New Jersey, invites nominations and applications for the position of dean of the Faculty of Arts and Sciences. The faculty is composed of 1000 full-time members representing 29 disciplines; as its chief executive officer, the dean is responsible for the direction of programs in the arts and sciences. In concert with the discipline chairs, the dean is responsible for the construction and allocation of budgets, recruitment of faculty, and the development of curriculum. The dean reports directly to the New Brunswick Provost and advises the president and Board of Governors. Candidates should be established scholars with proven administrative experience. Applications received after 16 January 1984 may not receive full consideration. Address all correspondence to: Professor Lawrence Corwin, Chair, Search Committee, c/o Office of the Vice President for University Personnel, RUTGERS, The State University, New Brunswick, New Jersey 08903. *An Affirmative Action/Equal Opportunity Employer.*

**FACULTY POSITION FOR  
PHYSICIAN IN OCCUPATIONAL  
MEDICINE/OCCUPATIONAL EPIDEMIOLOGY**

Tenure-track faculty position available in the Department of Community and Environmental Medicine, California College of Medicine, and in the University of California Southern Occupational Health Center at the University of California, Irvine. Qualifications should include eligibility for medical licensure in California and certification by the Board of Preventive Medicine. Experience should include research productivity in an area relevant to occupational medicine, preferably emphasizing epidemiologic methods. Experience in instruction of medical students and occupational medicine residents is highly desirable. Responsibilities will include continued development of existing occupational medicine residency program, medical student instruction in occupational medicine, and development of a research program relevant to occupational medicine. Send curriculum vitae, statement of current research support, and names of three references to:

James L. Whittenberger, M.D.  
Professor and Chair  
Department of Community and  
Environmental Medicine  
College of Medicine  
University of California, Irvine  
Irvine, California 92717

*An Affirmative Action/Equal Opportunity Employer*

**FACULTY POSITION  
UNIVERSITY OF LOUISVILLE  
ASSISTANT PROFESSOR  
DEPARTMENT OF BIOLOGY  
DEVELOPMENTAL ZOOLOGIST**

Tenure-track position to be filled for the 1984-1985 academic year at the assistant professor level in the Department of Biology, University of Louisville. Ph.D. required. Teaching responsibilities will include undergraduate courses in vertebrate embryology and vertebrate histology in addition to development of undergraduate and graduate courses in the field of specialty, with contributions also to the general curriculum and research capabilities of the Biology Department. Applications must be received by 15 February 1984. Submit curriculum vitae, list of publications, and names, addresses, and telephone numbers of six persons from whom letters of reference may be obtained to: Dr. Thane S. Robinson, Chairperson, Search Committee, Developmental Zoologist, Department of Biology, University of Louisville, Louisville, Ky. 40292. *Affirmative Action/Equal Opportunity Employer.*

**POSITIONS OPEN**

**DEVELOPMENTAL BIOLOGY.** Duties include teaching a course in developmental biology, a freshman level biology course, and departmental chairmanship. Requirements: an earned doctorate in biology, demonstrated ability in teaching, and evidence of potential in leadership and administration. Rank and salary are dependent upon qualifications. Letters of application (or nomination) and current academic résumé should be sent to: Dr. Robert Bland, Department of Biology, College of St. Thomas, St. Paul, Minn. 55105, before 1 February 1984. *An Equal Opportunity/Affirmative Action Employer.*

**ECOLOGIST-MODELER—  
ASSISTANT PROFESSIONAL SCIENTIST**

The Illinois Natural History Survey is seeking a scientist to conduct research in the area of modeling ecological-economic systems of Illinois. Requirements include: expertise in both ecological modeling and economic input-output analyses, a Ph.D. degree in a biological or environmental field; and demonstrated research, funding, and publication records.

By 16 December 1983, please send a letter, curriculum vitae, and three letters of reference to: Dr. Robert W. Gorden, Illinois Natural History Survey, 607 East Peabody, Champaign, Ill. 61820.

*The Illinois Natural History Survey is an Equal Opportunity Employer.*

**University of California, Irvine (UCI)  
TWO TENURE-TRACK POSITIONS IN  
ECOLOGY AND EVOLUTIONARY BIOLOGY**

The Department of Ecology and Evolutionary Biology, University of California, Irvine, announces two tenure-track openings.

1) **Evolutionary Quantitative Geneticist** (assistant or associate professor). A plant or animal biologist concerned with the application of principals of quantitative genetics to research in evolutionary biology. We seek a person who is capable of making theoretical advances and of testing theory in the field. An individual with an established reputation is desired, but more recent graduates of special promise will be considered.

2) **Evolutionary Ecologist** (assistant professor). An individual who approaches ecological problems from an evolutionary perspective. We desire an empiricist with strong theoretical interests. Postdoctoral experience required.

We expect to fill one of these two positions with a plant-oriented biologist. *UCI is an Affirmative Action Employer.*

Applications and inquiries should be directed to:  
Search Committee  
Department of Ecology and Evolutionary Biology  
University of California  
Irvine, Calif. 92717

before 1 January 1984.

The Biology Division at the California Institute of Technology has an opening for a tenure-track **FACULTY POSITION** in the area of higher neural functions. Interested persons using psychophysical, physiological, anatomical, or theoretical approaches to the study of CNS function should submit, by 16 December 1983, curriculum vitae, a statement of research interests, and the names of three references to:

Neurobiology Search Committee  
c/o Nancy Gill  
Biology Division, 216-76  
California Institute of Technology  
Pasadena, Calif. 91125

*Equal Opportunity/Affirmative Action Employer*

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

Interested applicants should contact: William Martel, M.D., Chairman, Department of Radiology, The University of Michigan Medical School, Ann Arbor, Michigan 48109. *A nondiscriminatory, Affirmative Action Employer. Code 47FO.*

## Staff Scientist

### Cardiac Cellular Biochemistry/Physiology

Norwich Eaton Pharmaceuticals, Inc., a wholly-owned subsidiary of the Procter & Gamble Company, has an opening in its Research Division for an individual interested in the area of cardiac drug discovery research. The preferred candidate will have a Ph.D. degree in biochemistry/physiology/pharmacology with 1-3 years of post-doctoral experience, preferably in the regulation of contractility of cardiac/skeletal muscles at cellular and sub-cellular levels. Specific responsibilities will include designing, developing and executing studies towards the discovery of novel cardiac drugs.

Norwich Eaton offers a competitive employment package including paid relocation, flexible working hours, company paid health, dental and retirement benefits.

Send resume and salary requirements to  
Susan M. Finch, Personnel Representative

### NORWICH EATON PHARMACEUTICALS, INC.

17 Eaton Ave.  
Norwich, NY 13815

An equal opportunity employer, M/F



is seeking for its Center of Toxicology and  
Biosciences

### POST DOCTORAL RESEARCH SCIENTISTS

With experience in molecular genetics, recombinant DNA technology and animal cell culture.

Knowledge of French would be useful but is not essential.

Versatility, the ability to interact with specialists in related fields and the capacity to interpret advanced research in terms of potential industrial relevance are desirable characteristics.

Please address application, including curriculum vitae, photograph and salary requirements to the Personnel Manager, Battelle, 7, route de Drize, CH-1227 Carouge/Geneva.

## AFOSR

## SCEEE

### SUMMER RESEARCH OPPORTUNITIES FACULTY & GRADUATE STUDENTS 1984

The USAF Summer Faculty Research Program (SFRP), sponsored by the Air Force Office of Scientific Research (AFOSR) and conducted by the Southeastern Center for Electrical Engineering Education (SCEEE), provides research opportunities for qualified faculty and graduate students of U.S. colleges and universities. These opportunities consist of ten week summer research periods at one of 20 USAF Laboratories/Centers throughout the U.S. with follow-on research opportunities being available through other AFOSR and SCEEE programs. Under exceptional circumstances the ten week research period may be during the regular academic year. Prerequisite for appointment: (1) Be U.S. citizens, (2) Be faculty members or graduate students at accredited U.S. colleges or universities. All qualified applicants will receive consideration without regard to race, color, religion, sex, or national origin. Preference will be given to applicants having no previous research sponsored by the Air Force. SCEEE supports equal opportunity/affirmative action. Application Deadline: February 1, 1984

For further information contact:

SCEEE Management Office  
1101 Massachusetts Ave.  
St. Cloud, FL 32769

OR CALL:  
(305) 892-6146

### DEAN OF THE COLLEGE OF AGRICULTURE DIRECTOR OF THE AGRICULTURAL EXPERIMENT STATION AND DIRECTOR OF THE AGRICULTURAL EXTENSION SERVICE THE UNIVERSITY OF WYOMING

Applications and nominations are invited for the position of Dean of the College of Agriculture, Director of the Agricultural Experiment Station and Agricultural Extension Service.

The dean is chief academic and administrative officer for the College of Agriculture and directs operation of both the Wyoming Agricultural Experiment Station and Agricultural Extension Service. The position holds responsibility for budgeting human, physical, and financial resources, including state and federal funds, as well as providing effective leadership in teaching, research, extension, and service programs.

Qualifications for the position include an earned doctorate, a record of academic excellence, demonstrated administrative leadership, a firm commitment to the interdependence of research, teaching, extension, and service in a land-grant university and an ability to communicate effectively with faculty, staff, students, and external agricultural constituents.

The College of Agriculture is one of eight colleges within the University of Wyoming, a land-grant institution. An excellent new addition containing 90,000 utilizable square feet of classrooms, offices, and well-equipped laboratories has been added to the existing college facilities. Administratively, the College of Agriculture is organized into seven academic and research departments (Agricultural Economics, Animal Science, Biochemistry, Home Economics, Microbiology and Veterinary Medicine, Plant Science, and Range Management), offering both undergraduate and graduate degrees. The college has approximately 300 full time on- and off-campus faculty and staff members and an enrollment of over 700 student majors.

Salary will be commensurate with ability and experience and competitive nationally. Nominations and applications, including a résumé, other supporting material, and five references will be accepted until 15 January 1984, and should be addressed to:

Dr. Don A. Roth, Chairman  
Search Committee for the Dean of the  
Agriculture College  
The University of Wyoming  
Box 3354, University Station  
Laramie, Wyoming 82071

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

## NEW FISHERIES-RELATED POSITIONS AT LOUISIANA STATE UNIVERSITY'S CENTER FOR WETLAND RESOURCES

### —DEADLINE EXTENSION—

Under a newly established Fisheries Initiative Program, it is anticipated that the following positions will be created:

1. Assistant Professor (Fisheries science/advisory services)
2. Associate Professor/Professor (Fisheries development)
3. Associate Professor/Professor (Resource economics—fisheries)

The program will focus on research, management and development problems pertaining to Louisiana's established and underutilized marine fisheries. All openings require the Ph.D. and post-award experience. Preference will be given to candidates with knowledge and experience concerning species, fisheries or conditions in—or analogous to—the northern Gulf of Mexico.

Research associate positions will also be established to support the professorial positions. Candidates should have a M.S. degree in a fisheries related field. Familiarity with Gulf Coast fisheries problems, computer literacy and knowledge of applied statistics are desirable.

Send resume, names of three confidential references, salary requirements and indication of appointment availability to: **Dr. Jack R. Van Lopik, Dean, Center for Wetland Resources, Louisiana State University, Baton Rouge, LA 70803-7500. Phone: 504/388-1558 or 6710.** Materials should be received by **15 January 1984**, but positions may remain open until qualified candidates are identified. Louisiana State University is an Equal Opportunity Employer.

## NATIONAL INSTITUTE ON AGING NATIONAL INSTITUTES OF HEALTH

The Biomedical Research and Clinical Medicine Program is seeking applicants for the position of Health Scientist Administrator (Biological Sciences) to serve as a program director for the molecular biology research grants program with contributing responsibilities to genetics and theoretical biology. Specific responsibilities include developing, managing, coordinating and monitoring a program of research grants, training grants, fellowships and contracts. Applicants should have completed all requirements for a Ph.D. (or equivalent doctoral degree) in the biological or allied health sciences. Additionally, applicants must have experience which clearly demonstrates ability to work independently in planning, organizing, and conducting molecular biological research as well as to administer a research program. The position will be filled through the Civil Service or Commissioned Corps of the U.S. Public Health Service. The grade of the position is a GS-12/13/14 with a salary range of \$29,374-\$41,277, depending on the qualifications of the applicant selected. Benefits include a retirement plan, health and life insurance, sick and annual leave. Duty Station—Bethesda, Maryland. U.S. Citizenship required.

**Any applicant not currently employed in the Federal Government as a Health Scientist Administrator will be required to obtain an eligible notice of rating. Submit application (SF-171), curriculum vitae and bibliography to: Ms. Sara Benesch, Personnel Office, National Institute on Aging, Building 31, Room 2B63, National Institutes of Health, Bethesda, Maryland 20205. Applications must be received or postmarked by December 15, 1983. Call Ms. Benesch at (301) 496-5347 for further information.**

NIH IS AN EQUAL OPPORTUNITY EMPLOYER

## POSITIONS OPEN

### FACULTY POSITIONS IN MICROBIOLOGY AND MOLECULAR GENETICS

The Department of Microbiology and Molecular Genetics at the University of Cincinnati College of Medicine has been undergoing a major expansion, and is currently searching for a person with interests in host parasite relationships or the genetics and/or biochemistry of yeast. Applications for tenure-track positions at any level are invited. Candidates should be involved in a vigorous and creative research program and should have demonstrated independence as an investigator. Applicants should submit curriculum vitae and a short statement of research accomplishments and direction for future research, along with the names of three scientists willing to write letters of recommendation. These should be forwarded to: **Dr. Jerry B. Lingrel, Chairman, Department of Microbiology and Molecular Genetics (524), University of Cincinnati College of Medicine, Cincinnati, Ohio 45267.** The University of Cincinnati is an Equal Opportunity/Affirmative Action Employer.

### FACULTY POSITION

This interdepartmental program is seeking a research scientist at the assistant professor level interested in the molecular aspects of **SLOW VIRUSES**. The position is tenure track and will be a joint appointment between the Program in Molecular Biology and Biotechnology and one of the participating departments such as Biochemistry, Biology, Microbiology, or Physiology. Applicants must have an M.D. or Ph.D. and show promise of establishing a vigorous independent research program in an academic setting. The successful applicant will participate both in the teaching activities of the department and also assist in the activities of the Program in Molecular Biology and Biotechnology.

By 30 January candidates should send curriculum vitae, a brief summary of future research plans, and the names and addresses of three references to:

**Dr. Marshall Hall Edgell, Director  
Program in Molecular Biology and Biotechnology  
The University of North Carolina at Chapel Hill  
125 MacNider Building 202H  
Chapel Hill, North Carolina 27514**

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

The Department of Biomedical Engineering, Duke University, is inviting applications for a **FACULTY POSITION** which will be available in July 1984. Academic rank is open. Ph.D. or equivalent academic degree is required. The successful candidate will be expected to teach graduate and undergraduate courses and to develop an excellent research program, preferably in biomechanics, although other specialties in biomedical engineering will be considered. The department boasts strong research programs and a close affiliation with a major medical center. Applicants should send a résumé and names of three references to:

**James H. McElhaney, Acting Chairman  
Department of Biomedical Engineering  
Duke University  
Durham, North Carolina 27706**

*Duke University is an Equal Opportunity/Affirmative Action Employer.*

### FOREST MANAGEMENT NATURAL RESOURCES MANAGEMENT PROGRAM SIMON FRASER UNIVERSITY

Applications are invited for a tenure-track appointment at the assistant professor rank beginning 1 September 1984, subject to budgetary authorization. Areas of emphasis are forest management and policy or soils and land capability in a multiple use context. The appointee will teach graduate courses, direct graduate research, and conduct personal research. A Ph.D. degree, several years of practical experience, and eligibility for registration as a professional forester are desired. Preference will be given to candidates eligible for employment in Canada at the time of application. Closing date: 15 January 1984 or until filled. Send curriculum vitae, transcripts, and samples of relevant publications, and request three referees to send confidential letters of recommendation to:

**Dr. J. C. Day  
Natural Resources Management Program  
Simon Fraser University  
Burnaby, British Columbia, Canada V5A 1S6**

## POSITIONS OPEN

### FACULTY POSITION IN MICROBIOLOGY—IMMUNOLOGY

The Department of Microbiology and Immunology, Tulane Medical School, invites applications for a tenure-track faculty position at the assistant professor level available July 1984. Preference will be given to individuals who demonstrate excellent training and expertise in immunology. An interest and ability to teach medical and graduate students is required, as is a desire for career development in a medical school/university setting. Applicants should submit curriculum vitae, bibliography, and names of three referees to: **A. Arthur Gottlieb, M.D., Professor and Chairman, Department of Microbiology and Immunology, Tulane Medical School, 1430 Tulane Avenue, New Orleans, Louisiana 70112.** All responses must be received by 31 December 1983. Tulane is an Equal Opportunity/Affirmative Action Employer.

### RESEARCH INSTITUTE/FACULTY POSITION FOR NEUROSCIENTIST/CELLULAR BIOCHEMIST—MOLECULAR GENETICIST MENTAL HEALTH RESEARCH INSTITUTE UNIVERSITY OF MICHIGAN

Applications are invited for a tenure-track faculty/research position at the assistant professor level (although higher ranks are not excluded) for applicants with an interest in the neuroscience-cell and molecular biology and/or molecular genetics interface. Candidate must hold a Ph.D. or M.D. and have demonstrated expertise and ability in independent research. The institute maintains an active postdoctoral training program, seminar series, and extensive contacts with the neuroscience graduate program. Current active research areas in the institute include molecular biology, pharmacology, psychiatry, biochemistry, psychology, and behavioral science. Opportunities for joint appointments with academic departments and various pre- and postdoctoral training programs are available. Candidates should submit, by 1 January 1984, a statement of research objectives, curriculum vitae, reprints, and the names of four possible references to: **Dr. Stanley Watson, Chairman, Search Committee, Mental Health Research Institute, University of Michigan, Ann Arbor, Mich. 48109.** A nondiscriminatory, Affirmative Action Employer.

### FACULTY POSITION, CHEMISTRY

Tenure-track position for an organic chemist (preferably one who can teach physical chemistry); available September 1984. Dedication to teaching and experience in undergraduate teaching necessary. Rank and salary open, commensurate with background. Ph.D. required.

Transylvania is a liberal arts college with a superior undergraduate premedical program and a reputation for academic excellence.

Send résumé and three letters of recommendation to:

**Dr. Charles H. Haggard  
Division of Natural Sciences and Mathematics  
Transylvania University  
Lexington, Kentucky 40508**

*Transylvania University is an Affirmative Action Employer.*

**GENETICIST—MICROBIOLOGIST** to teach genetics, microbiology, and general biology. Ph.D., entry-level position. Two-year appointment (tenure track) starting 1 July 1984. Research encouraged and expected. Complete résumé, undergraduate and graduate transcripts, and three letters of reference must be received prior to 1 February by: **Professor William B. Jeffries, Biology Department, Dickinson College, Carlisle, Pa. 17013.**

*An Affirmative Action/Equal Opportunity Employer*

### POSITION IN HUMAN ANATOMY

Applications are invited for a faculty position in the Department of Human Anatomy. Ability to establish an independent research program and attract extramural funding in the area of cellular biology essential. Primary teaching responsibilities will be in microscopic anatomy. One or two years of postdoctoral experience required. Appointment at the assistant professor level. Send complete curriculum vitae, including a statement of research interests and five letters of reference, to: **Dr. Barry F. King, Search Committee Chair, Human Anatomy, School of Medicine, University of California, Davis, Calif. 95616.** Application deadline is 31 December 1983. Only complete applications will be considered.

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

## THE ROCKEFELLER FOUNDATION'S INTERNATIONAL PROGRAMS

at the

### BELLAGIO STUDY AND CONFERENCE CENTER

Bellagio (Como), Italy

**International Conferences**—small conferences or working groups focusing on topics or problems of international significance.

**Residential Program for Scholars and Artists**—an opportunity for individuals to work for approximately four weeks on their projects.

The Foundation provides the facilities of the Center, located about 40 miles north of Milan, on a competitive basis.

*For more information, write:*

Ms. Susan E. Garfield, Coordinator  
Bellagio Study and Conference Center  
Rockefeller Foundation  
1133 Avenue of the Americas  
New York, New York 10036

## Research Scientist

The Bristol-Myers Company Pharmaceutical Research and Development Division has an excellent opportunity for a Research Associate to join its Microbiology Department. Selected candidate will participate in a research program designed to evaluate new anti-infective agents as well as systemic and localized bacterial infections in rodents.

To qualify, you will need a BS/MS degree in Microbiology and several years experience setting up experimental animal infections with human or domestic animal pathogenic microorganisms.

We offer a good starting salary, comprehensive benefits and a working environment conducive to your professional growth. For prompt, confidential consideration, forward your resume, with salary history and requirement, to: EMPLOYMENT RECRUITER



**BRISTOL-MYERS COMPANY  
RESEARCH AND DEVELOPMENT DIVISION**

P.O. Box 4755, Syracuse, New York 13221

An equal opportunity employer M/F

## PHYSICIST/UNDERWATER ACOUSTICIAN

The Office of Naval Research is seeking a highly qualified physicist or underwater acoustician to serve as Group Leader to plan and manage a contract research and development program. The research sponsored is conducted principally at universities and industrial laboratories by leading scientists in the field. This is a Civil Service position at the GM-14 (\$41,277–\$53,661) or GM-15 (\$48,553–\$63,115) level, depending on individual qualifications.

The incumbent is responsible for planning, coordinating and directing a basic and applied research program in underwater acoustics related to ocean science, engineering and technology; undersea surveillance; anti-submarine warfare; prosubmarine warfare; and undersea acoustic weapon systems. Responsibility includes analysis of research proposals, recommending appropriate action, following the programs of funded contracts in thorough technical detail, determining when contracts and programs should be terminated, insuring timely and effective dissemination of research

results to other Naval elements having a need for those results, and insuring that the program content meets anticipated Navy needs. Incumbent will be required to describe and justify his/her programs both in writing and orally within the organization and to responsible bodies in the Navy and DoD.

**Applicants must have a Ph.D. degree** or equivalent in physics or a related physical science and a minimum of three years of progressively responsible professional experience. At least one year of experience must be comparable in difficulty and responsibility to the next lower level in the Federal Service. Demonstrated research experience is preferred. Equivalent combinations of professional experience and graduate education may be acceptable.

**Interested persons** should submit a resume or Standard Form 171, Personal Qualifications Statement (available at Federal Job Information Centers or from the address below), to:

**OFFICE OF NAVAL RESEARCH** Civilian Personnel Division, Code 791SC  
**ATTN.: Announcement #83-56 (S)** • 800 North Quincy Street • Arlington, VA 22217

Applications will be accepted through 31 January 1984 and must be received by that date. For further information and supplemental forms, please call (202) 696-4705.  
An Equal Opportunity Employer • U.S. Citizenship Required



## POSITIONS OPEN

**Tenure-track FACULTY POSITION IN BIOCHEMISTRY.** Postdoctoral experience and a strong commitment to research and teaching required. Candidates with an interest in metabolic regulation or membrane structure-function preferred, but all highly qualified candidates will be considered. Rank open. Send curriculum vitae, a brief summary of research and teaching interests, and at least three letters of reference by 15 January 1984 to: **Biochemistry Committee, Department of Chemistry, California State University, Fullerton, Calif. 92634.** An Equal Opportunity/Affirmative Action Employer.

### RESEARCH AND DEVELOPMENT IMMUNOLOGIST

BioStar Medical Products, Inc., a young, aggressive and well-financed biotechnology firm, is currently offering an excellent career opportunity for an R & D immunologist. The successful candidate will have a Ph.D. in immunology, immunochemistry, or closely related science with at least 4 to 6 years of postdoctoral hands-on development of immunodiagnostic products as well as hybridoma/monoclonal antibody development. Experience with a variety of clinical immunological techniques is essential; commercial experience is highly desirable.

BioStar is located in Boulder, Colorado, a beautiful community nestled in the Front Range of the Rocky Mountains. Salary, benefits, and career growth potential are excellent. Send résumé, transcript, and curriculum vitae to: **Tim Starzl, CEO, BioStar Medical Products, Inc., 1995 North 57 Court, Flatirons Industrial Park, Boulder, Colorado 80301.**

**MEDICAL DIRECTOR, LABORATORY OF CYTOGENETICS.** This is a tenure-accruing position at a rank and salary commensurate with experience, in the Department of Pathology, College of Medicine, University of Florida, to begin 1 April 1984. The candidate must hold an M.D. degree and be licensed or be eligible to apply for a license in the state of Florida. The candidate will be responsible for the medical direction of the Laboratory of Cytogenetics in the Department of Pathology. This will involve hospital service activities as well as development of independent research and teaching programs. Preference will be given to a candidate with interest in molecular genetics or related areas. Interested candidates should forward applications by deadline of 1 March 1984 to: **Raul C. Braylan, M.D., Professor, Department of Pathology, Box J-275, College of Medicine, University of Florida, Gainesville, Florida 32610.** An Equal Opportunity/Affirmative Action Employer.

### WASHINGTON UNIVERSITY SCHOOL OF MEDICINE

The Department of Psychiatry, Washington University Medical School, invites applications for tenure-track positions in our Neuroscience Program. Candidates should have demonstrated interests in general neurobiology, but expertise in the following areas is preferred: receptor mechanisms, CNS active peptides, neuroendocrinology, neuropharmacology, psychopharmacology and/or electrophysiology. Joint appointments in preclinical departments will be available, depending upon area of expertise. We are looking for candidates with proven track records, but very strong newer investigators are also encouraged to apply. Psychiatrists are preferred, but we are principally interested in excellent neuroscientists, regardless of degree. Applicants should submit, prior to 1 February 1984, updated curriculum vitae, a concise statement of research interests, and the names of three references to: **Dr. Theodore J. Cicero, Department of Psychiatry, Washington University School of Medicine, 4940 Audubon Avenue, St. Louis, Missouri 63110.** Washington University is an Equal Opportunity/Affirmative Action Employer.

**PHYSICAL OCEANOGRAPHER.** The Graduate School of Oceanography at the **UNIVERSITY OF RHODE ISLAND** invites applications for an assistant or associate research professor position. We are particularly interested in candidates with theoretical or numerical modeling experience in one or more of the following areas of research: geophysical fluid dynamics, dynamics of equatorial oceans, oceanic transport processes, and climate and the oceans. Only limited start-up funds are available so candidates must have a demonstrated ability to raise their own funding. Please send application, including a statement of research interests and names of three references, by 15 December 1983 to: **Professor Melvin Stern, Graduate School of Oceanography, UNIVERSITY OF RHODE ISLAND, Kingston, Rhode Island 02881.** An Affirmative Action/Equal Opportunity Employer, M/F.

## POSITIONS OPEN

### M.D. and Ph.D. FACULTY AND POSTDOCTORAL POSITIONS

One position is open currently for a Ph.D. neurochemist at the visiting assistant professor level. Training and experience in neuropeptide research are preferred.

Two positions are open currently and one effective 1 July 1984 for psychiatrists with active research in neurochemistry, neuropharmacology, electrophysiology, clinical electroencephalography, or clinical psychopharmacology. Salary and rank depend on qualifications.

One postdoctoral position is open for 1 or 2 years to study electrophysiology and neurochemistry. Applicant should have M.D. or Ph.D. with experience in neurochemistry, electrophysiology, and study of behavior.

Send curriculum vitae and letter describing research interests by 16 December to: **Robert E. Becker, M.D., Professor and Chairman, Department of Psychiatry, Southern Illinois University School of Medicine, P.O. Box 3926, Springfield, Ill. 62708.** An Equal Opportunity/Affirmative Action Employer.

### MOLECULAR BIOLOGIST/BIOCHEMIST

New project involving mRNA quantitation and cDNA cloning of rat intestinal calcium-binding protein. Opportunity to become PI. Recent Ph.D. preferred. Cloning experience desired but not necessary. Immediately available. Send résumé and references to: **Dr. F. Bronner or Dr. G. Carmichael, UNIVERSITY OF CONNECTICUT HEALTH CENTER, Farmington, Conn. 06032.** An Equal Opportunity Employer.

**MOLECULAR GENETICS:** Assistant professor, tenure track, fall 1984. Candidate expected to develop strong research program in molecular genetics. Ph.D. molecular/cellular biology, or genetics required, postdoctoral research preferred. Forward curriculum vitae, three letters of reference, and statement of research plans, needs, and teaching interests to: **Search Committee, Department of Biology, Building 31, Lehigh University, Bethlehem, Pa. 18015.** Applications received after 15 January 1984 cannot be assured consideration. *Lehigh University is an Affirmative Action/Equal Opportunity Employer.*

**PHARMACOLOGIST.** A tenure-track position in the College of Veterinary Medicine at Washington State University (WSU). Rank and salary are dependent on qualifications. The Ph.D. degree in pharmacological studies is required; persons with a professional degree are encouraged to apply.

The successful applicant will be expected to establish and maintain an independently funded research program; assume responsibilities in graduate and professional teaching; and participate in faculty affairs of the department and college. Send letters of application, curriculum vitae, names of three references, and summary of research plans to:

**Dr. Ronald E. Borchard, Chair, Search Committee  
Department of VCAOO  
College of Veterinary Medicine  
Washington State University  
Pullman, Wash. 99164-6520**

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

*In order to assist WSU's effort to meet its Affirmative Action goals, minority and/or women candidates are encouraged to identify themselves as such in their applications. Applications will be accepted until 15 February 1984 or until position is filled.*

### PLANT PHYSIOLOGY

The Department of Biology at the University of Northern Iowa is seeking applications for a tenure-track position effective August 1984. The individual would be responsible for teaching undergraduate courses in plant physiology and general biology and for the development of an advanced course in their area of specialization. The department has high expectations for good teaching while maintaining a productive research program. The appointment level and salary will depend on qualifications and experience. The applicant must have an earned doctoral degree. Preference will be given to applicants with postdoctoral experience and a record of teaching excellence and research productivity. Applicants should forward curriculum vitae, a statement of interests and goals in both teaching and research, and three letters of recommendation by 23 January 1984 to: **Dr. Daryl Smith, Head, Department of Biology, University of Northern Iowa, Cedar Falls, Iowa 50614.** An Equal Opportunity/Affirmative Action Employer.

## POSITIONS OPEN

### PHYSICAL OCEANOGRAPHER

Assistant or associate professor, depending on experience. Applicants may be observationalists or theoreticians but must have a Ph.D. in the physical sciences, have demonstrated the ability to conduct independent high-quality research, and are expected to obtain research funding. Duties include teaching and supervision of graduate students. Interested candidates should submit a résumé and names of three references by 1 February 1984 to: **G. Ross Heath, Dean, College of Oceanography, Oregon State University (OSU), Corvallis, Ore. 97331.** OSU is an Affirmative Action/Equal Opportunity Employer, complying with Section 504 of the Rehabilitation Act of 1973.

**PHYSIOLOGISTS.** Applications are invited for two tenure-track positions at assistant or associate level in expanding department. Candidates should have at least 1 year of postdoctoral experience and potential for developing high-quality research programs. Duties include participation in medical, graduate, and other departmental teaching. One position must be in cardiovascular area. Send curriculum vitae and names of three referees by 15 January 1984 to: **Dr. R. E. Thurber, Chairman, Department of Physiology, School of Medicine, East Carolina University, Greenville, N.C. 27834.** An Equal Opportunity/Affirmative Action Employer.

**POSTDOCTORAL FELLOW** position available immediately to study cell growth regulation at the molecular level. Preference will be given to applicants with experience in protein purification, enzyme chemistry, tissue culture, cloning, and somatic genetics. Send curriculum vitae and three letters of reference to: **Dr. Kuang Yu Chen, Department of Chemistry, Rutgers, The State University of New Jersey, P.O. Box 939, Piscataway, N.J. 08854.** Telephone: 201-932-3739. *Rutgers University is an Equal Opportunity/Affirmative Action Employer.*

**POSTDOCTORAL FELLOW** position available immediately to work on the biochemistry, genetics, and cell biology of halogenated aromatic hydrocarbons. Applicants should have a background in protein chemistry or purification, receptor binding, or production of monoclonal antibodies. Please send résumé with three names for references to: **Dr. Alan Poland, McArdle Laboratory for Cancer Research, University of Wisconsin, Madison, Wisc. 53706.**

**POSTDOCTORAL POSITION IN MUCOSAL IMMUNOREGULATION** available immediately for Ph.D. or equivalent. The candidate should be interested in lymphocyte cloning, lymphokine analysis, and role of accessory cells in IgA responses and oral tolerance. Interested candidates should send curriculum vitae and three letters of reference to: **Dr. Jerry R. McGhee, Department of Microbiology, University of Alabama in Birmingham, Birmingham, Ala. 35294.** An Equal Opportunity/Affirmative Action Employer.

**POSTDOCTORAL POSITIONS** available for the study of immunologic factors in the relationship between mother and fetus. Involves studies of membrane receptor functions, mechanism of IgG transport, and cellular immunoregulation. Background in cell biology/biochemistry desirable. Send curriculum vitae and names of three references to:

**Gary W. Wood, Ph.D.  
Department of Pathology  
University of Kansas Medical Center  
Kansas City, Kans. 66103**

*An Equal Opportunity/Affirmative Action Employer*

**POSTDOCTORAL POSITION** for research on in vitro or in vivo actin polymerization, actin-protein interactions, tubulin polymerization, tubulin-protein interaction, or enzymology. Available early 1984. NIH-supported. Send curriculum vitae and three letters of recommendation to: **Dr. Carl Frieden, Department of Biological Chemistry, Washington University School of Medicine, St. Louis, Mo. 63110.**

### POSTDOCTORAL POSITION

New and expanding biotechnology firm requires researcher for investigation of nutritional requirements, metabolic pathways, and preliminary genetic work with *Clostridium acetobutylicum* and other alcohol- and solvent-producing microorganism. Would join active group in ongoing program. Any previous experience or knowledge in molecular biology, anaerobic microorganisms, and fermentation technology should be mentioned, as well as earliest availability. Send résumé and references to: **Samuel E. Watson, Scientific Director, Energenetics, Inc., P.O. Box 1081, Oak Ridge, Tennessee 37831.**

## NATIONAL SCIENCE FOUNDATION

National Science Foundation (NSF), Division of Materials Research, is seeking qualified applicants for the position of **ASSISTANT/ASSOCIATE PROGRAM DIRECTOR**, Solid-State Physics Program, Condensed Matter Sciences Section. The position is in the excepted service and will be filled on a 1- or 2-year basis under the provisions of NSF's Rotator Program. The salary ranges from \$30,000 to \$45,000 per annum for the assistant program director position and \$35,000 to \$55,000 per annum for the associate program director position. The program is responsible for reviewing research proposals pertaining to experimental research on metals, semiconductors, and insulators in the crystalline state and intermediate states of disorder involving studies of phase transitions and electronic, magnetic, and lattice structures and their excitations. Applicants should have a Ph.D. or equivalent experience and training in an appropriate field in addition to successful scientific research experience beyond the Ph.D. as follows: 3 to 4 years for the assistant program director and 4 to 6 years for the associate program director. A broad general knowledge of the field and some administrative experience are also required. This position will remain open until filled. Those interested should send résumés, including current salaries, to: **The National Science Foundation, Personnel Administration Branch, 1800 G Street, NW, Room 212, Washington, D.C. 20550; attention: Catherine Handle.** For further information, telephone: 202-357-7840. NSF is an Equal Opportunity Employer.

## NATIONAL SCIENCE FOUNDATION

National Science Foundation (NSF), Division of Biotic Systems and Resources, is seeking qualified applicants for four positions: **PROGRAM DIRECTOR FOR ECOSYSTEM STUDIES, PROGRAM DIRECTOR FOR ECOLOGY, PROGRAM DIRECTOR FOR SYSTEMATIC BIOLOGY, and ASSOCIATE PROGRAM DIRECTOR IN SYSTEMATIC BIOLOGY.** The incumbents to these positions will administer programs for basic research grant support, including advising applicants, reviewing proposals, and other administrative duties. The positions are in the excepted service and will be filled on a 1- or 2-year basis under the provisions of NSF's Rotator Program. The salary ranges from \$40,000 to \$65,000 per annum (currently limited by statute to \$63,800 per annum) for program director positions and \$35,000 to \$55,000 per annum for the associate program director position. Applicants should have a Ph.D. and/or equivalent research experience in a related discipline, in addition to successful scientific research experience beyond the Ph.D., as follows: 6 to 8 years for the program director positions and 4 to 6 years for the associate program director position. Résumés, indicating current salary, should be sent to: **The National Science Foundation, Personnel Administration Branch, 1800 G Street, NW, Room 212, Washington, D.C. 20550; attention: Catherine Handle.** For further information, telephone: 202-357-7840. NSF is an Equal Opportunity Employer.

## NATIONAL SCIENCE FOUNDATION

National Science Foundation (NSF), Division of Chemistry, is seeking qualified applicants for **PROGRAM DIRECTOR AND ASSOCIATE PROGRAM DIRECTOR** positions in structural chemistry, thermodynamics, chemical physics, chemical analysis, and chemical instrumentation for 1984-1985. The positions are in the excepted service and will be filled on a 1- or 2-year basis under the provisions of NSF's Rotator Program. The salary ranges from \$40,000 to \$65,000 per annum (currently limited by statute to \$63,800 per annum) for the program director position and \$35,000 to \$55,000 per annum for the associate program director position. The incumbents of these positions will administer programs for basic research grant support, including advising applicants, reviewing proposals, and other administrative duties. Applicants should have a Ph.D. and/or equivalent research experience in a related discipline, in addition to successful scientific research experience beyond the Ph.D., as follows: 6 to 8 years for the program director position and 4 to 6 years for the associate program director position. Résumés, including three letters of recommendation, should be forwarded to: **The National Science Foundation, Personnel Administration Branch, 1800 G Street, NW, Room 212, Washington, D.C. 20550; attention: Catherine Handle.** The deadline for receipt of applications is 31 January 1984. For further information, telephone: 202-357-7840. NSF is an Equal Opportunity Employer.

## NATIONAL SCIENCE FOUNDATION

National Science Foundation (NSF), Division of Physiology, Cellular, and Molecular Biology, is seeking applicants for the position of **PROGRAM DIRECTOR FOR THE CELLULAR PHYSIOLOGY PROGRAM.** The position is in the excepted service and will be filled on a 1- or 2-year basis under the provisions of NSF's Rotational Program. The salary ranges from \$40,000 to \$65,000 per annum (currently limited by statute to \$63,800 per annum). The incumbent of this position will manage the program for basic research grant support including advising applicants, reviewing proposals, and other administrative duties. Applicants should have a Ph.D. in the areas related to plant and animal hormones, immunobiology, muscle physiology, or equivalent experience and 6 to 8 years of successful scientific research experience beyond the Ph.D. Résumés, indicating current salary, should be sent to: **The National Science Foundation, Personnel Administration Branch, 1800 G Street, NW, Room 212, Washington, D.C. 20550; attention: Catherine Handle.** For further information, contact: **Dr. Mary E. Clutter, Section Head, Cellular and Physiological Biosciences, telephone: 202-357-7905.** NSF is an Equal Opportunity Employer.

# Neurobiologists

The Worcester Foundation for Experimental Biology has several faculty level openings for Neurobiologists with a commitment to cellular approaches to an understanding of the functions and organization of the nervous system. We seek individuals who study functional units in vertebrate or invertebrate nervous systems with precise tools (e.g., cloned genes, monoclonal antibodies, individual ion channels). Excellent opportunities exist for collaboration with scientists working on cell-cell interactions, gene expression, chemoreception, cytoskeleton and motility, membrane organization, developmental biology, biorhythms and neuroendocrinology. Candidates must be able to develop a strong, independent research program. Excellent facilities, a minimum of non-scientific obligations and strong administrative commitment to productive research all contribute to a supportive environment highly conducive to scientific interactions. The Foundation is situated on a wooded 100 acre campus only a few minutes from the University of Massachusetts Medical Center and in close proximity to all major Boston, Hartford and Providence area academic and research institutions. Applicants should send their curriculum vitae and description of research interests to:

**Chairman, Neurobiology Search Committee,  
C/O PERSONNEL OFFICE  
Worcester Foundation for Experimental Biology  
222 Maple Avenue  
Shrewsbury, MA 01545**

An Equal Opportunity/Affirmative Action Employer M/F/H

**WORCESTER FOUNDATION  
FOR EXPERIMENTAL BIOLOGY**



## POSITIONS OPEN

**POSTDOCTORAL POSITION** available for the study of effects of drugs on the physical and functional properties of brain membranes. Applicants should have a strong background in biochemistry, an interest in pharmacology, and a record of outstanding research productivity. Salary commensurate with experience. Send curriculum vitae and names of three references to: **Dr. R. Adron Harris, Department of Pharmacology (C236), University of Colorado, 4200 East Ninth Avenue, Denver, Colo. 80262.** The University of Colorado Health Sciences Center is an Equal Opportunity/Affirmative Action Employer.

**POSTDOCTORAL POSITION** is available commencing 1 February 1984 to study various aspects of calmodulin and  $Ca^{2+}$ -dependent regulatory systems. Candidates with training in biochemistry, particularly protein chemistry or enzymology, are preferred. Send résumé and three letters of recommendation to:

**Dr. Thomas C. Vanaman**  
Chairman, Department of Biochemistry  
University of Kentucky College of Medicine  
Lexington, Ky. 40536-0084  
An Equal Opportunity Employer

**POSTDOCTORAL POSITION** available immediately for M.D. or Ph.D. with experience in cellular immunology. Research involves regulation of the immune response in the human model as it relates to transfusion and transplantation. Salary: \$15,000 to \$18,000, depending on experience. Send curriculum vitae and the names of three references to:

**Dr. Glenn E. Rodey, Division of Laboratory Medicine, Washington University Medical School, St. Louis, Mo. 63110.**

**POSTDOCTORAL POSITIONS** available in **MOLECULAR GENETICS AND MEMBRANE PROTEIN BIOCHEMISTRY**. Research is ongoing on a family of structurally related, human cell surface adhesion molecules of lymphocytes (LFA-1) and myeloid cells (the complement receptor Mac-1/OKM1), and on recently discovered inherited deficiencies of these molecules. The latest molecular cloning, membrane protein characterization, and monoclonal antibody techniques are being used. Two positions are open for individuals with strong backgrounds in molecular genetics or protein biochemistry. Send curriculum vitae, three references, and preprints to: **Dr. Timothy Springer, Dana-Farber Cancer Institute, Harvard Medical School, 44 Binney Street, Boston, Mass. 02115.** An Affirmative Action/Equal Opportunity Employer.

**POSTDOCTORAL POSITION** available immediately to study carcinogen metabolism and chemical mutagenesis. Salary: minimum \$16,000. Positions is for 1 year, renewable for the second year. Send curriculum vitae and names of three references to: **Dr. S. K. Yand, c/o Personnel Manpower Division, Department of Pharmacology, Uniformed Services University of the Health Sciences, 4301 Jones Bridge Road, Bethesda, Md. 20814.** An Equal Opportunity/Affirmative Action Employer.

**POSTDOCTORAL RESEARCH ASSOCIATE** position to study DNA repair enzymes in *Escherichia coli* and/or yeast in a very competitive laboratory. Experience in protein purification and enzymology desirable. Send curriculum vitae and references to: **Aziz Sancar, Department of Biochemistry, School of Medicine, University of North Carolina, Chapel Hill, N.C. 27514.** Equal Opportunity/Affirmative Action Employer.

### PUBLICATIONS POSITION AVAILABLE

Publications manager/editor for a Washington-based national center for the life sciences. As chief staff editor for a 12,000-plus monthly scientific magazine, requires strong business and financial management skills, facility in use of editorial boards, effectiveness in advertising promotion and subscription development, and ability to direct staff writers and editors. Also involves support of overall communications and public relations activities. Postgraduate academic background in the life sciences with successful current responsibility in general readership periodicals important. Salary commensurate, with competitive fringe benefits. Send complete résumé with present compensation to: **Box 327, SCIENCE.**

## POSITIONS OPEN

**POSTDOCTORAL RESEARCH ASSOCIATE.** For recent Ph.D. for NIH-supported study of ventilatory muscle function and exercise physiology in the elderly. Salary: \$17,000 to \$20,000. Apply to: **Michael J. Belman, M.D., Respiratory Diseases Department, City of Hope Medical Center, 1500 East Duarte Road, Duarte, Calif. 91010.**

**POSTDOCTORAL RESEARCH POSITION**—Neurobiology/neurochemistry. To join ongoing research in brain nerve-ending structural proteins, using phosphorylation, phospholipase, protein fractionation, immunoelectron microscopic localization, protein binding, cross-linking, electrophoresis, high-performance liquid chromatography, and radioimmunoassay. Please write to: **Dr. Saul Puzkin, Department of Pathology, THE MOUNT SINAI MEDICAL CENTER, One Gustave L. Levy Place, New York, N.Y. 10029.** An Equal Opportunity Employer.

The Reproductive Biology Program, Colorado State University, will have openings for **PREDOCTORAL AND POSTDOCTORAL FELLOWS** in January and July 1984. Training is offered in female and male reproductive endocrinology; neuroendocrinology; cell biology; ovarian function; testicular and epididymal physiology; fertilization; culture, surgical manipulation, and transfer of embryos; and mechanisms of steroid, peptide, and protein hormone action. Interested candidates should send curriculum vitae and three letters of recommendation to: **Dr. Gordon Niswender, Department of Physiology and Biophysics, Colorado State University, Fort Collins, Colo. 80523.** Predoctoral candidates should also send GRE scores and transcripts. *Colorado State University is an Equal Opportunity Employer and complies with Title IX requirements.*

### PROFESSOR AND CHAIR COMPUTER SCIENCE DEPARTMENT

The Computer Science Department at Washington State University invites applications for professor and chair. The applicant's research reputation will be a critical factor in selection. University administrative experience is preferred, and the new chair should promote the department's recent rapid increase in federal and industrial support. Preferred starting date is fall 1984. The department offers B.S., M.S., and Ph.D. degrees and has 15 faculty, 165 undergraduate majors, and 60 graduate students. Computing facilities include an Amdahl 470/V8, a PDP 11/60 and a HP 3000 for teaching, and a VAX 11/750 for research. Applications will be accepted until the position is filled. Review begins 1 March 1984. Send résumé and the names of four references to: **K. C. Wang, Search Committee Chairman, Computer Science Department, Washington State University, Pullman, Wash. 99164-1210.** An Equal Opportunity/Affirmative Action Employer.

**RESEARCH ASSISTANT**—Experienced technician to manage histology and electron microscopy facilities. Major responsibilities: fixation-embedding, routine and specialized histology techniques, ultramicrotomy, electron microscopy, and darkroom printing. Bachelor's degree required. Starting date open; starting salary: \$14,800. Application deadline: 15 January 1984. Send résumé and three references to: **Dr. A. Kokko-Cunningham, Anatomical Sciences, University of Illinois College of Medicine at Urbana-Champaign, 506 South Mathews, Urbana, Ill. 61801.** University of Illinois is an Affirmative Action/Equal Opportunity Employer.

**RESEARCH ASSOCIATE.** Position for individual with at least 1 year of postdoctoral experience or extensive graduate training in cell biology and cellular immunology to investigate morphology activation and function of human macrophage subpopulations. Send curriculum vitae, bibliography, and three letters of reference to: **Dr. Steven D. Douglas, Director, Allergy-Immunology, Children's Hospital of Philadelphia, 34th and Civic Center Boulevard, Philadelphia, Pa. 19104.** An Equal Opportunity Employer.

### RESEARCH ASSOCIATE

Postdoctoral position available immediately to use molecular biological techniques in the study of cyclic nucleotide-mediated events. Send copy of curriculum vitae, bibliography, and names of three referees to: **Dr. Richard H. Kessin, Department of Anatomy and Cell Biology, College of Physicians and Surgeons of Columbia University, 630 West 168 Street, New York, N.Y. 10032.**

## POSITIONS OPEN

### Proposed 1983-1984 Position Search THE DEPARTMENT OF PSYCHOLOGY

The Department of Psychology of the University of Minnesota seeks applications for **two tenure-track positions in experimental cognitive psychology.** One appointment will be at the assistant professor level. The other will be at the assistant or associate level. Candidates should have primary research interests in one or more of the following areas: (i) human information processing, memory, and perception; (ii) mathematical and/or computer models of human cognitive processes; (iii) human reasoning, problem-solving, and decision-making; (iv) action systems/perceptual motor behavior; or (v) biochemical or neural mechanisms of human cognition. Candidates are expected to carry on an active research program and contribute to the research training of graduate students. Teaching responsibilities will include undergraduate and graduate courses in areas of cognitive psychology compatible with the departmental curriculum and the individual's expertise. Salary level is competitive and will depend on qualifications and experience. Candidates should submit curriculum vitae, three letters of reference, up to three representative publications, and a statement of long-term research interests to: **Search Committee in Cognitive Psychology, Department of Psychology, N218 Elliott Hall, 75 East River Road, University of Minnesota, Minneapolis, Minn. 55455.** Applications must be received by 9 January 1984.

*The University of Minnesota is an Equal Opportunity Employer and specifically invites applications from women and minorities.* The preceding statement is mandated by a U.S. District Court order, Civil Number 4-73-435.

### PROTEIN CHEMISTRY

A faculty position at the assistant professor level will be available in the Department of Pharmacology and Experimental Therapeutics, The Johns Hopkins University School of Medicine, in the general area of protein chemistry. Areas of interest include:

- 1) Isolation, characterization, and biological studies of naturally occurring peptides.
- 2) Use of site-specific mutagenesis or synthetic chemical modification to analyze protein structure and function, and
- 3) Rational design of biologically active peptides.

Experience in one or more of these areas is desirable. The successful candidate will be expected to develop a vigorous independent research program. Excellent facilities are available, as well as good possibilities for multidisciplinary projects within the Department of Pharmacology and the School of Medicine.

Send curriculum vitae, including publication list, names and addresses of three references, and a short summary of research interests, to:

**Dr. C. H. Robinson**  
The Johns Hopkins University School of Medicine  
Department of Pharmacology and  
Experimental Therapeutics  
725 North Wolfe Street  
Baltimore, Maryland 21205

*The Johns Hopkins University is an Equal Opportunity/Affirmative Action Employer. Women and minorities are encouraged to apply.*

**RESEARCH ASSISTANT PROFESSOR or RESEARCH ASSOCIATE** (rank will depend upon experience). Studies of protein-protein interaction in thrombosis and hemostasis. Ph.D. with experience in structure and function of proteins. Appointment at faculty rank requires previous postdoctoral experience and will be contingent on continued availability of entire salary from research grants. Send curriculum vitae and names of three references to: **Dr. Jan Hermans, Department of Biochemistry and Center for Thrombosis, University of North Carolina, Chapel Hill, N.C. 27514.** Women and minorities are encouraged to apply. *Equal Opportunity/Affirmative Action Employer.*

**RESEARCH ASSOCIATE**, position available for recent microbiology or biochemistry Ph.D. starting January 1984. Exciting opportunity for independent scientist to enter environmental/occupational health field by conducting research on short-term bioassays. Experience conducting Ames and bacterial fluctuation tests required. Demonstrated ability in grant writing helpful. Submit curriculum vitae, three letters of recommendation, and a one-page summary of research interests to: **Dr. S. Zoloth, Environmental Mutagenesis Laboratory, Box 629, Hunter College, School of Health Sciences, 425 East 25 Street, New York, N.Y. 10010.** *Equal Opportunity/Affirmative Action Employer.*

## SPECIAL EXPERT NATIONAL INSTITUTES OF HEALTH PUBLIC HEALTH SERVICE

The National Institute of Neurological and Communicative Disorders and Stroke (NINCDS) invites applications for the position of Special Expert in its Office of Planning and Analysis. This is a non-tenured position, lasting two (2) years, and is located in Bethesda, Maryland. The incumbent will assume a major role in the review, update and generation of research goals for the neurological and communicative sciences.

Applicants must possess an extensive background of professional training and successful research activity in neurological and/or communicative sciences; must show extensive ability to compile, write and edit scientific reports; and must possess the interpersonal skills necessary to plan, organize and conduct scientific meetings. An individual must have the same level of qualifications as required for the GS-13 grade level in the Federal government. Salary will be commensurate with the appointee's qualifications and expertise, but may not exceed Level V of the Executive Schedule (\$63,800/per annum).

Please submit a Standard Form 171 (Personal Qualifications Statement), curriculum vitae, and bibliography to: Mr. Clifford Schein, NINCDS Personnel Office, Building 31, Room 8A-23, 9000 Rockville Pike, Bethesda, Maryland 20205 (Telephone (301) 496-6334). All applications must be post marked no later than January 30, 1984.

*The National Institute of Neurological and Communicative Disorders and Stroke is an Equal Opportunity Employer.*

## THE FOUNDATION FOR **SUCCESS**

**I**f you'd like to step into the future with a stable and growing company, consider Collagen Corporation, a premier biomedical innovator. When we say we've laid the foundation for success, we mean it is there for our people as well as for our company.

### **Senior Scientist — Immunology**

You will develop and conduct assays for cell-mediated immunity and inflammation to collagen and other materials of interest as products for connective tissue repair and replacement. You will also collaborate with other investigators in interdisciplinary projects. A doctoral degree in immunology or related science and 2-3 years' experience are required.

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To share our future, please send your resume, including a brief description of your research interests, to: Dr. Frank DeLustro, Dept. of Immunology, Box 201, Collagen Corporation, 2500 Faber Place, Palo Alto, CA 94303. We are an equal opportunity employer.

## **Collagen Corporation**



# STAFF FELLOWS

The National Institute of Allergy and Infectious Diseases, National Institutes of Health, Public Health Service, is actively recruiting applications for the Medical Staff Fellowship Program to train in its intramural facilities at the Rocky Mountain Laboratories (RML) in Hamilton, Montana. This recruitment is specifically for junior level Staff Fellows, those with initially less than 3 years of professional level research experience. Candidates for the Staff Fellowship must be U.S. Citizens or resident aliens who would be eligible for citizenship within 4 years. They must either have been awarded their doctoral degrees in a biomedical science or have been certified by a university as meeting *all* the requirements leading to such a doctorate. The starting salary for Staff Fellows is in the range of \$17,000 to \$23,000 depending on research experience.

At the present time we are recruiting for training in three laboratories at RML.

*The Laboratory of Persistent Viral Diseases* is studying several models of chronic or persistent virus infections including retroviruses (Friend leukemia virus), rabies virus, Aleutian disease virus of mink, scrapie and the slow virus agents responsible for kuru and Jakob-Creutzfeldt disease, to understand the mechanisms of host immunity and to clarify the mechanisms of virus persistence.

*The Laboratory of Microbial Structure and Function* is concerned

with structure, function and genetics of pathogenic bacteria with regard to the virulence, pathogenicity and immunochemical properties of agents such as gonococci, chlamydiae, spirochetes causing relapsing fever and Lyme disease and spotted fever rickettsiae.

*The Laboratory of Molecular Pathobiology* addresses the application of molecular biology, molecular genetics and immunochemistry to investigation of the pathogenesis of and immunity to disease-producing microorganisms.

The research programs are supported by excellent facilities for large and small animals. Isolation facilities are available for work with hazardous or unknown pathogens. A well equipped and staffed electron microscope section is also available.

The Rocky Mountain Laboratories are in Hamilton, Montana, a small community serving 9,000 people, 45 miles from Missoula, home of the University of Montana. The climate is pleasant, moderate in comparison to cities such as Chicago.

**For further information on research programs and application forms, please contact Dr. Kenneth Sell, Scientific Director, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, Maryland 20205, who will arrange contact with the Chiefs of the respective laboratories and research programs.**

*NIH is an Equal Opportunity Employer.*

**DIVISION HEAD**  
Division of  
Science, Engineering and Technology (SET)

The Pennsylvania State University  
The Behrend College  
Erie, Pennsylvania

Penn State-Behrend, a 4-year college of The Pennsylvania State University, invites applications for the position of division head of the Division of Science, Engineering and Technology. The division has 45 full-time faculty in biology, chemistry, computer science, engineering, geoscience, mathematics, and physics; it offers associate, baccalaureate, and graduate programs, including new 4-year science and engineering programs in energy and the environment, and a new 4-year technology program.

General qualifications include an earned doctorate in an appropriate discipline, successful teaching experience, a strong record in research and scholarship, and significant administrative experience. Preference will be given to those having at least one degree in engineering, or who have held an appointment in an industrial or academic department of engineering. It is anticipated that this position will be filled at the rank of full or associate professor, at a competitive salary and with the possibility of immediate tenure, and a starting date of 1 July 1984.

Erie is an attractive, renaissance, medium-sized city on the Pennsylvania shore of Lake Erie, approximately equidistant from Pittsburgh, Cleveland, and Buffalo. There are abundant cultural and recreational opportunities and housing costs are quite reasonable. Penn State-Behrend has an especially beautiful 400-acre campus and will add two new academic buildings and new student housing within the next 2 years.

Applications and three letters of recommendation will be accepted until 29 February 1984, or until a suitable applicant is identified, and should be addressed to:

Search Committee for SET Head  
Office of the Provost  
Behrend College, Department B  
The Pennsylvania State University  
Erie, Pa. 16563

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**DEAN OF THE COLLEGE OF LIFE  
SCIENCES AND AGRICULTURE/  
DIRECTOR OF THE MAINE AGRICULTURAL  
EXPERIMENTAL STATION**



UNIVERSITY OF MAINE at Orono

Applications and nominations are invited for the position of Dean of the College of Life Sciences and Agriculture and Director of the Maine Agricultural Experiment Station.

Candidates should have professional credentials of a high order and a record of significant achievement in at least two of the three mission areas—teaching (graduate and undergraduate), research and public service. Minimum qualifications include:

- An earned doctorate in one of the disciplines represented in the College.
- At least five years of experience in higher education.
- A record of scholarly publication or evidence of equivalent competence in research and public service.
- Significant administrative experience, preferably as a department chairperson, or dean.
- Demonstrated outstanding leadership, communicative skills and the ability to develop effective relationships with agriculturists, government and other organization closely related to departments in the College.

Salary negotiable and commensurate with qualifications.

Applications should be accompanied by a current résumé including a list of three references. The closing date for applications is February 1, 1984. The preferred appointment date is July 1, 1984.

All applications and nominations should be forwarded to:

Dr. James F. Horan  
Chairperson, Dean of the College of LS&A/Director of MAES  
209 Alumni Hall  
University of Maine at Orono  
Orono, Maine 04469

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**POSITIONS OPEN**

**RESEARCH ASSOCIATE**

Research associate in calcification. To serve as electron microscopic examiner and consultant for a research project funded until 1987 to study the calcification of submicroscopic extracellular matrix vesicles. There is also a responsibility to supervise the feeding, care, sacrifice, and dissection of rachitic rats which provide a major source of matrix vesicles. Requirements: the Ph.D. degree, preferably in the anatomy and fine structure of cartilage calcification. A thorough knowledge of EM specimen preparation, cryoultramicrotomy, transmission electron microscopy, and EM probe microanalysis. A working knowledge of EM cytochemistry; \$18,000 per annum.

Apply at: Job Service of Kansas, 522 State Avenue, Kansas City, Kans. 66101. Job order number 733763.

**THE AUSTRALIAN NATIONAL UNIVERSITY** invites applications for **ARGS RESEARCH FELLOW IN MOLECULAR CYTOGENETICS IN POPULATION BIOLOGY, RESEARCH SCHOOL OF BIOLOGICAL SCIENCES**. The fellowship is supported by a grant from the Australian Research Grants Scheme to Professor M. J. D. White for the investigation of the genetic systems of parthenogenetic insect species and their bisexual relatives. There is already a considerable background of knowledge on the chromosome architecture of these species, and a bank of repetitive sequences cloned in bacteriophage lambda is available. It is proposed that the research fellow should work on the repetitive sequences, using a variety of molecular techniques. There will be active collaboration with molecular biologists in the Division of Plant Industry, Commonwealth Scientific and Industrial Research Organisation. Applicants should have a Ph.D. and further research experience in a relevant field but not necessarily in cytogenetics. The post is funded for 2 years in the first instance with the possibility of renewal for a third year. Applications welcomed from persons on leave from other institutions. Salary in accordance with qualifications and experience within the range: research fellow, \$23,394 to \$30,734 per annum. Current exchange rates: A\$1 = U.K. 61P = U.S. \$0.92. Grants are provided toward travel and removal; assistance with housing; superannuation. The University reserves the right not to make an appointment or to make an appointment by invitation at any time. Applicants may obtain further particulars from: **The Registrar, The Australian National University, G.P.O. Box 4, Canberra, Australia**, with whom applications close on 31 December 1983.

Scripps Institution of Oceanography/California Space Institute is seeking an individual for **feasibility studies of tether applications in space**. Deploying a tethered maneuvering vehicle from a space station to retrieve other spacecraft is typical of the proposed applications. Background in orbital mechanics and in computer simulation of the dynamics of flexible structure is required. Advanced degree is preferred. Salary range: \$23,664 to \$28,536, commensurate with qualifications. Résumés must be received by 23 December 1983 at: **University of California, San Diego, Staff Personnel Management Office Q-016 (Number 12239), La Jolla, Calif. 92093. Equal Opportunity/Affirmative Action Employer.**

**TOXICOLOGIST/PHARMACOLOGIST**

Opening for toxicologist/pharmacologist at the assistant professor level in the School of Pharmacy at the University of Wisconsin-Madison. Candidate will participate in teaching of undergraduate/graduate courses in pharmacology and toxicology and will be expected to develop an independent research program. Submit by 1 January 1984, curriculum vitae, including a brief description of research interests and the names of three references, to: **Dr. Ralph Albrecht, University of Wisconsin School of Pharmacy, 425 North Charter Street, Madison, Wisc. 53706. The University of Wisconsin is an Equal Opportunity/Affirmative Action Employer.**

**SUMMER RESEARCH**

**FIELD BIOLOGY.** Postdoctoral fellowships are available for summer research at the Mountain Lake Biological Station of the University of Virginia. Proposals will be considered for a wide variety of ecological and evolutionary studies. Deadline for applications: 1 March 1984. Write to: **Director, Mountain Lake Biological Station, Gilmer Hall, University of Virginia, Charlottesville, Va. 22901. Equal Opportunity/Affirmative Action Employer.**

**GRANT ASSISTANCE**

**GRANTS FROM THE FRENCH GOVERNMENT** The French Government is offering grants to American students wishing to study in France.

**Exact sciences and medicine.** Bourse Chateaubriand: 1 year. September 1984 to July 1985; 5500 francs per month plus return trip. For Ph.D. candidates and Ph.D.'s (3 years or less). Applicable to French universities.

**Engineering.** Bourse Lavoisier: 2 years. September 1984 to July 1986; 5500 francs monthly plus return trip. Applicable to French engineering schools (Grandes Ecoles). For B.S. and M.S. students. Sufficient knowledge of French required. Preliminary language courses offered. Application forms available from: **French Scientific Mission, 2011 I Street, NW, Number 500, Washington, D.C. 20006.**

**PROGRAMS**

**TRAINING VETERINARY PATHOLOGISTS  
FOR AGING RESEARCH**

The Department of Pathology, New York State College of Veterinary Medicine, Cornell University, in conjunction with the Cornell Medical College, New York City, announces a unique opportunity for postdoctoral training for veterinarians in the field of aging research. Prerequisites include enrollment in The Graduate School of Cornell University, at least 1 year of supervised residency training in veterinary pathology, and documentation of research interest and potential, particularly as it relates to the field of aging. Successful completion will lead to a Ph.D. in experimental pathology (pathobiology of aging) and eligibility for specialty Board-certification by the American College of Veterinary Pathologists. Availability of positions: immediately. Starting stipend levels are contingent upon background and experience as determined by NIH guidelines. Application materials (curriculum vitae and personal bibliography, official college transcripts, three professional references and a brief statement concerning career goals in aging research) should be directed to: **Robert M. Lewis, D.V.M., Chairman, Department of Pathology, E205 VA Moore Laboratory, New York State College of Veterinary Medicine, Cornell University, Ithaca, New York 14853.**

Cornell University is an Equal Opportunity/Affirmative Action Educator/Employer.

**GRADUATE PROGRAM  
MARINE BIOLOGY IN  
CHARLESTON, SOUTH CAROLINA**

The Charleston Higher Education Consortium (CHEC) announces the availability of a unique graduate program in marine biology. The M.S. degree is bestowed by the College of Charleston and the Ph.D. degree is bestowed by the Medical University of South Carolina. A faculty of more than 50, representing the College of Charleston, the Citadel, the South Carolina Marine Resources Research Institute, and the Medical University of South Carolina, is involved. Students are provided space at modern, well-equipped facilities overlooking Charleston Harbor. Emphasis is placed on modern marine ecology, systematics, fisheries, mariculture, and marine biomedical disciplines—for example, developmental biology, biochemistry, physiology, neurobiology, immunology, parasitology, and pathology. Teaching assistantships and predoctoral fellowships are available on a competitive basis. For additional information, contact: **Dr. Thomas C. Cheng, Director, CHEC Marine Biology Graduate Program, P.O. Box 12559 (Ft. Johnson), Charleston, South Carolina 29412. Telephone: 803-795-7490.**

**PREDOCTORAL AND POSTDOCTORAL TRAINING IN CHEMICAL CARCINOGENESIS AND CANCER BIOLOGY.** Fellowships available for training in chemical carcinogenesis, cell/molecular biology, environmental toxicology, nutrition, virology, immunology, and experimental pathology. Ph.D. studies are in cooperating departments, including Biochemistry, Biomedical Chemistry, Medical Microbiology, Pathology and Laboratory Medicine, Pharmacodynamics and Toxicology, and Pharmacology. Primary study areas include mechanisms of carcinogen activation and chemical carcinogenesis, biochemistry of DNA-carcinogen interactions, mechanisms of DNA repair, molecular biology of carcinogenesis, nutrition, viruses and cell immortalization, and teratocarcinoma differentiation. Candidates should send transcript, three letters of recommendation, and brief statement of career goals to: **Dr. Edward Bresnick, Eppley Institute for Research in Cancer, University of Nebraska Medical Center, 42nd and Dewey Avenue, Omaha, Nebraska 68105.**



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#### RESEARCH ASSOCIATES

Candidates for these positions should have a BS/MS in molecular and cellular biology, microbiology or biochemistry. Experience with recombinant DNA techniques such as cloning, nucleic acid sequencing and/or microinjection is required. A strong interest in **molecular cell biology of plant, viral, yeast, and/or mammalian systems** is desirable.

We offer a comprehensive benefit package and competitive salary. For confidential consideration, please submit application, including a curriculum vitae, a statement of research interests and goals, a list of publications, if applicable, and the names of three professional references to:

#### SIBIA

Human Resources Office 4028  
505 Coast Boulevard South, La Jolla, California 92037

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SIBIA is an established biotechnology company involved in a wide spectrum of innovative biotechnology research programs. SIBIA has a strong basic research component with close ties to very senior academic consultants. Vacancies exist in our La Jolla laboratory located near the ocean on Coast Boulevard South for:

#### STAFF RESEARCH SCIENTISTS

These positions require a Ph.D in molecular biology with 3-7 years of research experience in molecular and cellular biology, including recombinant DNA techniques and familiarity with gene regulation and expression in prokaryotic and eukaryotic systems including **plant, viral, yeast, and/or mammalian systems**.

We offer a comprehensive benefit package and competitive salary. For confidential consideration, please submit application, including a curriculum vitae, a statement of research interests and goals, a list of publications, if applicable, and the names of three professional references to:

#### SIBIA

Human Resources Office 4029  
505 Coast Boulevard South  
La Jolla, California 92037

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### RESEARCH AND DEVELOPMENT TERUMO MEDICAL CORPORATION SCIENTIST/IMMUNOLOGY

We are a leading international manufacturer of healthcare and life support devices and are in the process of recruiting for our R&D Division in Elkton, Maryland.

Successful candidate will have a Ph.D. in Immunology or related field with a minimum of 2 years post-doctoral or industrial experience with Immunoassay and Immunochemistry (RIA/EIA) development. Previous experience with protein purification, enzyme conjugation techniques and monoclonal antibodies is desirable.

In addition to competitive salary and liberal fringe benefits, we offer opportunity for growth with a rapidly expanding company in the medical field. Please send resumé including salary history in confidence to:

**TERUMO MEDICAL CORPORATION  
Personnel Department  
P.O. Box 605  
Elkton, MD 21921**

E.O.E. M/F

## PROTEIN BIOCHEMISTRY ASSISTANT

The Upjohn Company, Kalamazoo, Michigan, a world-wide producer of pharmaceuticals, has an opening in its Fertility Research Unit for a highly motivated individual with training in biochemistry/cell biology to participate in research on drug targeting by receptor mediated endocytosis.

The successful candidate will possess a BS or MS degree with strong background in the purification of proteins with retention of biologic activity. Experience in the radiolabeling and/or chemical modification of proteins would be highly desirable.

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

For confidential consideration, please call inside Michigan, collect (616) 323-6767 or from outside Michigan, toll free 1-800-253-8600, ext. 3-6767, to request an employment application sent to you immediately. Please refer to Ad Number 15480-A when calling.

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## PROGRAMS

Applications are invited for **GRADUATE PROGRAMS** leading to the Ph.D. degree with specialization in molecular biology, biochemistry, cell biology, genetics, or population biology. Programs are tailored to meet the interests and career goals of each individual. Successful applicants will be awarded research or teaching assistantships with competitive stipends plus waived tuition. Write: **Dr. J. K. Bryan, Department of Biology, Syracuse University, Syracuse, N.Y. 13210.** *Syracuse University is an Affirmative Action/Equal Opportunity Employer.*

## TRAINEESHIPS

**PREDOCTORAL AND POSTDOCTORAL TRAINING IN MOLECULAR VIROLOGY.** Several predoctoral and postdoctoral traineeships are available for qualified applicants through NIH training grants. Preceptors include Doctors G. M. Air, J. C. Bennett, D. H. L. Bishop, R. W. Compans, E. Hunter, E. Lamon, J. Lebowitz, P. Roy, J. P. Segrest, and R. D. Wells. Research areas include gene cloning, sequence analysis, and expression; viral immunology; and viral membrane biology. Send applications and inquiries to: **Dr. R. W. Compans, Department of Microbiology, University of Alabama in Birmingham, Birmingham, Ala. 35294.** *An Affirmative Action/Equal Opportunity Employer.*

## ASSISTANTSHIPS

### GRADUATE STUDENT POSITION at the University of Cincinnati College of Medicine Department of Anatomy and Cell Biology

Several graduate assistantships with stipend are available in the Department of Anatomy and Cell Biology at the University of Cincinnati College of Medicine. The department has a faculty with diverse research interests with a strong emphasis in cellular and developmental biology. Funded research programs include cell-cell interactions and cell junctions; electron microscopy and metabolism of liver function; molecular genetics, DNA replication and gene cloning; teratocarcinoma differentiation; and neurobiology.

The philosophy of the department is to train the student to become proficient in teaching one or more of the anatomical disciplines and to develop and pursue a competitive research program.

Inquiries should be sent to: **Dr. Peter J. Stambrook, Department of Anatomy and Cell Biology, University of Cincinnati College of Medicine, 231 Bethesda Avenue, M.L. Number 521, Cincinnati, Ohio 45267.**

## FELLOWSHIPS

### GRADUATE FELLOWSHIPS IN BIOMEDICAL AND PHYSICAL SCIENCES

Physics	Physiology	Molecular Cell Biology
Anatomy	Biochemistry	Computer Sciences
Biology	Oral Biology	Biophysical Sciences
Genetics	Pharmacology	Biomathematics
Chemistry	Biostatistics	Physiological Optics
Pathology	Neurosciences	Biomedical Engineering
Virology	Immunology	Medical Psychology

Well-funded faculty with diverse interests. Good postgraduate placement record. Above average stipends include full payment of tuition. Contact: **The Graduate School (A), University of Alabama in Birmingham, Birmingham, Ala. 35294; telephone: 205-934-8227.** *Equal Opportunity/Affirmative Action Institution.*

**POSTDOCTORAL FELLOWSHIP** available in December for study of polyamine function in cell proliferation and the potential of polyamine metabolism and function in anti-cancer chemotherapy. A background in biochemical pharmacology or biochemistry is preferred. *An Equal Opportunity Employer, M/F.* Send curriculum vitae and two letters of recommendation to:

**Carl W. Porter, Ph.D.  
Grace Cancer Drug Center  
Roswell Park Memorial Institute  
666 Elm Street  
Buffalo, New York 14263  
Telephone: 716-845-3002**

## FELLOWSHIPS

**DOCTOR OF ARTS IN BIOLOGY; FELLOWSHIPS** are available for qualified persons interested in the D.A. degree in biology. The program stresses preparation for undergraduate teaching at colleges and universities. Applicants should hold a master's degree in some area of biology. Deadline for receipt of application is 1 March 1984. For more information, contact: **Chairman, D.A. Committee, Department of Biology, Idaho State University, Pocatello, Idaho 83209.** *An Equal Opportunity Employer.*

### POSTDOCTORAL RESEARCH FELLOWSHIPS IN HUNTINGTON'S DISEASE

Applications are invited for postdoctoral fellowships in clinical and/or basic research in studies relating to problems of Huntington's disease. Applicants must have received either M.D., Ph.D., or the equivalent before fellowship is to be activated. Fellowships will be awarded for 1 year but a second year of support may be applied for. Candidates are welcomed whose background and research proposal is within one of the following areas: basic sciences, including neuroscience, biochemistry, molecular biology, pathology, and pharmacology, and clinical sciences including neurology, psychiatry, and human genetics. Fellowship stipend will be from \$15,500 to \$17,000, depending upon the background of the fellow. The fellowship may be done at any institution with adequate facilities and with an appropriate sponsor. Application deadline is 15 February 1984. Awards will be announced by 15 March 1984, for fellowship to begin 1 July 1984. Send for application materials: **The National Huntington's Disease Association, 1182 Broadway, Suite Number 402, New York, N.Y. 10001.**

### POSTDOCTORAL FELLOWSHIP IN NEUROCHEMISTRY

Fellowships in neurochemistry are available at the Missouri Institute of Psychiatry in St. Louis. The Neurochemistry Research Unit is part of the Department of Biochemistry, University of Missouri-Columbia. Doctors Ingming Jeng, Eric G. Brunngraber, and Derek Cash are currently pursuing biochemical research in the mechanism of mammalian neurotransmitter-receptor interactions and the consequent transmembrane processes; the molecular mechanism of the response of acetylcholine receptor; and metabolism of gangliosides and glycoproteins in neuronal cells in culture and the regulation of isoprenoid biosynthesis. Please send curriculum vitae, area of interest, and three references to:

**Dr. Ingming Jeng, Unit Chief  
Neurochemistry Research Unit  
Missouri Institute of Psychiatry  
5400 Arsenal Street, M.S. 148  
St. Louis, Missouri 63139**

*The University of Missouri is an Equal Employment and Educational Opportunity Institution.*

### POSTDOCTORAL FELLOWSHIPS

Positions become available from time to time for persons with an M.D. or Ph.D. to conduct research as a member of a group in any one of the following areas: neurophysiology; electrophysiology and biophysical theory; membrane phenomena, biophysics and active transport; cellular neurophysiology; cardiovascular physiology; circulation; respiration; behavioral and sensory physiology; and physiology of the heart and muscle, or other related specialties. Applicants are expected to be familiar with advanced research techniques relevant to the area of interest and must have strong academic background. Stipends usually range from \$15,000 to \$20,000, depending upon postdoctoral experience. Applicants with own private funding will also be considered. Applicants should submit curriculum vitae with a list of publications and names of references to: **Professor Wilfried F. H. M. Mommaerts, Chairman, Department of Physiology, University of California, 53-259 CHS, Los Angeles, California 90024.** *The University of California is an Affirmative Action Employer with an Equal Opportunity Program. Women and minorities are encouraged to apply.*

**PREDOCTORAL ALL-UNIVERSITY MERIT FELLOWSHIPS** and Merit Teaching Fellowships for incoming students aiming toward a Ph.D. at University of Southern California (USC) and planning a career in university teaching and research; \$10,000 stipend, plus full tuition. One year, renewable upon satisfactory academic performance and progress, up to a maximum of 3 years. Deadline: 15 February 1984. Inquiries: **Fellowship Division A, The Graduate School, USC, Los Angeles, Calif. 90089-4015.**

## FELLOWSHIPS

### POSTDOCTORAL FELLOWSHIPS TO STUDY GENETIC AND DEVELOPMENTAL DISEASES

Postdoctoral fellowships are available at the Eleanor Roosevelt Institute for Cancer Research and the Florence R. Sabin Laboratories for Genetic and Developmental Medicine located at the University of Colorado Health Sciences Center to study human developmental and genetic diseases using techniques of molecular and theoretical biology and biochemical and somatic cell genetics. Candidates must have the M.D. or Ph.D. degree. Faculty include Doctors David Anderson, Jeffrey Davidson, Carol Jones, Fa-Ten Kao, Martha Law, David Patterson, Theodore T. Puck, Arthur Robinson, Robin Schnitzer-Polokoff, Charles Scoggin, Michael Sinsensky, and Charles Waldren. Collaborative opportunities also exist for study with members of the Theoretical Division of the Los Alamos Scientific Laboratory. Stipends will be commensurate with prior training and experience. Candidates should send curriculum vitae and names of three references to: **Postdoctoral Selection Committee, c/o Dr. David Patterson, Eleanor Roosevelt Institute, B-129, University of Colorado Health Sciences Center, 4200 East Ninth Avenue, Denver, Colo. 30262.** *We are an Equal Opportunity/Affirmative Action Employer.*

### DOGGETT PREDOCTORAL FELLOWSHIP

The University of Tennessee Center for the Health Sciences (UTCHS), Graduate School of Medical Sciences, announces a full support predoctoral fellowship. It consists of an \$8500 annual stipend plus tuition, renewable annually for 4 years, dependent on maintenance of superior performance. The appointee will begin graduate work in summer or fall 1984 and must possess a baccalaureate degree in the appropriate field and exhibit an outstanding academic background. Selection will be based on demonstrated achievement and future promise; financial need is not considered.

Possible fields of study include anatomy, biochemistry, microbiology and immunology, pathology, pharmacology, physiology, and an Interdisciplinary Toxicology Training Program. Colleges of Medicine, Dentistry, Pharmacy, Nursing, and Allied Health Professions are on the campus and opportunities for interaction exist.

Completed applications, transcripts of all previous college and university work, three letters of reference, scores from the Graduate Record Exam (verbal and quantitative sections), and from the TOEFL exam (if applicable) must be received by 15 February 1984.

Dr. E. Hugh Doggett was a 1927 graduate of UTCHS and provided the resources for this fellowship. *Nondiscriminatory as to race, color, national origin, sex, religion, age, handicap, or veteran status.*

For details and application materials, write:

**Dr. John Autian, Dean  
Graduate School of Medical Sciences  
University of Tennessee  
Center for the Health Sciences  
Memphis, Tennessee 38163**

## MARKETPLACE

### HIGH-VOLTAGE RESEARCH FACILITY

The Johns Hopkins University is offering for sale, at the cost of removal, a complete 200-kv, 60-Hz, large animal exposure facility including heavy copper shielding, 1-inch phenolic insulation, Hipotronics transformer and controller, and switch gear. Interested parties should contact: **Dr. Lawrence P. Schramm, Department of Biomedical Engineering, 720 Rutland Avenue, Room 226, Baltimore, Md. 21205; telephone: 301-955-3026.**

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37th Annual Symposium on Fundamental Cancer Research

## MEDIATORS IN CELL GROWTH AND DIFFERENTIATION

March 6-9, 1984  
Houston, Texas

Sponsored by The University of Texas M. D. Anderson  
Hospital and Tumor Institute

This symposium will consider recent developments in the areas of the control of cell proliferation, growth factors for various cell types, and the role of soluble mediators in differentiation. Program topics include cell cycle and control of cell growth; colony stimulating factors, stem cells and hematopoiesis; growth factors for non-lymphoid cells; lymphoid growth factors; tumor growth factors; interferon; and differentiation in normal and neoplastic cells. Co-chairmen: Drs. Abby L. Maizel and Richard J. Ford.

Invited speakers include: S. Aaronson, R. Baserga, R. Bradshaw, A. Burgess, S. Cohen, R. Gallo, E. Goldwasser, D. Gospodarowicz, N. Iscove, P. Krammer, P. Marks, M. Moore, A. Pardee, J. Taylor-Papadimitriou, S. Pestka, R. Phillips, J. Pledger, L. Sachs, D. Sirbasku, K. Smith, C. Stiles, G. Todaro, J. Vilcek, E. Vitetta, J. Watson.

Poster sessions and workshops will be included, with abstracts due by January 1, 1984.

For registration information and abstract forms contact:  
Office of Conference Services, Box 131  
M. D. Anderson Hospital and Tumor Institute  
6723 Bertner Ave.  
Houston, Texas 77030 (713) 792-2222

## ANALYTICAL CHEMISTRY Deputy Group Leader

The Analytical Chemistry Group of the Los Alamos National Laboratory is seeking an effective leader and manager to assume responsibilities of Deputy Group Leader. The position involves providing significant technical and administrative leadership as well as direction of the group's diverse support and research activities.

The group, consisting of approximately one hundred scientists, technicians, and support personnel, provides analytical chemical services and expertise to the scientific/engineering programs at the Laboratory. The group also conducts basic and applied research. Support activities are in the area of inorganic materials characterization with emphasis on analytical spectroscopy, radioanalysis, mass spectrometry, classical wet chemical methods, surface science, separations, and combustion techniques. Particular capabilities exist for analysis of actinides and other radioactive substances. Addressing problems associated with the Laboratory's wide-ranging programs, new analytical chemistry techniques and the development of analytical technology are being explored vigorously.

### Qualifications:

Ph.D. with demonstrated excellence and professional achievement in field of analytical chemistry. Effective written and oral communication skills are a prerequisite. U.S. citizenship required.

The Laboratory, one of the nation's leading multifaceted research and development organizations, is operated by the University of California for the Department of Energy. Our location in the mountains of northern New Mexico offers a pleasant life style, clean environment with ample recreational activities.

To apply, send resume and three letters of reference to:

Madeline Lucas  
Personnel Administration Division—DIV-84-C  
Los Alamos National Laboratory  
Los Alamos, New Mexico 87545

University of California

# Los Alamos

Los Alamos National Laboratory  
Los Alamos, New Mexico 87545

An Affirmative Action/Equal Opportunity Employer: Women, minorities, veterans and handicapped are urged to apply.  
U.S. citizenship or permanent resident Visa required.

# SUPERVISORY MICROBIOLOGIST/BIOLOGIST

## National Institutes of Health National Cancer Institute

The National Cancer Institute has an opening for Chief of the Biological Carcinogenesis Branch of the Carcinogenesis Extramural Program.

Duties include planning, developing, directing and managing a national extramural program of basic and applied research concerned with the role of biological agents, genetic sequences, viral genes, and combinations of viral and cellular genes in carcinogenesis.

The position requires extensive knowledge of the scientific basis of biological carcinogenesis research; experience in planning, administration and evaluation of research carried out under the grant, contract and cooperative agreement mechanisms, experience with effective personnel management and supervision as well as experience in dealing with interrelationships between governmental, educational, industrial, and private research concerns.

In addition to three years of appropriate experience, minimum educational requirements include a 4 year course of study in an accredited college or university leading to a bachelor's degree with major study in microbiology, biology,

or chemistry. A doctorate or equivalent training in molecular biology or biochemistry is desirable.

This is a Civil Service Career-Conditional Appointment under the Merit Pay System at the GM-15 level with a salary range of \$48,553 to \$63,115 depending upon the qualifications of the applicant selected. Benefits include Civil Service Retirement, life and health insurance. This is a supervisory position and may require the incumbent to serve a one year probationary period.

Submit application (SF-171, Personal Qualifications Statement), current performance appraisal and names of 3 references to:

**Ms. Rados**

**Cancer Personnel Office**

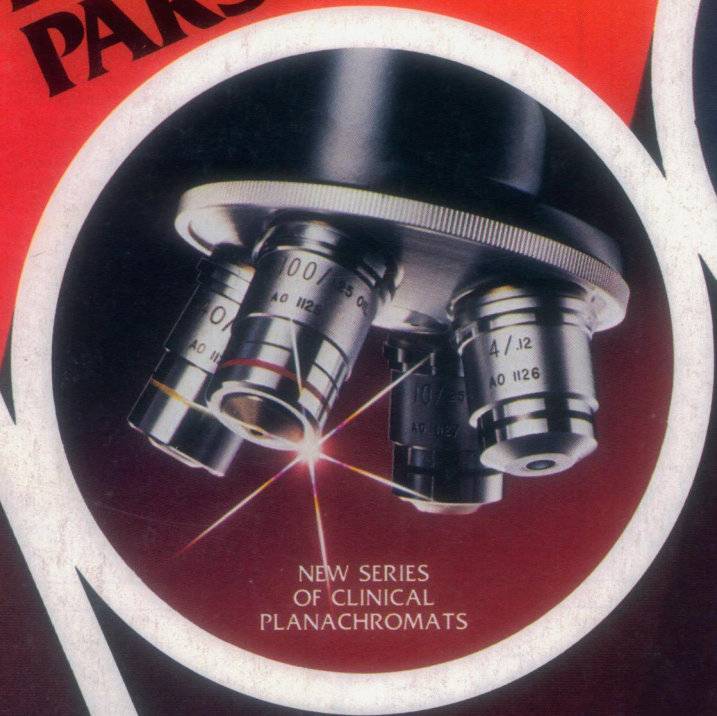
**Bldg. 31, Rm. 3A-35, 9000 Rockville Pike  
Bethesda, MD 20205 Tel: 301/496-3337**

Applications must be received or postmarked by  
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