

are nearly all effects of any internal thermonuclear evolution of the separate stars in the clusters, such as the mass loss via strong stellar winds or even explosions that must have occurred especially during the first billion years as any original massive stars ran out of accessible fuel. Likewise we find only a few asides about x-ray sources, black holes, and similar exotic topics in this book. After all such omissions, what is left for Spitzer to tell? The answer: a great deal.

Indeed, the charm of this monograph is that it skips all the bells and whistles of excessive realism and instead proceeds to idealize a typical globular cluster from the outset as nothing more than a quasi-steady collection of (possibly unequal) mass points subject only to Newton's laws of inertia and gravity. Predicting the gradual evolution of such an assembly sounds at first almost trivial, given the power of modern computers. But in fact it is nothing of the sort, once the number of players, as here, approaches one million and the time scales turn out to involve many thousands of internal orbits. Physical insight is still needed badly, and here Spitzer is at his best: He reviews how the slight "granularity" of the discrete masses tends to deflect or diffuse any given particle from the orbit it would have had in a truly smooth equilibrium; he discusses how such a diffusion must lead to a gradual shrinkage of the central regions of a cluster and to a gradual swelling and even evaporation of its outer parts; he points out how this same tendency toward equipartition can be exacerbated by a "mass segregation instability" whenever the masses of the individual particles or stars differ enough; and he also explains the curious thermodynamics involved in the phenomenon of "core collapse," or fairly rapid shrinkage of the innermost parts of a cluster, that occurs once the ratio of its central to its mean density comes to exceed a sizable critical value.

Much as in Spitzer's earlier books on ionized gases and the interstellar medium, the style here is terse and deductive. The author clearly enjoys noting once again how relatively simple laws applied to individuals can lead to complex collective phenomena, and without wasting too many words he shares his enthusiasm with us. One effect of this crisp exposition is to lure the reader before the book is even half done into the essence of some quite subtle matters like the Fokker-Planck equation or various Monte Carlo simulations and to leave one with the nice feeling that with just a little more effort one too can really understand them. Another benefit is that the swift trot through the basics of very idealized clusters in the first four chapters of this rather slender volume leaves one ready and almost eager to tackle

in its last three chapters such realistic complications as the cumulatively damaging tidal shocks from the Galaxy, the development of binary stars and the surprisingly strong heating that results therefrom, and the still largely unfinished business of post-collapse evolution.

All in all, here is a very lucid and not too technical account of one corner of stellar dynamics that has witnessed a great deal of progress during the past one or two decades, written by one of its principal contributors. It should appeal to graduate students and other researchers in astronomy not only for its contents but also as a fine example of how to reexplain things. Just possibly, it might even inspire some readers to turn their thoughts much further back and finally conquer those murky but very challenging problems of origin and early evolution on which I was musing at the outset.

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## Some Other Books of Interest

**Plant Migration.** The Dynamics of Geographic Patterning in Seed Plant Species. JONATHAN D. SAUER. University of California Press, Berkeley, 1988. xvi, 282 pp., illus. \$45.

In the preface to this volume Sauer notes that the field of historical plant geography "has always depended on a typological approach [in which] distributions of species or other taxa are classified on the basis of rough similarity into types, such as arctic-alpine, eastern North America-western Europe disjuncts, and South African endemics," a basic assumption being that "taxa have similar present ranges because of shared migrational patterns rather than because of convergence from formerly dissimilar ranges." Acknowledging the value of this approach, he wishes in this book to try a different one: "a survey of case histories for which there is direct [fossil and historical] evidence of the process of migration through time." To that end he presents some 140 case histories, averaging about a page in length. The opening group, on migrations in modern times, is arranged by type of habitat, including shoreline and other naturally open habitats, with ten subdivisions, vegetation subject to natural perturbation or invasion, and artificially modified habitats. The second section represents prehistoric migrations, beginning with the last glacial and Holocene and moving backward in time, and is arranged according to fossil assemblage. A final, briefer section deals with migration as related to evolution.

The various sections and subsections include comment on theoretical or methodological issues, and the volume concludes with the statement that the author is "pleased rather than disappointed" that he "can see no prospect of easy, simple generalization about seed plant migration."—K.L.

**Phytolith Analysis.** An Archaeological and Geological Perspective. DOLORES R. PIPERNO. Academic Press, San Diego, CA, 1987. xiv, 280 pp., illus. \$49.

"There exists a group of plant microfossils that exhibit all the attributes necessary to achieve legitimacy and prominence in paleoethnobotany and paleoecology: production in large numbers, durability in ancient sediments, and sufficient morphological specificity to allow identification of a wide range of taxa." These microfossils—phytoliths, in the sense of silicified particles from higher plants—have not received sufficient attention in the view of the author of this book, and the book is intended to demonstrate and encourage their use. The book opens with a brief history of phytolith research. Chapters 2 and 3 describe the production, deposition, and dissolution and the morphology of phytoliths. Chapters 4 and 5 describe field (sampling) and laboratory techniques. Chapter 6 is devoted to method and theory in interpretation of phytolith assemblages. Two final chapters deal with the role of phytoliths in archeological reconstruction and in regional paleoecology. The text includes consideration of several "special topics"—attributes of maize phytoliths and phytolith data from the New World tropics, areas of the author's own research—and is augmented by a 24-page section of plates and two phytolith keys.—K.L.

## Books Received

**Analytical Gas Chromatography.** Walter Jennings. Academic Press, San Diego, CA, 1987. x, 259 pp., illus. \$39.95.

**Atlas and Dissection Guide for Comparative Anatomy.** Saul Wischnitzer. 4th ed. Freeman, New York, 1988. xx, 264 pp., illus. Paper. \$16.95.

**Atlas of Blood Cells.** Function and Pathology. D. Zucker-Franklin *et al.* 2nd ed. Ermes, Milan, and Lea and Febiger, Philadelphia, 1988. Two volumes. xxx, 777 pp., illus. \$225.

**A Bibliography of Matrix Isolation Spectroscopy.** 1954–1985. David W. Ball *et al.*, Eds. Rice University Press, Houston, TX, 1988. xvi, 643 pp. \$90.

**The Biochemistry of Plants.** A Comprehensive Treatise. David D. Davies, Ed. Academic Press, San Diego, CA, 1987. Vol. 11, Biochemistry of Metabolism. xiv, 388 pp., illus. \$85. Vol. 12, Physiology of Metabolism. xiv, 357 pp., illus. \$85. Vol. 13, Methodology. xiv, 294 pp., illus. \$65.

**Biologically Active Ether Lipids.** P. Braquet, H. K. Mangold, and B. B. Vargaftig, Eds. Karger, Basel, 1988. vi, 196 pp., illus. \$110. Progress in Biochemical Pharmacology, vol. 22.

**Cell-Free Analysis of Membrane Traffic.** D. James Morrè *et al.*, Eds. Liss, New York, 1988. xx, 460 pp., illus. \$86. Progress in Clinical and Biological Research, vol. 270. From a conference, Heidelberg, F.R.G., Oct. 1986.

**Centennial Field Guide.** Geological Society of America, Boulder, CO, 1988. Vol. 4, South-Central Section of the Geological Society of America. O. T. Hayward, Ed. xx, 468 pp., illus. \$43.50.

**Characterization of Proteins.** Felix Franks, Ed. Humana, Clifton, NJ, 1988. xx, 561 pp., illus. \$69.50. Biological Methods.

**Chemical Research Facilities.** An International Directory, 1988. American Chemical Society, Washington, DC, 1988. 1, 559 pp. + indexes. \$159.95.

**Children and Families.** Studies in Prevention and Intervention. Euthymia D. Hibbs, Ed. International Universities Press, Madison, CT, 1988. xviii, 541 pp. \$65. From a conference, Athens, Greece, 1984.

**China Chemical Industry.** Ministry of Chemical Industry, Beijing, 1987. (U.S. distributor, VCH, New York). 580 pp. \$179.95. World Chemical Industry Handbook, 1987.

**Clostridium difficile.** Its Role in Intestinal Disease. Rial D. Rolfe and Sydney M. Finegold, Eds. Academic Press, San Diego, CA, 1988. xvi, 408 pp., illus. \$89.

**Deterministic Chaos.** An Introduction. Heinz Georg Schuster. 2nd ed. VCH, New York, 1987. xxiv, 270 pp., illus. \$59.95.

**Doing Social Psychology.** Laboratory and Field Exercises. Glynis M. Breakwell, Hugh Foot, and Robin Gilmour, Eds. 2nd ed. Cambridge University Press, New York, and British Psychological Society, Leicester, 1988. xii, 312 pp. Paper, \$14.95.

**Drug Delivery Systems.** Fundamentals and Techniques. P. Johnson and J. G. Lloyd-Jones, Eds. VCH, New York, and Horwood, Chichester, U.K., 1988. 282 pp., illus. \$108.50. Ellis Horwood Series in Biomedicine.

**Ecological Economics.** Energy, Environment and Society. Juan Martinez-Alier with Klaus Schlupmann. Blackwell, New York, 1987. x, 286 pp. \$39.95. Revised and translated from the Catalan edition (Barcelona, 1984).

**Economics of Food Processing in the United States.** Chester O. McCorkle, Jr., Ed. Academic Press, San Diego, CA, 1987. xiv, 449 pp., illus. \$49.95. Food Science and Technology.

**The Emergent Lexicon.** The Child's Development of a Linguistic Vocabulary. Michael D. Smith and John L. Locke, Eds. Academic Press, San Diego, CA, 1987. xxii, 358 pp., illus. \$39.95. Developmental Psychology Series.

**Emerging Syntheses in Science.** Vol. 1. David Pines, Ed. Addison-Wesley, Redwood City, CA, 1988. xii, 237 pp., illus. \$43.25; paper, \$21.50. From a workshop, Santa Fe, NM, Oct. and Nov. 1984.

**Environmental Data Report.** United Nations Environment Programme. Blackwell, New York, 1987. viii, 352 pp., illus. Paper, \$49.95.

**Environmental Justice.** Peter S. Wenz. State University of New York Press, Albany, 1988. xiv, 368 pp. \$49.50; paper, \$19.95. SUNY Series in Environmental Public Policy.

**Epinephrine in the Central Nervous System.** Jon M. Stolk, David C. U'Prichard, and Kjell Fuxe, Eds. Oxford University Press, New York, 1988. xvi, 379 pp., illus. \$95. From a symposium, 1985.

**Essays in Medical Sociology.** Journeys into the Field. Renée C. Fox. 2nd ed. Transaction Books, New Brunswick, NJ, 1987. xvi, 711 pp. \$39.95; paper, \$19.95.

**European Handbook of Plant Diseases.** I. M. Smith *et al.*, Eds. Blackwell Scientific, Palo Alto, CA, 1988. xiv, 583 pp., illus., + plates. \$125.

**Evolution and Human Kinship.** Austin L. Hughes. Oxford University Press, New York, 1988. xii, 162 pp., illus. \$29.95.

**The Evolution of Human Hunting.** Matthew H. Nitecki and Doris V. Nitecki, Eds. Plenum, New York, 1987. viii, 464 pp., illus. \$75. From a symposium, Chicago, IL, May 1986.

**Excitons in Confined Systems.** R. Del Sole, A. D'Andrea, and A. Lapicciarella, Eds. Springer-Verlag, New York, 1988. viii, 253 pp., illus. \$57.60. Springer Proceedings in Physics, vol. 25. From a meeting, Rome, April 1987.

**Explanation.** An Introduction to the Philosophy of Science. Gerald Bakker and Len Clark. Mayfield, Mountain View, CA, 1988. x, 213 pp., paper, \$14.95.

**The Extraterrestrial Life Debate, 1750-1900.** The Idea of a Plurality of Worlds from Kant to Lowell. Michael J. Crowe. Cambridge University Press, New

York, 1988. xxii, 680 pp., illus. Paper, \$22.95. Reprint, 1986 edition.

**Fateful Visions.** Avoiding Nuclear Catastrophe. Joseph S. Nye, Jr., Graham T. Allison, and Albert Carnesdale, Eds. Ballinger (Harper and Row), Cambridge, MA, 1988. viii, 299 pp. \$19.95.

**Fish Physiology.** Vol. 11, The Physiology of Developing Fish. W. S. Hoar and D. J. Randall, Eds. Academic Press, San Diego, CA, 1988. Part A, Eggs and Larvae. xxii, 546 pp., illus. \$89. Part B, Viviparity and Post-hatching Juveniles. xx, 436 pp., illus. \$89.

**Fluid Mechanics Source Book.** Sybil H. Parker, Ed. McGraw-Hill, New York, 1988. viii, 274 pp., illus. \$45. McGraw-Hill Science Reference Series. Series includes source books on optics, physical chemistry, solid-state physics, and spectroscopy, all based on the McGraw-Hill Encyclopedia of Science and Technology (New York, 1987).

**Four Billion Years.** An Essay on the Evolution of Genes and Organisms. William F. Loomis. Sinauer, Sunderland, MA, 1988. xviii, 286 pp., illus. \$39.95; paper, \$22.95.

**Interactions.** A Journey Through the Mind of a Particle Physicist and the Matter of This World. Sheldon Glashow with Ben Bova. Warner, New York, 1988. xiv, 347 pp., illus. \$19.95.

**The International Biotechnology Handbook.** Facts on File, New York, 1988. xii, 244 pp. \$65.

**Introduction to Higher Order Categorical Logic.** J. Lambek and P. J. Scott. Cambridge University Press, New York, 1988. x, 293 pp., illus. Paper, \$24.95. Cambridge Studies in Advanced Mathematics, vol. 7. Reprint, 1986 edition.

**An Introduction to Human Genetics.** H. Eldon Sutton. 4th ed. Harcourt Brace Jovanovich, San Diego, CA, 1988. xviii, 715 pp., illus. \$39.90.

**Introduction to Synchrotron Radiation.** Giorgio Margaritondo. Oxford University Press, New York, 1988. xii, 280 pp., illus. \$45.

**Intuitive Digital Computer Basics.** An Introduction to the Digital World. Thomas M. Frederiksen. McGraw-Hill, New York, 1988. xiv, 253 pp., illus. \$39.95; paper, \$24.95. McGraw-Hill Series in Intuitive IC Electronics.

**Jewish Perceptions of Antisemitism.** Gary A. Tobin with Sharon L. Sessler. Plenum, New York, 1988. xviii, 325 pp. \$19.95.

**The Kookaburra's Song.** Exploring Animal Behavior in Australia. John Alcock. University of Arizona Press, Tucson, 1988. xii, 218 pp., illus. \$19.95.

**Language and Context.** The Acquisition of Pragmatics. Elizabeth Bates. Academic Press, San Diego, CA, 1987. xvi, 375 pp., illus. Paper, \$24.95. Language, Thought, and Culture. Reprint, 1976 edition.

**Latent Trait and Latent Class Models.** Rolf Langeheine and Jürgen Rost, Eds. Plenum, New York, 1988. xvi, 311 pp., illus. \$45. Based on a conference, Kiel, F.R.G., Aug. 1985.

**Leukolysis and Cancer.** Janet H. Ransom and John R. Ortaldo, Eds. Humana, Clifton, NJ, 1988. xviii, 322 pp., illus. \$69.50. Contemporary Biomedicine.

**The Marine Benthic Flora of Southern Australia.** Part 2. H. B. S. Womersley. South Australian Government Printing Division, Adelaide, 1987. 484 pp., illus. + plates. \$A 38. Handbook of the Flora and Fauna of South Australia.

**Mathematical Structures in Field Theories Vol. 1.** P. J. M. Bongaarts, E. A. de Kerf, and P. H. M. Kersten. Centrum voor Wiskunde en Informatica, Amsterdam, the Netherlands, 1988. iv, 137 pp. Paper, Dfl. 21.60. CWI Syllabus, vol. 16. From a seminar, 1984-1986.

**Mechatronics.** Japan's Newest Threat. V. Daniel Hunt. Chapman and Hall (Methuen), New York, 1988. x, 386 pp., illus. \$57.50. Chapman and Hall Advanced Industrial Technology Series. *Mechatronics*, according to the author, is "a term coined by the Japanese to describe the integration of mechanical and electronic engineering"—in particular the use of integrated teams of designers and manufacturing, purchasing, and marketing personnel to design both products and systems for their manufacture.

**Medical Technology Assessment Directory.** A Pilot Reference to Organizations, Assessments, and Information Resources. Clifford Goodman, Ed. National Academy Press, Washington, DC, 1988. xlvii, 662 pp. \$250.

**The Metronomic Society.** Natural Rhythms and Human Timetables. Michael Young. Harvard University Press, Cambridge, MA, 1988. xiv, 301 pp. \$25.

**Microbiology.** Concepts and Applications. Paul A. Ketchum. Wiley, New York, 1988. xviii, 795 pp., illus. \$46.95.

**Microbiology.** Fundamentals and Applications. Ronald M. Atlas. 2nd ed. Macmillan, New York, 1988. xx, 807 pp., illus. \$50.70.

**Mindworks.** Time and Conscious Experience. Ernst Pöppel. Harcourt Brace Jovanovich, New York, 1988. viii, 211 pp., illus. \$17.95. Translated from the German edition (Stuttgart, 1985) by Tom Artin.

**Mirror Matter.** Pioneering Antimatter Physics. Robert L. Forward and Joel Davis. Wiley, New York, 1988. x, 262 pp., illus. \$18.95. Wiley Science Editions.

**Modern Bioelectricity.** Andrew A. Marino. Ed. Dekker, New York, 1988. x, 1050 pp., illus. \$149.75.

**Modern Crystallography IV.** Physical Properties of Crystals. L. A. Shuvalov, Ed. Springer-Verlag, New York, 1988. xviii, 583 pp., illus. \$115. Springer Series in Solid-State Sciences, vol. 37. Translated from the Russian edition (Moscow, 1981).

**The Molecular and Cellular Biology of Wound Repair.** R. A. F. Clark and P. M. Henson, Eds. Plenum, New York, 1988. xxii, 597 pp., illus. \$85.

**Molecular Basis of Viral and Microbial Pathogenesis.** R. Rott and W. Goebel, Eds. Springer-Verlag, New York, 1988. x, 185 pp., illus. \$54. From a colloquium, Mosbach, F.R.G., April 1987.

**The Molecular Biology of Bacterial Virus Systems.** G. Hobom and R. Rott, Eds. Springer-Verlag, New York, 1988. viii, 90 pp., illus. \$59.50. Current Topics in Microbiology and Immunology, vol. 136.

**Molecular Biology of RNA.** New Perspectives. Masayori Inouye and Bernard S. Dudoek, Eds. Academic Press, San Diego, CA, 1987. xii, 451 pp., illus. \$59.

**Neural and Brain Modeling.** Ronald J. MacGregor. Academic Press, San Diego, CA, 1987. xii, 643 pp., illus. \$89. Neuroscience.

**Parameter Estimation and Hypothesis Testing in Linear Models.** Karl-Rudolf Koch. Springer-Verlag, New York, 1988. xvi, 378 pp. Paper, \$49.50. Translated from the German edition (Bonn, 1987).

**Pathogenesis and New Approaches to the Study of Noninsulin-Dependent Diabetes Mellitus.** Albert Y. Chang and Arthur R. Diani, Eds. Liss, New York, 1988. xii, 218 pp., illus. \$49.50. Progress in Clinical and Biological Research, vol. 265. From a symposium, Augusta, MI, Jan. 1987.

**Physical Chemistry.** Ira N. Levine. 3rd ed. McGraw-Hill, New York, 1988. xx, 920 pp., illus. \$49.95.

**A Physicist's Guide to Skepticism.** Milton A. Rothman, Prometheus, Buffalo, New York, 1988. 247 pp., illus. \$19.95.

**The Psychology of Everyday Things.** Donald A. Norman. Basic Books, New York, 1988. xiv, 257 pp., illus. \$19.95.

**Random Signal Analysis in Engineering Systems.** John J. Komo. Academic Press, San Diego, CA, 1987. xiv, 302 pp., illus. \$39.95.

**The Rapid Evaluation of Potential Fields in Particle Systems.** Leslie Greengard. MIT Press, Cambridge, MA, 1988. xvi, 91 pp. illus. \$25. ACM Distinguished Dissertations.

**Reactive Oxygen Species in Chemistry, Biology, and Medicine.** Alexandre Quintanilha, Ed. Plenum, New York, 1988. viii, 232 pp., illus. \$55. NATO Advanced Science Institutes Series A, vol. 146. From an institute, Braga, Portugal, Sept. 1985.

**The Reason for Science.** Donald R. Strombeck. Stonegate, Davis, CA, 1987. vi, 237 pp. \$15.95.

**Reflections on a Theory of Organisms.** Walter M. Elsasser. Orbis, Freilighsburg, Quebec, 1987. viii, 160 pp. Paper, Can \$18.

**Regression Analysis and Empirical Processes.** S. A. van de Geer. Centrum voor Wiskunde en Informatica, Amsterdam, 1988. viii, 161 pp. Paper, Dfl. 25.30. CWI Tract 45.

**Sol-Gel Technology for Thin Films, Fibers, Preforms, Electronics, and Specialty Shapes.** Lisa C. Klein, Ed. Noyes, Park Ridge, NJ, 1988. xxii, 407 pp., illus. \$72. Materials Science and Process Technology Series.

**South American Indians.** A Case Study in Evolution. Francisco M. Salzano and Sidia M. Callegari-Jacques. Clarendon (Oxford University Press), New York, 1988. xii, 259 pp. \$75. Research Monographs on Human Population Biology, vol. 6.

**Supercritical Fluid Extraction and Chromatography.** Techniques and Applications. Bonnie A. Charpentier and Michael R. Sevenants, Eds. American Chemical Society, Washington, DC, 1988. x, 253 pp., illus. \$59.95. ACS Symposium Series, vol. 366. From a symposium, Denver, CO, April 1987. Thirteen papers on the techniques as used in food processing.

**The Teenage World.** Adolescents' Self-Image in Ten Countries. Daniel Offer *et al.* Plenum Medical, New York, 1988. xiv, 270 pp. \$35.

**Textbook of Human Genetics.** Max Levitan. 3rd ed. Oxford University Press, New York, 1988. x, 475 pp., illus. \$37.50.

## Products & Materials

### Vacuum Transfer Unit

The TransVac performs RNA and DNA blots in as little as half an hour. TransVac draws nucleic acids out of a gel and onto a membrane by vacuum. The user places sheets of filter paper, a membrane, a silicone



rubber mask, and a gel on a 19 by 24 cm perforated stainless steel screen over the vacuum chamber. When the top is in place, the resulting chamber can be filled with transfer buffer. Nucleic acids are transferred to the membrane as buffer is drawn down through the gel and the membrane by the vacuum. Hoefer Scientific Instruments. Circle 528.

### Thermal Cycler

The Programmable Cyclic Reactor automatically heats and cools test samples through repeated cycles. The user chooses the time intervals of the cycles and the temperatures for each; temperatures can be between 25° and 100°C. As many as 99 time and temperature profiles may be chained together, each of which may have 99 time and temperature steps. Programs are stored in a nonvolatile memory that remains even when the thermal cycler is turned off. The Programmable Cyclic Reactor can hold nineteen 1.5-ml or thirty 0.5-ml microfuge tubes at once. Thermal sensors monitor the temperature of the heating block and the samples. A parallel port and an RS-232 port allow data to be printed or transferred to an IBM PC-compatible computer. \$3500. Eri-comp. Circle 565.

Newly offered instrumentation, apparatus, and laboratory materials of interest to researchers in all disciplines in academic, industrial, and government organizations are featured in this space. Emphasis is given to purpose, chief characteristics, and availability of products and materials. Endorsement by *Science* or AAAS is not implied. Additional information may be obtained from the manufacturers or suppliers named by circling the appropriate number on the Readers' Service Card and placing it in a mailbox. Postage is free.

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### Restriction Fragment Analysis Software

RFLP Interpretation Software compares and analyzes images of restriction fragments. Possible applications include taxonomic studies and genetic identifications of seed and plant stock. The software can automatically determine band location relative to standard markers and compare patterns between lanes. The user can establish reference lanes and set up comparisons and subsequent analysis. The user specifies the formats for printing band patterns and quantitative information. RFLP Interpretation Software operates on the VISAGE 60, 110, or 2000 image analysis system. Bio Image. Circle 522.

### X-ray Microanalysis

The AN10000 is an x-ray microanalysis system with a custom operating system and a Winchester hard disk drive. The color display has a 512 by 512 pixel image area. A mouse controls the analyzer and electron microscope functions, such as beam positioning or stage-motor movement. The available optional software applications include the determination of true topographical data from a flat-plane image, quantitative x-ray microanalysis of thin biological specimens, analysis of thin metallurgical or mineralogical specimens, and calculation of composition of thin films on a substrate. Link Analytical (United Kingdom). Circle 524.

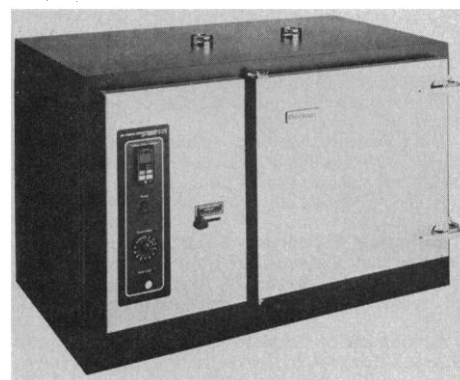
### Digital Polarimeter

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rate, concentration of solutions, cell temperature, and absorbance of solutions. A keypad on the cover of the DIP-370 controls all instrument functions. The polarimeter has a minimum readable angle of 0.0005°, an angular range of  $\pm 90^\circ$ , and a balance speed of 4.0° per second. The DIP-370 can calculate mean values, standard deviations, and relative standard deviations of samples. Jasco. Circle 523.

### Safety Oven

The model 625S safety oven features a blowout panel in the back and positive-action latches on the front. The rear panel opens at pressures less than 30 lb/ft<sup>2</sup> (146



kg/m<sup>2</sup>), and the front door releases at pressures more than 50 lb/ft<sup>2</sup> (244 kg/m<sup>2</sup>). The oven conforms to the National Fire Protection Association 86 safety specification. The oven's chamber is stainless steel and has a 4-ft<sup>3</sup> (0.11-m<sup>3</sup>) capacity. The digital alarm is backed up by a mechanical alarm, and there is also a temperature deviation alarm. Precision Scientific. Circle 529.

### Literature

*Automated Nucleic Acid Extraction with Minimal Time and Effort* is a brochure that describes a nucleic acid extractor for purification of DNA and RNA by proteinase K-phenol extraction chemistry. Applied Biosystems, Foster City Biosystems Division. Circle 537.

*pH Meters, Ion Meters, Conductivity Meters* is a catalog of pH meters, electrode stands, temperature compensators, ion analyzers, conductivity meters, electrodes, and cables. Rainin Instrument. Circle 538.

The ZETABIND *Transfer Membrane* brochure features a positively charged nylon 6,6 transfer membrane for macromolecular transfer and immobilization. CUNO, Life Sciences Division. Circle 539.



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**Unexplained Infertility: Basic and Clinical Aspects**

Rome, Italy/March 7-8  
Scientific Organization: G. Benagiano (I), K.J. Catt (USA) and G. Spera (I)

**Symposium on the Pathogenesis and Control of Viral Infections**

Beijing, Republic of China/April 24-26  
Scientific Organization: F. Aiuti (I), Z. Zonghan (PRC) and S. Guoxian (PRC)

**8th Workshop on Development and Function of the Reproductive Organs**

Touraine, France/May 23-25  
Scientific Organization: N. Josso (F)

**1st International Congress on G.I.F.T.: from Basics to Clinics**

Rapallo, Italy/June 8-10  
Scientific Organization: R.H. Asch (USA) and L. De Cecco (I)

**Membrane Technology in Clinical Pathology, Biochemistry and Pharmacology**

L'Aquila, Italy/June 19-23  
Scientific Organization: R. Verna (I), R.P. Blumenthal (USA), J.A. Hannover (USA) and R.P. Garay (F)

**Cardiovascular and Neurological Function and Ovarian Secretions**

Dubrovnik, Yugoslavia  
Aug. 31-Sept. 1  
Scientific Organization: F. Naftolin (USA)

**Establishment of a Successful Human Pregnancy**

Cambridge, U.K./September 21-23  
Scientific Organization: R.G. Edwards (UK)

**Developmental Endocrinology**

Geneva, Switzerland/October 23-24  
Scientific Organization: P.C. Sizonenko (CH) and M. Aubert (CH)

**Advanced Course in Molecular Pathology and Biotechnology**

Rome, Italy/November 6-10  
Scientific Organization: L. Frati (I)



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# Personnel Placement

**SCIENCE** publishes each Friday, except the last Friday of the year. Advertising is accepted only in writing; no abbreviations. Any deadline in ad must be at least 2 weeks after date of issue in which ad appears. Also, personnel advertising is accepted only with the understanding that the advertiser does not discriminate among applicants on the basis of race, sex, religion, age, color, national origin, handicap, or sexual preference. **SCIENCE** reserves the right, in its discretion, to decline to publish advertisements submitted to it.

## LINE CLASSIFIED ADVERTISING DEADLINES:

Thursday, 10 a.m., 2 weeks prior to issue date (mailed on issue date). For deadlines for display advertising, please contact Scherago Associates.

**POSITIONS WANTED:** 40¢ per word, plus \$4 for use of box number, per week. \$10 minimum, per week. Prepayment required. This rate is available only to individuals seeking jobs.

**LINE CLASSIFIED (POSITIONS OPEN, COURSES, FELLOWSHIPS, MARKETPLACE, and so forth):** \$38.00 per line; \$380 minimum, per week (minimum charge covers one inch on a single column; one inch equals 10 lines of 52 characters and spaces per line). No charge for use of box number. No agency commission for ads less than 4 inches. No cash discount. Prepayment required for all foreign ads. Purchase orders and/or cover letter including billing address required for all other advertising.

## To ESTIMATE ad cost:

Structure ad copy on a separate page, on lines of 52 characters and spaces. Include any desired heading. Each line of heading, and/or extra line spaces, and all partial lines (including centered reply information) are counted as full lines. Ad titles located within the text are printed in boldface caps and are only 32 characters per line. In ESTIMATING the cost, multiply total lines  $\times$  \$38.00 = approximate cost of ad. (This is an approximate cost ONLY: Allow for variation between estimated lines and actual typeset lines and the resulting final cost. Purchase orders must allow for some degree of flexibility and/or adjustment.)

## CANCELLATION POLICY:

NOTE: Ad cancellations made after Thursday, TWO weeks prior to issue date incur a 10% production charge. Final deadline for cancellations is 12 p.m. Tuesday, ONE week prior to issue date. Cancellations must be in writing.

Send copy for all **Positions Wanted** ads and **Line Classified** ads less than 1/6 page in size (39 lines) to:

**SCIENCE Classified Advertising**  
1333 H Street, NW, Room 940  
Washington, DC 20005  
Telephone: 202-326-6555

Send copy for **Fractional Display** ads, 1/6 page and larger, and all **Marketplace** ads to:

**Scherago Associates, Inc.**  
1515 Broadway  
New York, NY 10036  
Telephone: 212-730-1050

Blind ad replies should be addressed as follows:

**Box (give number)**  
**SCIENCE**  
1333 H Street, NW  
Washington, DC 20005

## POSITIONS WANTED

**Immunologist, Ph.D.** Specialist in cellular immunology, hybridomas, monoclonal antibodies, and lymphokines. Experience in biotechnology research and development in cancer immunotherapeutics. Seeking position in industrial or academic laboratory investigating immunological approaches to human disease. Excellent background and references. Box 143, **SCIENCE**.

**Molecular Biologist: M.S.**, 3 years of experience DNA cloning, transformation and sequencing in lower eukaryotes. Box 144, **SCIENCE**.

**Molecular Immunologist, Ph.D. (1986).** Three years of postdoctoral experience. Research experience in cloning, sequencing, transgenic mice, and computers. Seeking academic/teaching or industrial research position in fall 1989. Box 141, **SCIENCE**.

## POSITIONS WANTED

**Neuroanatomist, Ph.D.:** Electron microscopist: neuroglial cytology, junctions, migration, development, plasticity, hypothalamus, cerebellum, mammals, fish, tissue culture, video. Seeks challenging academic/industrial research position. Box 146, **SCIENCE**.

**Ph.D. 1986. Immunology and Cell Biology.** Experience in cellular immunology, cytokines, animal techniques, human systems, cancer biology, O<sub>2</sub> radicals, autoimmunity. Staff position in academia or industry. Box 140, **SCIENCE**.

**Physical Chemist, Ph.D.** Interdisciplinary biomedical research. Publications and state-of-the-art consultative skills in antimicrobial preservation, sunscreens, skin penetration/irritation, humectants, surfactants. Box 150, **SCIENCE**.

**Regulatory Affairs.** Successful management record in pharmaceutical, chemical and consumer product industries. Experienced U.S. and foreign applications. Ph.D., pharmacology. Box 151, **SCIENCE**.

**Translation from Japanese** publications, patents, and technical reports. P.O.B. 211063, Columbus, OH 43221.

## POSITIONS OPEN

**ACADEMIC PROFESSIONAL—PROTEIN PURIFICATION.** We have developed unique electrophoretic technology for large scale protein purification. To exploit it we are seeking a biochemist or chemical engineer with considerable experience in protein purification and demonstrated research interests. Salary open. Apply to: **Dr. Bier, Center for Separation Science, Building 20, University of Arizona, Tucson, AZ 85721.** The University of Arizona is an Equal Opportunity/Affirmative Action Employer. Closing date 20 October 1988.

## AIDS RESEARCH SCIENTIST

Full-time research positions are available for M.D.'s and Ph.D.'s to participate in a multidisciplinary program to study the interactions of human immunodeficiency virus (HIV) with cells of the immune system. Applicants must have postdoctoral experience in immunology, cell and molecular biology or virology. Experience working with HIV is preferred. Address inquiries to: **Dr. Leonard Chess, Department of Medicine, Columbia University, 630 West 168th Street, New York, NY 10032.**

## AQUATIC ECOLOGIST

We seek applicants for a tenure-track assistant professor position in aquatic or wetlands ecology for appointment in the fall of 1989. Research responsibilities include the development of an active and fundable research program in areas of aquatic biology that will complement and enhance those of present faculty. Possible research areas include: (i) physico-chemical limnology, nutrient cycling, planktonic interactions or microbial ecology; (ii) interactions among wetland plants or communities, wetland nutrient cycling or interactions between terrestrial and aquatic communities; and (iii) lentic benthology including littoral or profundal ecology, biotic or abiotic interactions among invertebrates (including aquatic insects), fish, macrophytes, or periphyton. Teaching responsibilities include one undergraduate and one graduate course each year, possibly including undergraduate courses in general ecology, biostatistics or participating in the teaching of general biology, and graduate level courses in population, community or ecosystem ecology. Special strengths of the Department, in addition to aquatic ecology, are parasitology and insect vector biology. Modern laboratory and exceptional computer facilities, and the 2800-hectare University of Notre Dame Environmental Research Center, a protected study area with over 20 lakes in the Upper Peninsula of Michigan, provide unique opportunities for aquatic research.

Submit curriculum vitae, list of publications, names of three referees, and statement of teaching and research interests to: **Dr. Robert P. McIntosh, Chairman, Search Committee, Department of Biological Sciences, University of Notre Dame, Notre Dame, IN 46556** by 15 November 1988. *Qualified women and minority group candidates are encouraged to apply.*

## POSITIONS OPEN

### AQUATIC ECOLOGIST/ FISHERIES BIOLOGIST

Envirosphere Company is seeking Aquatic Ecologists/Fisheries Biologists with experience in marine and/or freshwater systems. Responsibilities include population and ecological assessments and impact report (EIS) preparation. Knowledge of statistics and computer skills desirable, good oral and written communication skills essential. Envirosphere offers excellent growth opportunities as well as competitive salaries and a comprehensive benefits package. Please send résumé, and salary history/requirements, to: **T. A. Caparo, Ebasco Services Inc., 160 Chubb Avenue, Lyndhurst, NJ 07071.** *Equal Opportunity Employer M/F/H/V.*

**ASSISTANT PROFESSOR:** Applications are invited for a position at the level of assistant professor (tenure-track) in the Department of Chemistry at Stanford University, with primary research and teaching interests in the general area of organic or inorganic chemistry. Applicants must be strongly motivated toward creative research and have a commitment to teaching at the undergraduate and graduate levels. In applying, please send curriculum vitae, list of publications, a brief statement of research interests (three pages or less) and, in addition, have three letters of recommendation sent to: **Professor John Ross, Chairman, Department of Chemistry, Stanford University, Stanford, CA 94305.** *Stanford is committed to Equal Opportunity through Affirmative Action in Employment, and we are especially eager to identify minority persons and women with appropriate qualifications.* Applications should be received by 1 November 1988.

The Department of Biology at the University of Dayton invites applications for a tenure-track position at the level of **ASSISTANT PROFESSOR.** Responsibilities include commitment to the development of a strong research program in any subdiscipline of biology with specific emphasis on the application of modern molecular biological techniques in achieving research objectives; teaching undergraduate and graduate courses in the application of molecular biology techniques, occasional participation in introductory courses, undergraduate and graduate seminars; directing graduate student research; and academic advising. Candidates with postdoctoral experience are preferred. Starting date is August, 1989. Applicants must provide curriculum vitae, concise statement of teaching and research goals, recent reprints, and have three letters of recommendation sent to: **Dr. Albert J. Burky, Chairman, Search Committee, Department of Biology, University of Dayton, Dayton, OH 45469,** by 2 November 1988. *An Equal Opportunity/Affirmative Action Employer.*

The Department of Medicinal Chemistry, School of Pharmacy, University of Mississippi announces an opening for a 12-month tenure-track position as **ASSISTANT PROFESSOR.** The Department emphasizes research in molecular modeling, immuno-medicinal chemistry, drug-receptor binding studies, and drug metabolism. Candidates should hold a Ph.D. degree in medicinal chemistry or closely related field and preferably have postdoctoral experience and a B.S. degree in pharmacy. *Women and those from minority groups are encouraged to apply.* To be considered, candidates should submit by 1 December 1988 a résumé, a research plan and the names of three references to: **W. Franklin Gilmore, Chairman, Department of Medicinal Chemistry, School of Pharmacy, University of Mississippi, University, MS 38677.**

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

**ASSISTANT RESEARCH PROFESSOR OF PSYCHOIMMUNOLOGY** (nontenure-track) position is available at Duke University Medical Center. Position is open for an individual with a Ph.D. in microbiology/immunology, having 2 to 3 years of experience in human and experimental malignancies and an additional 2 years in psychoimmunology. Responsibilities include supervising medical and graduate students. Send résumé, within 30 days, to: **Dr. Weiss, Professor, Box 3829, DUMC, Durham, NC 27710.**

## POSITIONS OPEN

### UNIVERSITY OF SASKATCHEWAN DEPARTMENT OF BIOCHEMISTRY ASSISTANT PROFESSOR

Two appointments at the level of assistant professor are available in the Department of Biochemistry, College of Medicine, University of Saskatchewan. These appointments are for term of 3 years. Applicants must have a Ph.D. and/or M.D. degree. Duties will include research and teaching of biochemistry to undergraduate and graduate students. Effective date of the appointments is to be not later than 1 July 1989. Salary will be commensurate with experience and training. Experience in areas such as gene manipulation and modern sequencing techniques would be an asset. In accordance with Canadian immigration requirements, priority will be given to Canadian citizens and permanent residents.

Please send curriculum vitae and the names of three references to: **Dr. J. F. Angel, Department of Biochemistry, University of Saskatchewan, Saskatoon, Saskatchewan, Canada, S7N 0W0.** (Reference Psn numbers 88L 11-3-4X and 88L 11-3-5X).

**ASSISTANT PROFESSOR OF ENTOMOLOGY.** The Department of Plant, Soil and Insect Sciences, University of Wyoming, invites applications for a tenure-track position in insect systematics and evolutionary biology. Will teach courses in areas of expertise, direct students, and teach introductory entomology. Will be expected to participate in interdisciplinary research, and secure external grant funds for an on-going research program. Must be able to apply advanced techniques to insect systematics. Duties include curation of the departmental insect museum and interaction with extension entomologist. Ph.D. required; postdoctoral experience preferred. Send letter of application; statement of professional goals and research plan, résumé, transcripts of all university training, and have three letters of reference sent to: **Dr. J. E. Lloyd, Chair, Search Committee, Department of Plant, Soil and Insect Sciences, Box 3354 University Station, University of Wyoming, Laramie, WY 82071.**

*An Equal Opportunity/Affirmative Action Institution*

### ASSISTANT PROFESSOR WILDLIFE ECOLOGY AND MANAGEMENT

Tenure-track position in the Department of Range and Wildlife Management beginning 15 January, 1989. Teach one to two undergraduate courses in wildlife ecology and management and a graduate course in wildlife ecology. Advise undergraduate and graduate students. Develop an active research program in upland game ecology. Ph.D. in wildlife biology or management required. Demonstrated effectiveness in teaching and research highly desirable. Submit letters of application, résumé and official transcripts (three letters of reference should be sent direct to the address below) by 15 November 1988 (applications will be accepted until the position is filled) to: **Henry A. Wright, Chairperson, Range and Wildlife Management, Texas Tech University, Lubbock, TX 79409.**

**ASSISTANT PROFESSORS;** the Department of Biological Chemistry and Molecular Pharmacology Harvard Medical School intends to make two appointments at the assistant professor level in 1989. We are actively seeking applicants with strong research backgrounds in molecular biology, biochemistry, and molecular pharmacology, including membrane biology, structural biology, and gene regulation. Applicants are invited to send curriculum vitae, bibliography, statement of research plans and list of three to four referees to: **Professor Christopher Walsh, Chairman, Biological Chemistry and Molecular Pharmacology Search Committee, Harvard Medical School, 45 Shattuck Street, Room 301, Boston, MA 02115.** Women and minorities are encouraged to apply. Harvard University is an Equal Opportunity Employer.

**ASSISTANT RESEARCH SCIENTIST.** Exciting and challenging opportunity for candidate with Master's degree in biology plus experience in gene cloning, DNA sequencing and hybridization of nucleic acids to conduct molecular biology research in Mental Health Clinical Research Center. Excellent salary and benefits. Please submit curriculum vitae to: **Ms. Joan Harmon, Personnel Department, New York University Medical Center, 550 First Avenue, New York, NY 10016.** An Equal Opportunity Employer M/F.

## POSITIONS OPEN

### HARVARD SCHOOL OF PUBLIC HEALTH ASSISTANT OR ASSOCIATE PROFESSOR

Applicants are being accepted from persons with graduate training, postdoctoral experience and proven accomplishment in nutrition or the following sciences related to nutrition: chemistry, biochemistry, and pharmacology. Applicants must demonstrate the ability to develop an independent research program and teach a chemical approach to the biological effects of foods and their constituents. Preference will be given to candidates whose research has a chemical or molecular orientation. It is hoped to make an appointment in the first half of 1989.

Expression of interest is particularly invited from qualified women and minority candidates.

Send curriculum vitae, a summary of past accomplishments, a statement of future interests in research and teaching, and the names and addresses of three references to:

**Professor Peter Goldman  
Harvard School of Public Health  
665 Huntington Avenue  
Boston, MA 02115**



### ASSISTANT/ASSOCIATE PROFESSOR INSTITUTE OF MOLECULAR BIOLOGY AND BIOCHEMISTRY SIMON FRASER UNIVERSITY

Applications are being accepted for two positions.  
**NUCLEIC ACID/PROTEIN BIOCHEMIST:** Candidates should have interests in protein/nucleic acid interactions or nucleic acid structure and function.

**DEVELOPMENTAL GENETICIST:** Candidates should be applying genetic and modern molecular approaches to model developmental systems.

Postdoctoral experience and demonstrated research potential are required. Appointments and teaching duties will be in the Departments of Chemistry or Biosciences. Applicants should forward a complete curriculum vitae, reprints of most significant recent publications, and three letters of reference to:

**The Director  
Institute of Molecular Biology and Biochemistry  
Simon Fraser University  
Burnaby, B.C. V5A 1S6  
Canada**

Closing date for applications will be 1 December 1988. While all eligible candidates are encouraged to apply, initial preference shall be given to applicants who are eligible for employment in Canada at time of application.

**ASSISTANT OR ASSOCIATE PROFESSOR.** Tenure-track position available for experienced individual with funded research program. Preference will be given to applicants with expertise in immunophysiology, molecular biology, intermediary metabolism and endocrinology. Send curriculum vitae to: **John J. Spitzer, M.D., Professor and Head, Department of Physiology, LSU Medical Center, New Orleans, LA 70112.** LSUMC is an Equal Opportunity/Affirmative Action Employer.

### ASSISTANT/ASSOCIATE PROFESSORS

One, possibly two, faculty positions are available at the Hormel Institute, a research division of the University of Minnesota. The Hormel Institute is an internationally recognized center for basic research on the physicochemical behavior, metabolism and biological functions of lipids and lipid-related proteins. We seek talented investigators who can establish independent, high quality research programs which will complement those of our current faculty. Doctorate and 2 years of research experience required, more is desirable. Please submit curriculum vitae, publication list, a brief description of research interests, and the names of three references to: **Dr. Howard L. Brockman, Chairman of the Search Committee, The Hormel Institute, University of Minnesota, 801 16th Avenue N.E., Austin, MN 55912.** Telephone: 507-437-9620. Application deadline is 18 November 1988. The University of Minnesota is an Equal Opportunity Educator and Employer and specifically invites and encourages applications from women and minorities.

## POSITIONS OPEN

### ASSISTANT/ASSOCIATE PROFESSOR OF PHARMACOLOGY

Mercer University School of Medicine wishes to fill a tenure-track position in pharmacology immediately. Applicants must possess a Ph.D. and/or M.D. with postdoctoral training. Preference will be given to candidates with experience in cardiovascular and/or autonomic pharmacology. However, others are also encouraged to apply. The successful candidate will be expected to develop a research program. Submit curriculum vitae, statement of objectives, and addresses and names of three references to: **Dr. Robert Moon, Chairman, Division of Basic Medical Sciences, Mercer University School of Medicine, Macon, GA 31207.** An Equal Opportunity/Affirmative Action Employer.

### ASSISTANT OR ASSOCIATE PROFESSORS BIOCHEMISTRY/MOLECULAR BIOLOGY

Applications are invited for two tenure-track positions in the field of biochemistry/molecular biology. Candidates should have a doctoral degree in biochemistry or related area and at least 2 years of postdoctoral experience. Preference will be given to candidates with projects concerning application of modern biochemical methods to studies of molecular recognition with emphasis on protein and/or DNA structure and function. Appointees will be expected to develop a strong, independent research program that complements and extends ongoing activities in either molecular structure, protein processing, membranes, molecular biology, mutagenesis, or molecular neurobiology, and to participate in the training of Ph.D. and/or health science students. Research space, access to advanced equipment, and startup funds are available. Submit curriculum vitae, bibliography, summary of research goals, and have three letters of reference sent to:

**Dr. Ronald A. MacQuarrie, Head  
Division of Molecular Biology and Biochemistry  
School of Basic Life Sciences  
University of Missouri-Kansas City  
Kansas City, MO 64110.**

Screening of applicants will begin 1 December 1988 and continue until positions are filled.

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

**ASSOCIATE DIRECTOR, RESEARCH ASSOCIATE PROFESSOR OR RESEARCH PROFESSOR** to administer Health Sciences Research division of Research Institute which has research programs in drug discovery, in toxicology, and in drugs of abuse and to conduct program of personal research in area of discovery of new bioactive natural products and coordinate a multidisciplinary research program of the Institute in drug discovery. Applicants must have Ph.D. in natural products chemistry or biology or pharmaceutical sciences and demonstrated record of research productivity commensurate with appointment at research associate professor or research professor level. Contact: **Dr. Benjamin F. Banahan, III, Associate Director, Health Services Research, Research Institute of Pharmaceutical Sciences, School of Pharmacy, University of Mississippi, University, MS 38677.** Telephone 601-232-5948. Deadline to ensure consideration is 30 November 1988. Equal Opportunity Employer.

**BIOCHEMIST.** Miami University, Department of Chemistry announces a tenure-track opening at the assistant professor level. A Ph.D. in chemistry or biochemistry is required, and postdoctoral experience is expected. A research interest in the area of modern molecular biology is preferred. The successful candidate will teach in the graduate and undergraduate programs in a Ph.D. granting chemistry department. The candidate will be required to establish a strong research program with external funding. Qualified persons should submit their curriculum vitae, a description of their proposed research projects, and arrange for three letters of recommendation to be sent to: **The Biochemistry Search Committee, Department of Chemistry, Miami University, Oxford, OH 45056.** Deadline for applications is 4 November 1988. The search will continue until the position is filled. Because Miami University is an Equal Opportunity/Affirmative Action Employer, women and minorities are particularly encouraged to apply for this position.

U.S. Department of Energy

## POSTGRADUATE RESEARCH PROGRAMS

|                             |                        |
|-----------------------------|------------------------|
| Toxicology                  | Engineering            |
| Fossil Energy               | Physical Sciences      |
| Hazardous Wastes            | Environmental Sciences |
| Economics/<br>Energy Policy | Life Sciences          |
| Artificial<br>Intelligence  | Computer Sciences      |

- Research at national laboratories
- Stipends \$19–35,000 depending on degree, program, research area
- Recent graduate degree
- U.S. citizens or PRAs eligible
- Information



Postgraduate Research Programs  
University Programs Division  
Oak Ridge Associated Universities  
P.O. Box 117  
Oak Ridge, TN 37831-0117  
(615) 576-3190

## Research Triangle Universities Plant Molecular Biology Fellowships

**Applications due February 1, 1989**

**Awards to be announced after March 15, 1989**

In 1983, Duke University, North Carolina State University, the University of North Carolina at Chapel Hill and the North Carolina Biotechnology Center formed a Consortium dedicated to the advancement of studies in the molecular biology of green plants and other photosynthetic organisms. In 1989, with financial support from Ciba-Geigy, RJR Nabisco and the North Carolina Biotechnology Center, the Consortium will provide a limited number of graduate and postdoctoral Fellowships for study and research in plant molecular biology at the three Research Triangle universities.

Fellowship candidates must be U.S. citizens. Preference will be given to applicants from outside North Carolina. Each Fellow must be based in a plant molecular biology laboratory at one of the Research Triangle universities but will participate in activities involving faculty and students at all three institutions.

### Graduate Fellowships

The graduate student stipend is \$10,000 plus tuition, with an allowance for supplies and travel. The award is renewable for two additional years. Candidates must apply directly for graduate admission at one or more of the participating universities; acceptance in a graduate degree program is required for the award.

### Postdoctoral Fellowships

The postdoctoral stipend is \$21,500, subject to university policies, plus a \$5,000 allowance for supplies and travel. The award is renewable for an additional year. Applicants must be sponsored by a qualified faculty member at one of the three participating universities.

For specific application requirements, contact:  
**North Carolina Biotechnology Center**

ATTN: Jay Gartrell  
P.O. Box 13547  
Research Triangle Park, NC 27709-3547  
FAX 919-549-9710



# AIDS Research

Smith Kline & French Laboratories, a leader in pharmaceutical research, has immediate openings for Postdoctoral Scientists to work on the immunological, biochemical and physical structure of human immunodeficiency virus (HIV) proteins expressed in recombinant hosts. The selected candidates will be part of a multidisciplinary research group partially supported by the National Institutes of Health and involved in research on novel vaccines and therapeutic drugs for the prevention and treatment of AIDS and related conditions. Excellent opportunities exist for innovative interdisciplinary research in our new and superbly equipped Research and Development Center in suburban Philadelphia near Valley Forge, Pennsylvania.

We are seeking postdoctoral scientists in the following areas:

- Molecular Genetics: Ph.D. in Microbiology or Molecular Biology with experience in recombinant DNA technology and interest in retrovirology and immunology. Refer to position V0049.
- Protein Chemistry: Ph.D. in Biochemistry or Protein Biochemistry with experience in protein purification (HPLC) and interest in protein structure/function studies and macromolecular assembly. Refer to position V0050.
- Peptide Chemistry: Ph.D. in Chemistry, Biochemistry, or Biophysics with experience in protein chemistry and/or peptide synthesis, and interest in protein structure, immuno-recognition and design of peptide and protein recognition mimics. Refer to position V0051.
- Nuclear Magnetic Resonance: Ph.D. with experience in high field 2D NMR or in development of NMR methods. Refer to position V0052.

We are also seeking Biochemists (B.S./M.S.) with experience in protein purification using a diversity of classical and modern methods. Refer to position V0048.

We offer an excellent compensation, benefits and relocation package as well as opportunities for personal and professional growth. Publication of research results is encouraged and supported. For confidential review, please forward your C.V. and names of three references to: Ms. Angela Varrichio, Associate Employment Administrator, Smith Kline and French Laboratories, P.O. Box 1539, King of Prussia, PA 19406-0939. We are an Equal Opportunity Employer, M/F/H/V.

# SK&F

A SmithKline Beckman Company



## POSITIONS OPEN

### BIOLOGICAL OCEANOGRAPHER UNIVERSITY OF CALIFORNIA, SANTA BARBARA

The Department of Biological Sciences, University of California, Santa Barbara, invites applications for a tenure-track position at the assistant professor level in biological oceanography, effective 1 July 1989. Applicants should have research programs which investigate the relationship between the physical or chemical environment and the biology of marine organisms from an oceanographic perspective. Examples of potential research areas include, but are not limited to, the role of currents in larval recruitment patterns, the influence of fronts, internal waves, turbulence, stratification, advection or water chemistry on the physiological, reproductive, or behavioral adaptations of organisms, and the effects of physical or chemical processes on the distributions and abundances of pelagic organisms. In addition to establishing a strong research program, the successful applicant will be expected to teach the physical oceanography portion of a required course for undergraduate or graduate level, and interact with the broad spectrum of marine scientists associated with the Department of Biological Sciences and the Marine Science Institute. A Ph.D. is normally required by the time of appointment. Interested individuals should send a copy of their curriculum vitae, a summary of their research goals, and arrange to have three letters of recommendation sent to: **The Chairperson, Department of Biological Sciences, University of California, Santa Barbara, CA 93106** by 1 December 1988. *Proof of U.S. citizenship or eligibility for U.S. employment will be required prior to employment (Immigration Reform and Control Act of 1986).* The University of California is an Equal Opportunity/Affirmative Action Employer.

**BIOLOGICAL SCIENCE**—Assistant Professor, tenure-track. Begin January, 1989. Ph.D. required. Teach botany (vascular and non-vascular), ecology (plant and animal), local flora, environmental science, and limnology. Applications reviewed beginning 23 October 1988. Send résumé, undergraduate and graduate transcripts, and three letters of reference to: **Dr. Charles Chapman, Biology Department, Troy State University, Troy, AL 36082.** *TSU is an Affirmative Action/Equal Opportunity Employer.*

University of California, San Francisco (UCSF) **BIO-MOLECULAR RESOURCE CENTER.** The Center provides services for the campus community in protein and DNA synthesis and sequencing. The person will be responsible for administrative and technical operations in the facility. We are looking for a person who can coordinate the activities of the center and teach others; with meticulous technique, experience in instrumentation, and knowledge of protein and nucleic acid chemistry. He or she should have a Ph.D. in biochemistry or a related specialty, and at least 2 years of postdoctoral experience. Some microcomputer experience is essential. The appointment will be made at a level commensurate with qualifications.

To apply, submit curriculum vitae, with a statement of background/interests, and the names of three references to: **Dr. K. Ivanetich, BRC Search Committee, University of California, San Francisco, CA 94143-0541.** *UCSF is an Equal Opportunity/Affirmative Action Employer. Women and minorities are encouraged to apply.*

### BOTANIST— PHYSIOLOGICAL ECOLOGY, ASSISTANT PROFESSOR

The Department of Biology, Hamilton College, invites application for a tenure-track position at the assistant professor level in botany, effective 1 July 1989. Applicants must have a Ph.D. degree and postdoctoral experience. The successful applicant will be expected to collaborate in the teaching of the introductory biology sequence, develop a course in general botany and a course, or courses, in the specialty. Applicants should have a strong commitment to both teaching and scholarship and the successful applicant will be expected to develop an ongoing research program involving highly-qualified undergraduate students. Interested individuals should send curriculum vitae and the names of three references to: **Tom Brady, Chairman, Biology Department, Hamilton College, Clinton, NY 13323.** Deadline for receipt of applications is 15 November 1988. *Hamilton College is an Equal Opportunity Employer. Women and minorities are strongly encouraged to apply.*

## POSITIONS OPEN

**BIOCHEMIST—BATES COLLEGE:** Applicants are invited for a tenure-track, faculty position at the assistant professor level, to begin September 1989. Applicants are expected to have a strong commitment to undergraduate instruction and research. Ph.D. degree required. Responsibilities include teaching biochemistry and general chemistry courses, and directing undergraduate research. Salary is competitive and substantial start-up funds are available. Closing date: 1 November 1988. Send curriculum vitae, transcripts, description of research interests, and three letters of reference to: **Professor David B. Ledlie, Chairman, Department of Chemistry, Bates College, Lewiston, ME 04240.** *Bates College is an Equal Opportunity Employer. We are eager to identify minority and women candidates.*

University of Utah—**BIOORGANIC CHEMISTRY.** The Department of Chemistry at the University of Utah invites applications for a position in the area of bioorganic chemistry which we expect to fill in the 1988 to 1989 academic year. We are seeking highly qualified individuals with research interests in the general areas of biological reaction mechanisms, structure and function of proteins or nucleic acids, or biosynthesis which emphasize chemical approaches. Applications will be considered from junior-level candidates and established scientists with outstanding records of achievement. Applicants are expected to have the background, ability, and motivation to achieve excellence in research and teaching at undergraduate and graduate levels. Preference will be given to junior-level scientists with postdoctoral experience. Applicants should send a detailed vitae and publication list and a brief (up to four pages) outline of research plans to: **Bioorganic Search Committee, Department of Chemistry, University of Utah, Salt Lake City, UT 84112.** In addition, applicants must arrange for three referees to send recommendation letters directly to us. The deadline for receipt of all material is 31 October 1988, or until suitable candidates are identified. *The University of Utah is an Affirmative Action/Equal Opportunity Employer.*

### BIOSTATISTICIAN

Microbial Genetics Division, a division of Pioneer Hi-Bred International, Inc., currently has an opening for a Biostatistician.

This position will be responsible for consulting with research group on design of field trials and laboratory experiments in plant and animal research studies; analyzing data, interpreting and presenting results to scientists and management; applying statistical methodology related to research and developing procedures to improve current methodology; and developing and evaluating statistical programs.

Master's Degree in biostatistics and 1 to 3 years of experience in design and analysis of field and laboratory experiments are required for immediate consideration. Please send your résumé to: **Cindy Bussanmas, Human Resources, Microbial Genetics Division, 7250 NW 62nd Avenue, P.O. Box 258, Johnston, IA 50131.** *Affirmative Action/Equal Opportunity Employer*

### BIOSTATISTICIAN/DATABASE PROGRAMMER

The Center for Molecular Medicine and Immunology (CMMI) is a specialized cancer research center with a major focus on research directed towards the use of monoclonal antibodies in the early diagnosis and therapy of cancer. As an nationally known cancer research and treatment center, we offer an exceptional environment for a versatile Biostatistician/Database Programmer. You will have the opportunity to work closely with clinicians, scientists, and administrators and a small technology transfer team in the development of statistical and on-line systems that support oncological research and clinical projects.

To be considered, candidates must have either a Ph.D. or master's degree in biostatistics with 2 years of statistical/programming experience. Any of the following would be pluses: experience with Digital, Altos, or IBM mini/microcomputers, statistical packages (or statistical experience), and a scientific or medical background.

CMMI offers a comprehensive health benefits program and atmosphere conducive to personal satisfaction. Send résumé to: **Director of Personnel, Center for Molecular Medicine and Immunology, 1 Bruce Street, Newark, NJ 07103.** *An Equal Opportunity/Affirmative Action Employer.*

## POSITIONS OPEN

### BAYLOR UNIVERSITY BIOLOGY FACULTY TENURE-TRACK POSITIONS

(i) Plant Systematist: A Ph.D. is required. Rank is open. The successful candidate must document research experience in either cryptogamic or vascular plant systematics. Responsibilities include: teaching a senior-graduate level course in principles of plant systematics and other mutually agreed upon courses, supervising student research, and supervising curation of the herbarium. (ii) Microbiologist/bacteriologist: A Ph.D. is required. Rank is open. The successful candidate must document research experience in microbiology/bacteriology. Responsibilities include: teaching microbiology, a senior-graduate level course in bacteriology and other mutually agreed upon courses, and supervising student research. (iii) Electron Microscopist: A Ph.D. is required. Rank is open. The successful candidate must document experience with both TEM and SEM. Responsibilities include: Teaching electron microscopy, general biology for majors and other mutually agreed upon courses, and supervising student research. Application deadline: 1 November 1988. Positions to start summer or fall 1989. Submit letter of application specifying position applying for, a statement of current and future research interests, a curriculum vitae, and the names of three referees to: **Dr. W. Keith Hartberg, Chairman, Department of Biology, Baylor University, Waco, TX 76798-7388.** *Baylor University is an Equal Opportunity/Affirmative Action Employer and is under the patronage and general direction of the Baptist General Convention of Texas.*

### CHAIR DEPARTMENT OF MICROBIOLOGY

Miami University invites applications and nominations for the position of Chair of the Department of Microbiology. Candidates must have an excellent record of accomplishment in research within the discipline, a demonstrated interest and ability in effective teaching, and the capability of providing the administrative leadership to continue and extend the department's established strengths in research, teaching, and service. It is planned that this position be assumed by the fall semester of 1989.

The department, which grants the Bachelor's, Master's, and Ph.D. degrees in microbiology, includes a faculty of ten, three postdoctoral fellows, approximately 25 graduate students and 200 undergraduate majors, and a professional support staff. This group is situated in a new building completely equipped to meet the commitment of the department to research and its degree programs at both the undergraduate and graduate levels. Applications will be accepted until 1 December 1988 and should include curriculum vitae, a synopsis of current research, copies of representative recent publications, a description of teaching and administrative experience, and the names, addresses, and telephone numbers of three or more references. Mail applications to:

**Dr. Maryellen Cameron  
Chair of the Search Committee  
Department of Microbiology  
Miami University  
Oxford, OH 45056**

*Miami University supports Equal Opportunity in Employment and Education.*

**CHAIRPERSON, DEPARTMENT OF BIO-CHEMISTRY,** Colorado State University. We are seeking a chairperson with a proven record of excellence in research and teaching in molecular biology and biochemistry. This appointment will coincide with the University-wide expansion of molecular and cellular biology and the completion of a new building. Applications or nominations should be sent to: **Dr. Carol D. Blair, Search Committee Chair, College of Natural Sciences, C 138 Clark Building, Colorado State University, Ft. Collins, CO 80523. Telephone: 303-491-1300.**

Applications consist of a letter of intent, curriculum vitae, three representative publications, and names, addresses, and telephone numbers of three or more references. Review of applications begins 15 October 1988, but applications will be accepted until suitable candidates are found.

*CSU is Equal Employment Opportunity/Affirmative Action Employer. E.O. Office is located in 314 Student Services Building.*

### MACARTHUR FOUNDATION POSTDOCTORAL TRAINEESHIP IN AGING

The MacArthur Foundation Research Program on Successful Aging invites applications from graduates of advanced degree programs to conduct research on a collaborative, interdisciplinary study of aging in six sites. Trainees will work with a team of investigators working on longitudinal studies of elderly and will have a unique opportunity to be part of interdisciplinary gerontologic research. While most trainees will be based in laboratories of investigators leading population-based studies, there is also an interest in applicants with a biological or physiological orientation who will serve as a liaison between these studies and other more clinically-oriented and basic biological studies that are part of the research program. The focus of the studies is on the maintenance of physical and cognitive functioning in a psychosocial and physiologic context and on developing new interdisciplinary approaches to larger issues in health and aging.

Positions are available for M.D.'s or Ph.D.'s with an interest in aging, physiology, neuropsychology, endocrinology, epidemiology, basic biologic sciences, biostatistics, psychiatry, sociology or related fields. Positions are available at Duke University, Harvard University, Yale University, University of Michigan, Pennsylvania State University, and the Karolinska Institute in Stockholm, Sweden. Emphasis will be placed on candidates' abilities to work in an interdisciplinary setting. Positions are available for terms of 1 or 2 years. Most appointments will be made for July 1989; however, some earlier appointments are possible. Salaries range up to \$40,000 commensurate with qualifications and university policy.

Submit curriculum vitae, publications, names of three references, preferences for a specific site and a 2 page statement including areas of expertise and future research plans to: **Lisa F. Berkman, Ph.D., Department of Epidemiology, Yale School of Medicine, 60 College Street, New Haven, Connecticut 06510. Affirmative Action Employer.**

### ASSOCIATE VICE PRESIDENT FOR BIOMEDICAL RESEARCH

The Association of American Medical Colleges seeks an Associate Vice President for Biomedical Research reporting directly to the Vice President for Biomedical Research. The incumbent will share in the management of the Division of Biomedical Research and assist in planning, implementing and evaluating a wide array of programs and activities critical to biomedical and behavioral research and training at member institutions. The Division is concerned with the development of research policy; assessment of needs and policies governing research training; the financing and management of research and the research infrastructure, including plant, equipment, human subjects regulations, and the use of animals; technology transfer; and relationships between academic medical centers and industry. The incumbent will also participate in the programs and activities of the Council of Academic Societies, the component of AAMC's governance representing medical center faculty through 85 professional and specialty organizations.

Candidates should possess an M.D. or Ph.D. degree and have a strong background in research in the biomedical or behavioral sciences. Experience in teaching, a broad knowledge of characteristics of medical school faculties and academic health centers and knowledge of programs and mechanisms in federal and private funding agencies are highly desirable.

Letters of interest with resumes and references should be sent to:

Thomas E. Malone, Ph.D.  
Vice President for Biomedical Research  
Association of American Medical Colleges  
One Dupont Circle NW, Suite 280  
Washington, D.C. 20036

An Equal Opportunity, Affirmative Action Employer.

### Chemistry

## Immunochemistry Group Leader Medical Diagnostic Manufacturing

Arden Medical Systems, Inc., a locally based division of Johnson & Johnson, a leading Fortune 500 company, is seeking a strong analytical decision maker/implementer for the position of Group Leader.

An ideal background must include a Ph.D. in Biochemistry or related field with 3 years supervisory experience or a Master's degree with 5 years relevant experience.

Experience should include managing subordinates in the development of an assay from the bench through introduction into manufacturing. This will include:

- Development of non-isotopic immunoassays.
- Product development of in vitro diagnostic assays.
- Protein chemistry.
- Antigen and antibody binding to plastics.

## Senior Scientists

Multiple positions are available at the Senior Scientist level. Candidates must have experience with non-isotopic immunoassays for large and preferably small molecules.

We offer a competitive salary plus bonus opportunity and a comprehensive benefits package. Please contact Mr. Larry Nordby at (612) 546-0966 or send your resume to The Nordby Group, 575 Interchange Tower, 600 So. County Road 18, Minneapolis, MN 55426.



**ARDEN MEDICAL SYSTEMS, INC.**

A Johnson & Johnson COMPANY

Equal Opportunity Employer

## SCIENCE EDITOR/ WRITER

The Technical Information Department is seeking an Editor/Writer to provide scientific writing and editing support to a major scientific research division. This includes: writing and/or editing the division's annual report, briefing documents and Vu-Graphs, brochures, proposals, and contributions to institutional documents. Coordinating the production of publications; providing technical assistance/advice to scientific staff regarding text, illustrations, and formats of scientific publications; and reviewing research program literature/correspondence and recommending action and/or drafting responses.

Requires extensive experience in writing/editing technical material at all levels of scientific complexity, preferably in the physical sciences. Skills in publications production techniques, both traditional and computer-assisted. Ability to interact diplomatically with management and scientific personnel on sensitive and/or high-priority projects, to coordinate the activities of publication and office support staff. Degree in one of the physical sciences or in engineering preferred, degree in English or Journalism with significant technical experience acceptable.

Salary range is \$2760-\$4836/MO., depending on experience, with excellent benefits. To apply, submit a resume to: **Employment Office, Job C/4817, Lawrence Berkeley Laboratory, Bldg. 90-1012, #1 Cyclotron Road, Berkeley, CA 94720. (415) 486-4226. An Equal Opportunity Employer, M/F/H.**



**LAWRENCE  
BERKELEY  
LABORATORY**



## POSITIONS OPEN

**CHAIR, Department of Psychiatry**—The University of Wisconsin Medical School—Madison is searching for a new Chairperson for the Department of Psychiatry. We seek a person who is able to give professional and administrative leadership of the highest quality to a distinguished department in programs of teaching, research, and clinical service. Send reply with curriculum vitae to: **Dr. Peter Eichman, Chairman, Society Search Committee, c/o M. Martin, Medical School Administration, 1300 University Avenue, Madison, WI 53706.** To guarantee full consideration, applications are due by 31 December 1988. *The University of Wisconsin is an Equal Opportunity/Affirmative Action Employer.*

### THE WARREN WRIGHT, SR.— LUCILLE WRIGHT MARKEY CHAIR IN IMMUNOLOGY DEPARTMENT OF VETERINARY SCIENCE UNIVERSITY OF KENTUCKY

The Department of Veterinary Science will accept applications immediately for the recently established Warren Wright, Sr.—Lucille Wright Markey Chair in immunology. This chair is endowed to support basic research on the immunology of the horse. Persons interested in this position should possess a distinguished record in research and now occupy a senior position in academic research. Applicants are welcome from all areas of immunological research. Applicants with an interest in the immunology of infectious diseases are particularly encouraged to apply.

Appointment to this endowed chair includes appointment as professor with tenure in the faculty of the College of Agriculture as well as funding for the support of equine research and development of graduate and postdoctoral training programs.

Those interested in this position or wishing further information should contact by letter: **Dr. Ernest Bailey; Chairman, Wright-Markey Chair Search Committee; Gluck Equine Research Center; Department of Veterinary Science; University of Kentucky; Lexington, KY 40546-0099.** *The University of Kentucky is an Equal Opportunity Employer.*

## CHEMICAL ENGINEER

Cryopharm Corporation, a growing biomedical company, seeks a chemical engineer with industry experience in aseptic packaging of pharmaceuticals and lyophilization technology, to direct initial product formulation and scale-up efforts. Applicants should have at least 5 years of relevant industry experience. Familiarity with the blood products industry desirable. Excellent communication skills and problem-solving abilities are vital. The successful candidate will have a unique opportunity to take on significant responsibilities and grow with a dynamic company that is developing an exciting new technology. Applicants should contact: **Neil Diver, Cryopharm Corporation, 2585 Nina Street, Pasadena, CA 91107. Telephone: 818-793-1040.**

### U.S. DEPARTMENT OF AGRICULTURE (USDA) AGRICULTURAL RESEARCH SERVICE (ARS)

**CHEMIST, SYNTHETIC ORGANIC**, Agricultural Research Service (Northern Regional Research Center), Peoria, Illinois, has a research associate position available to conduct research on the synthesis and characterization of polyunsaturated triglycerides and the use of the synthesized compounds as models in basic studies of the oxidative stability of vegetable oils. Ph.D. in organic chemistry is required. Experience or postdoctoral research with strong background in advanced organic synthetic methods, preparation and use of organometallic catalysts and reagents, and advanced methods of analysis and separation is desired. The position is GS-11 (\$27,716), and is a temporary appointment not to exceed 2 years. Additional information may be obtained from **Timothy L. Mounts at 309-685-4011, extension 555.** Applications in response to this ad must be marked 8N033, and must be received by 7 October 1988. Send curriculum vitae and names and addresses of three references to: **Mr. Timothy L. Mounts, Northern Regional Research Center, ARS, USDA, 1815 North University Street, Peoria, IL 61604.** *ARS is an Equal Opportunity Employer.*

## POSITIONS OPEN

**CHIEF, PROTEIN CHEMISTRY LABORATORY**—Responsible for the development of novel excitatory amino acid antagonists through screening natural products and studying the molecular properties of the receptor for excitatory amino acid transmitters. Organizes multidisciplinary research projects. Manages operating budget for laboratory.

Requirements include a doctorate degree in the biological sciences and at least 3 years of postdoctoral research experience in the purification and the structural and functional characterization of proteins, and 1 year isolating natural neurotoxins. Also require experience in HPLC instrumentation and application, amino acid analysis, protein sequencing, recombinant DNA technology and immunochemistry. Position located in Cambridge, Massachusetts. \$3710 per month, 40 hours per week.

Send résumé only to: **Job Order #81295, Massachusetts Division of Employment Security, C.F. Hurley Building, Boston, MA 02114.**

## CLINICAL PSYCHOLOGY EDUCATOR

Full-time position. Assist clinical educators to develop curriculum, conduct, and evaluate an "Urban Medicine" program to integrate psychosocial training throughout internship and general practice residency programs in an expanding inner-city hospital/healthcare complex. Ph.D./D.O./M.D. preferred. Experience in education program development and teaching skills required. Active research involvement preferred and encouraged. Competitive salary and benefit package. DHHS grant-awarded project. Position available immediately. Send résumé to: **Eldon Nelson, Ph.D., Associate Director, Medical Education, Michigan Osteopathic Medical Center, 2700 M.L. King Jr. Boulevard, Detroit, MI 48208.** *Affirmative Action/Equal Opportunity Employer.*

## DEVELOPMENTAL BIOLOGIST

The Department of Cell Biology and Anatomy at Oregon Health Sciences University invites applications for a tenure-track faculty position at the level of assistant or associate professor. We are looking for an individual with a strong research background in developmental biology or developmental neurobiology, and who is currently using cellular and molecular biological approaches in their work. The applicant will be expected to develop an independent, competitively funded research program, and to participate in the teaching of graduate and medical students. Submit curriculum vitae, selected reprints, and the names of three references by 1 January 1989 to: **Dr. Gary Ciment, Department of Cell Biology and Anatomy (L215), School of Medicine, Oregon Health Sciences University, Portland, OR 97201.** *Affirmative Action/Equal Opportunity Employer.*

### DIRECTOR, INSTITUTE OF BIOMEDICAL ENGINEERING UNIVERSITY OF TORONTO CANADA

The University of Toronto, Canada's largest and most diversified university, is seeking a director for its Institute of Biomedical Engineering. This graduate institute, founded in 1962, is sponsored jointly by the Faculties of Applied Science and Engineering and Medicine, has about 20 core and cross-appointed faculty and currently has a total of seventy graduate students at the master's and doctoral level.

The successful candidate will be a senior academic with extensive experience in biomedical engineering, and a background in physical science, engineering, life science, or medicine. He or she will be a strong leader, capable of working in an interdisciplinary academic research environment, and interested in maintaining strong industrial ties. He or she will have a desire to sustain high quality research in thematic areas, and be prepared to contribute to the teaching programmes of the institute with the support of an experienced, independent, and academically strong graduate faculty.

Applicants should forward a letter of application, the names/addresses of three referees, and a current curriculum vitae by 30 November 1988 to:

**The Chairman, Search Committee  
Director of Biomedical Engineering,  
Office of the Dean,  
Faculty of Applied Science and Engineering,  
Galbraith Building,  
University of Toronto,  
Toronto, Ontario M5S 1A4, Canada.**

## POSITIONS OPEN

Position open for a **DOCTORATE IN BIOPHARMACEUTICAL SCIENCE** with the ability to design and develop novel analytical techniques to quantitate new chemicals from biological fluids with potential therapeutic use. Applicant must have thorough knowledge of medicinal chemistry, drug metabolism and radiopharmacy. Thorough knowledge in instrumental methods of drug analysis and a working knowledge in pharmacokinetics is required. Salary \$42,400 per year with usual company benefits. Mail résumé and copy of ad to: **Department of Economic and Employment Development, 1123 North Eutaw Street, Room 203, Baltimore, MD 21201. Job order No. 7008141.** Job location: Rockville, Maryland. *Proof of legal right to work in U.S. required.*

**ENVIRONMENTAL PATHOLOGY/TOXICOLOGY.** NRSA supported **PRE- AND POSTDOCTORAL POSITIONS** available after October 1988. Research emphasis on cellular and molecular effects (mutagenesis, neurotoxicity, biotransformation, DNA dosimetry) of toxic chemicals (especially trace metals, aromatic hydrocarbons, ozone respiratory epithelial injury, aflatoxins). Inquiries: **Dr. N. K. Mottet, Program Director, Department of Pathology, SM-30, University of Washington, Seattle, WA 98195.** *US Citizen/Permanent Resident. An Equal Opportunity/Affirmative Action Employer.*

### FACULTY POSITION DEPARTMENT OF MEDICAL BIOCHEMISTRY AND GENETICS

The Department of Medical Biochemistry and Genetics invites applications for a tenure-track faculty position. Salary and rank are open and dependent upon qualifications. An endowed chair is a possibility for an exceptional candidate. As part of an expanding research community, candidates are expected to establish or maintain a vigorous research program and participate in medical and graduate instruction. Applications from individuals with research interests in any area of biochemistry, molecular biology, or molecular genetics are encouraged. Submit curriculum vitae, description of research interests, and names of three references to: **Dr. Garret Ihler, Department of Medical Biochemistry and Genetics, Texas A&M College of Medicine, College Station, TX 77843-1114.** *Equal Opportunity/Affirmative Action Employer.*

## FACULTY POSITION

The Biophysics Institute at Boston University School of Medicine invites applications for a faculty position available at the assistant professor level. Applicants should be experienced in one of the following areas: (i) molecular biology; (ii) cell biology; and (iii) structural biology, and have a strong interest in the areas of lipids, lipoproteins and cellular membranes. Start up funds are available. However, applicants must have a strong desire and ability to create an independent research program. Please send curriculum vitae, bibliography, three letters of reference, and a brief statement of research interests to: **Dr. David Atkinson, Biophysics Faculty Search Committee, Boston University School of Medicine, 80 East Concord Street, Boston, MA 02118-2394.** *An Equal Opportunity/Affirmative Action Employer.*

**FACULTY POSITION IN ANALYTICAL CHEMISTRY**—Seton Hall University. The Chemistry Department of Seton Hall University invites applications at the assistant professor level for a tenure-track position beginning either January or September, 1989. The successful candidate will teach at the graduate and undergraduate levels and conduct analytical chemistry research with B.S., M.S., and Ph.D. candidates. All areas of analytical chemistry will be considered. Demonstrated research excellence and a commitment to teaching at the graduate and undergraduate levels are required. Applicants should send a résumé, brief description of future research plans, three letters of recommendation and an indication of anticipated availability to: **Faculty Search Committee, Department of Chemistry, Seton Hall University, South Orange, NJ 07079.** Evaluation of applications will begin 1 November 1988. *Seton Hall is an Equal Opportunity/Affirmative Action Employer. Seton Hall is the Catholic University in New Jersey, founded in 1856.*

# STATE OF KUWAIT KUWAIT UNIVERSITY COLLEGE OF SCIENCE

The Kuwait University College of Science invites applications for posts of Professor, Associate Professor and Assistant Professor for the academic year 1989/90 tenable September 1, 1989 in the following disciplines:

- Department of Mathematics: Computer Science, Mathematical Modeling (The department is interested in promising holders of the Ph.D. in all specializations of Math and Computer Science)
- Department of Physics: (Asst. Prof., Assoc. Prof.) Lasers and their applications (experimental), Modern Optics (experimental), Laser applied atomic physics spectroscopy (experimental)
- Department of Chemistry: (Asst. Prof., Assoc. Prof.) Organic chemistry (spectroscopy)
- Department of Geology: Crystallography and Mineralogy, Marine Geology
- Department of Zoology: (Prof. or Assoc. Prof.) Biology of Chordates, Molecular Biology, Marine Biology

\* \* \* \* \*

The language of instruction of the College of Science is English. The method of teaching is based on the credit hour system. All applicants must hold the Ph.D. or its equivalent *at the time of application*. Monthly salaries are as follows:

|                            |                 |
|----------------------------|-----------------|
| Professor                  | KD 1070-KD 1230 |
| Assoc. Prof. (Asst. Prof.) | KD 875-KD 1035  |
| Asst. Prof. (Lecturer)     | KD 680-KD 840   |

The current exchange rate is 1 KD (Kuwaiti dinar) = \$3.50 approx.

Annual air passage for appointee, spouse and up to three children below the age of twenty. Tuition allowance for children through secondary level in accordance with University regulations.

One month basic salary gratuity is provided at the end of the contract for each year served. Summer and mid-year paid leave is provided together with free furnished accommodation and utilities. There is no income tax in Kuwait.

Application forms may be obtained from:

**Kuwait University Office**  
3500 International Dr. N.W.  
Washington, DC 20008

All applications together with a non-returnable copy of academic qualifications (including transcripts of graduate programs), a copy of last year's student teaching evaluation of performance and representative publications should be sent by registered post directly to:

**Dean**  
**College of Science**  
P.O. Box 5969  
13060 Safat  
KUWAIT

*All applications must be received by November 30, 1988.*

# CELLULAR BIOLOGIST & CELLULAR IMMUNOLOGIST

Collagen Corporation is a dynamic and growing biomedical company. Our Research & Development subsidiary, Celtrix Laboratories, is a leader in the identification and therapeutic uses of newly discovered cytokines and growth factors. If you're a qualified research scientist with strong supervisory abilities, we invite you to join us in our attractive San Francisco bay area location.

## CELLULAR BIOLOGIST

The selected candidate will be responsible for developing *in vitro* and *in vivo* models which can be used to evaluate the role of novel cytokines in the growth and differentiation of epidermal and connective tissue cells. You will also determine the potential use of these factors in the treatment of skin diseases. Qualified individual will have a Ph.D. in Cell Biology or a related field with 2-3 years of research experience in skin biology and/or dermatology.

## CELLULAR IMMUNOLOGIST

The successful candidate will supervise the development of immune-mediated inflammation models used to evaluate the role of different cytokines in the immune response. This position requires a Ph.D. and 2-3 years of experience, or an M.S. and 4 years' experience, with inflammatory animal models and cellular immunology.

Our R&D focus will provide you with a challenging, stimulating career environment in an ideal location, as well as excellent salaries, full benefits, an employee stock purchase plan and relocation assistance. For prompt, confidential consideration, send your resume to: S. Hansen, Human Resources, Collagen Corporation, 2500 Faber Place, Palo Alto, CA 94303. We are an equal opportunity employer.



**COLLAGEN**  
CORPORATION



## 5 POST DOCTORAL POSITIONS SIGNAL TRANSDUCTION & MEMBRANE BIOLOGY

Newly-funded post doctoral positions are available in a well-supported, interdisciplinary department for research projects in the following areas:

1. **Inositol polyphosphate signalling pathways and the regulation of calcium homeostasis in liver and neurosecretory cells.** These projects will expand on exciting new data obtained using fluorescence imaging of cytosolic calcium and calcium storage organelles in single cells as well as research into the control of inositol lipid metabolism. Experience in one or more of these areas is desirable. (Drs. J.B. Hoek and A.P. Thomas)
2. **Effects of alcohol and cocaine on excitation-contraction coupling in cardiac cells.** This project will focus on the effects on these drugs on calcium fluxes in isolated heart cells using calcium indicators and digital imaging microscopy. Experience in cardiac physiology or pharmacology preferred. (Dr. A.P. Thomas)
3. **Physico-chemical basis of alcohol and anesthetic action.** These projects will investigate the mechanism of interaction of ethanol and anesthetics with biological membranes and identify the structural/chemical basis of acquired tolerance to these agents. Experience in either biological applications of NMR/ESR or in state-of-the-art methods of isolation and analysis of membrane lipid constituents is required. (Dr. T. Taraschi)

All of the positions are available for a period of 2-5 years and are renewable annually.

Applications including curriculum vitae, names of 3 references and a brief summary of research interests should be sent to: **Mr. H. Schurr, Academic Administrator, Department of Pathology and Cell Biology, THOMAS JEFFERSON UNIVERSITY, Philadelphia, PA 19107.** *Thomas Jefferson University is an Equal Opportunity/Affirmative Action Employer.*



Thomas  
Jefferson  
University



## SCIENCE AND ENGINEERING RESEARCH SEMESTER Opportunities for UNDERGRADUATE RESEARCH

The U.S. Department of Energy offers college juniors and seniors the opportunity to spend one academic term in energy-related research. Qualified students work at one of six federal laboratories: Argonne National Laboratory, Brookhaven National Laboratory, Lawrence Berkeley Laboratory, Los Alamos National Laboratory, Oak Ridge National Laboratory, and Pacific Northwest Laboratory.

- Research areas include: computer sciences, engineering, physics, environmental and life sciences, mathematics, and physical sciences
- Stipends up to \$175 per week: round-trip travel; housing
- Must be U.S. Citizen or Permanent Resident Alien

For application information contact:

**SCIENCE and ENGINEERING  
RESEARCH SEMESTER  
U.S. Department of Energy  
Office of Energy Research, ER-44, Room 3F-061  
1000 Independence Avenue, SW  
Washington, D.C. 20585**

Application Deadlines:  
October 10, 1988 for Spring 1989 Cycle  
March 15, 1989 for Fall 1989 Cycle

## RESEARCH SCIENTISTS INFLAMMATORY DISEASE RESEARCH

Merrell Dow Research Institute, located in suburban Cincinnati, has two vacancies for scientists in our multidisciplinary research team investigating novel approaches for the treatment of inflammatory diseases, particularly arthritis. Potential candidates are required to have a Ph.D. in pharmacology, immunology, pathology, or a related field. One or more years of post-doctoral experience is preferred. Candidates should have a general background in inflammation and experience in one of the two following areas:

- **IN VIVO and/or IN VITRO methods for studying the processes underlying inflammation;**
- **Synthesis and destruction of extracellular matrix in inflammation and tissue repair.**

We offer excellent compensation, comprehensive benefits, and relocation assistance. Please send your resume, salary expectations and names of three references in confidence to:

**Merrell Dow**

**Personnel Services Manager  
(Refer to Job Code NDBD)**

**MERRELL DOW  
RESEARCH INSTITUTE  
2110 East Galbraith Road  
Cincinnati, OH 45215  
U.S. Citizenship or  
Permanent Visa Required  
Equal Opportunity Employer M/F/H/V**

## RESEARCH SCIENTISTS ANALYTICAL BIOCHEMISTRY

**Amgen** has immediate opportunities for Research Scientists in Analytical Biochemistry to participate in the development of methods for protein characterization and protein stability using normal and reversed phase HPLC and other analytical techniques.

Qualified applicants for these positions must have a Ph.D. in Biochemistry or a related discipline with an emphasis in analytical methods and instrumentation.

**Amgen** is a dynamic and growing organization providing an exciting and innovative research environment as well as an attractive location northwest of Los Angeles. **Amgen** also offers an excellent compensation and benefits package.

Qualified candidates should send a c.v., including references, in confidence to:

**Recruitment, Dept. #346  
AMGEN  
1900 Oak Terrace Lane  
Thousand Oaks  
CA 91320**

Equal  
Opportunity  
Employer

# AMGEN

# **BIOMOLECULAR RESEARCH POSITIONS**

GEO-CENTERS, INC., a rapidly growing professional services R&D firm, specializing in the materials, biological and optical sciences, has immediate openings for Senior Technical Staff Members and Support Personnel.

## **CELL DIFFERENTIATION AND GROWTH**

- The principal position involves conducting investigations on the development and application of novel hemopoietic growth factors to determine the molecular mechanisms responsible for replication and terminal differentiation. Code 2091
- The Support Personnel will be required to assist in the utilization of monoclonal antibody techniques for identification and isolation of immature hemopoietic cells. Code 2092/2093

## **BONE GROWTH**

- This senior position involves the conducting of histological analyses of bones and various cells that metabolize bones and measuring the indices of bone growth and bone quality in conjunction with selected growth factors to evaluate their effect on bone growth. Code 2094
- Assisting personnel will be preparing specimens for histological evaluations, and performing biochemical assays which may include the use of radioisotopes. Some computer analysis will be required. Code 2095

## **SEPTIC SHOCK**

- Senior Level Position. Basic research will be performed on the pathophysiology of septic shock, and conducting clinical evaluations of potentially useful therapeutic drugs. Code 2096

## **WOUND REPAIR**

- This support position involves the evaluation of novel peptides, proteins, growth factors and biopolymers for use in enhancing wound repair. This individual will assist in the preparation of materials and animals needed for these studies, and assist in the evaluation of their effects on wound repair. Code 2097

## **BIOSENSORS**

Two senior-level candidates being sought to conduct investigations on the development of novel biosensors:

- This position will involve the development of novel fluorescence-based fiber optic diagnostics. Code 2098
- Another position will involve the purification and reconstitution of ion channel proteins, and their subsequent incorporation into receptor-based biosensors. Code 2099

## **QUALIFICATIONS (U.S. CITIZENSHIP REQUIRED)**

Successful senior-level candidates will possess a Ph.D. or equivalent combination of education/experience in Biochemistry, Molecular Biology, Immunology, Pharmacology, Physiology or Biology.

Support staff personnel will possess a B.S./M.S. and 3-5 years related work experience in Immunology, Biochemistry, Molecular Biology or Biology.

GEO-CENTERS, INC. offers competitive salaries, relocation assistance, and excellent benefits. Qualified candidates are urged to submit their resume, salary requirements and professional references in confidence to:

GEO-CENTERS, INC.  
10903 Indian Head Highway  
Ft. Washington, MD 20744

Attn: Deborah Hall-Greene/Code \_\_\_\_\_.

An Equal Opportunity/Affirmative Action Employer. (Principals Only).



**GEO-CENTERS, INC.**



## POSITIONS OPEN

### FACULTY POSITION IN NEUROBIOLOGY

Applications are invited for a tenure-track, assistant professorship in the Department of Cell Biology and Anatomy, Cornell University Medical College. Candidates should have a strong research background in cellular, developmental, and/or molecular neurobiology and experience in teaching human neuroscience. Please send curriculum vitae, a summary of research plans, and the names of three references to: **Dr. Donald A. Fischman, Department of Cell Biology and Anatomy, Cornell University Medical College, 1300 York Avenue, New York, NY 10021.** *Cornell University Medical College is an Equal Opportunity/Affirmative Action Employer.*

**FACULTY POSITION—MOLECULAR GENETICS AND IMMUNOLOGY.** The Center for Molecular and Cellular Medicine at Dartmouth Medical School has an academic track faculty position available (rank open) at the interface of molecular genetics and immunology. Candidates should hold the Ph.D. or M.D. degree and have a minimum of 2 years of postdoctoral experience. The successful candidate will join the Program in Molecular Genetics and will hold an academic appointment in an appropriate basic science or clinical department of Dartmouth Medical School. Faculty are expected to maintain a strong research program and participate in the teaching of medical and graduate students.

Send curriculum vitae, statement of research plans, and the names of at least three references to: **Molecular Genetics Search Committee, Dartmouth Medical School, HB7200, Hanover, NH 03756.** The closing date for applications is 31 October 1988.

*Equal Opportunity Employer. Women and minority applications encouraged.*

### FACULTY POSITIONS IN MOLECULAR BIOLOGY

The Department of Biology at the University of Virginia invites applications from molecular biologists who use structural and/or molecular genetic approaches to study fundamental problems in biology. Positions at the assistant professor or more senior levels are available immediately as part of an expanding program in molecular biology. Our search will consider candidates in all areas of molecular biology research including macromolecular structure and function, nuclear or cytoplasmic function, and developmental and neuronal regulation. Send résumé, description of research program, summary of teaching interests, and three letters of reference by 1 November 1988, to: **Molecular Biology Search Committee, Department of Biology, University of Virginia, Charlottesville, VA 22901.** *Equal Opportunity/Affirmative Action Employment.*

### FACULTY POSITIONS MOLECULAR AND CELLULAR NEUROBIOLOGY DARTMOUTH MEDICAL SCHOOL

Dartmouth Medical School is expanding in the area of neuroscience through the establishment of the Center for Molecular and Cellular Medicine. We seek three new faculty members with primary research interests in molecular and cellular neurobiology. These individuals will be members of the Molecular and Cellular Neuroscience Program and will also hold appointments in an appropriate basic science or clinical department. Preference will be given to candidates whose research interests and expertise complement other Programs in the Center, including cell biology, endocrinology, immunology, molecular genetics, and structural biology.

Candidates should hold the Ph.D. or M.D. degree and have a minimum of 2 years of postdoctoral experience. The level of appointment will depend on experience. All faculty will be expected to establish a strong research program and will participate in the teaching of graduate and medical students.

Send curriculum vitae, statement of research interests, and names of at least three references to:

**Neuroscience Search Committee  
Center for Molecular and Cellular Medicine  
Dartmouth Medical School  
Hanover, NH 03756**

*Dartmouth Medical School is an Equal Opportunity Employer. Women and members of minority groups are encouraged to apply.*

## POSITIONS OPEN

**Seton Hall University—FACULTY POSITION IN BIOCHEMISTRY** (search reopened). The Chemistry Department of Seton Hall University invites applications at the assistant professor level for a tenure-track position beginning either January or September, 1989. The successful candidate will teach at the graduate and undergraduate levels and conduct biochemical research with B.S., M.S., and Ph.D. candidates. All areas of biochemistry will be considered but preference will be given to applicants whose research emphasizes chemical approaches to metabolic or nucleic acid biochemistry. Demonstrated research excellence and a commitment to teaching at the graduate and undergraduate levels are required. Applicants should send a résumé, brief description of future research plans, three letters of recommendation, and an indication of anticipated availability to: **Biochemistry Faculty Search Committee, Department of Chemistry, Seton Hall University, South Orange, NJ 07079.** Evaluation of applications will begin 1 November 1988. *Seton Hall is an Equal Opportunity/Affirmative Action Employer. Seton Hall is the Catholic University in New Jersey, founded in 1856.*

### JUNIOR AND SENIOR FACULTY POSITIONS PROTEIN CHEMISTRY

The Department of Microbiology and Immunology in the College of Medicine at The University of Tennessee, Memphis, invites applications for junior and senior level, tenure-track positions focusing on the molecular analysis of significant problems in protein chemistry. Senior candidates should have a strong record of research accomplishment with sustained program growth and development. Junior candidates will be expected to develop a high quality, independent research program with long term growth potential. Teaching responsibilities, which emphasize quality rather than quantity, include medical, dental and graduate students. A large Center of Excellence grant has resulted in establishment of a Molecular Resource Center within the Department featuring state-of-the-art facilities for: oligonucleotide synthesis, peptide synthesis, monoclonal antibody production, amino acid analysis, protein sequencing, molecular graphics, polymerase chain reaction, and flow cytometry. Funds for the initiation of research programs will be available and salaries will be highly competitive. Applications should consist of curriculum vitae, copies of several recent publications, a brief statement of future research goals, and three letters of reference to be sent to: **Dr. Terrance G. Cooper, Department of Microbiology and Immunology, The University of Tennessee, Memphis, 858 Madison Avenue, Memphis, TN 38163.** Applications will be received until 1 November 1988 or until the positions are filled thereafter. *The University of Tennessee is an Affirmative Action/Equal Opportunity Employer.*

**HEAD, PUBLIC HEALTH NUTRITION,** University of California, Los Angeles (UCLA) School of Public Health, 1 July 1989. The candidate will be expected to take a leadership role in the development of a multidisciplinary research and training program. This program will focus on the role of nutrition in health promotion and disease prevention at the community and national level. Extensive resources in nutrition related sciences at UCLA, and a funded Clinical Nutrition Research Unit, provide a rich environment for collaboration. The candidate should be able to integrate various aspects of public health nutrition involving nutritional health care delivery, epidemiology, biological sciences and behavioral aspects of diet.

Qualifications should include a doctorate in nutrition or a closely related biological science, or an M.D. with nutritional or related training. Experience is required in public health nutrition, delivery of nutritional services, food and nutrition policy, and the provision of nutritional information to the community.

Salary negotiable. Full professor series. Send curriculum vitae and names of three references to: **Chair, Search Committee for Public Health Nutrition, Room 71-279, School of Public Health, UCLA, Los Angeles, CA 90024-1772** by 15 February 1989.

*The University of California is an Affirmative Action/Equal Opportunity Employer and welcomes applications from qualified women and minority candidates. Under federal law, the University of California may employ only individuals who are legally authorized to work in the United States as established by providing documents specified in the Immigration Reform and Control Act of 1986.*

## POSITIONS OPEN

**FACULTY POSITION IN NEUROBIOLOGY,** The University of Texas Medical School at Houston. The Department of Neurobiology and Anatomy is recruiting for a faculty member whose research interests are in the morphological basis of synaptic plasticity. Preference will be given to an appointment at the level of assistant professor, but consideration will be given to candidates at higher levels. Exceptional laboratory facilities and start-up funds and competitive State supported salaries are available to outstanding individuals who intend to develop a strong and independent research program. Those who wish to be considered should send curriculum vitae, names of four references, and a brief description of their research interests to: **Dr. John H. Byrne, Department of Neurobiology and Anatomy, The University of Texas Medical School at Houston, P.O. Box 20708, Houston, TX 77225.** *The University of Texas is an Equal Opportunity Employer. Women and minorities are encouraged to apply.*

**FACULTY POSITIONS IN BIOCHEMISTRY, VIRGINIA TECH,** Blacksburg, Virginia. The Biochemistry Department, Virginia Polytechnic Institute and State University invites applications for two tenure-track assistant professorships. Applicants should have a Ph.D., at least 2 years of postdoctoral training and preferably research interests in protein biochemistry and/or eukaryotic molecular biology. The successful candidates are expected to develop a vigorous research program and participate in the undergraduate and graduate teaching programs of the department. Applications, including curriculum vitae, summary of past accomplishments, a statement of plans for future research, and a list of three references including addresses and telephone numbers should be sent by 1 December 1988 to: **Dr. David F. Smith, Chairman of Search Committee, Department of Biochemistry, Virginia Polytechnic Institute and State University, Blacksburg, VA 24061.** *An Equal Opportunity/Affirmative Action Employer.*

**FISH BIOLOGIST.** The Appalachian Environmental Laboratory (AEL) of the University of Maryland's Center for Environmental and Estuarine Studies announces the availability of a tenure-track position as assistant professor of fisheries. Persons with research interests in North Temperate fishes are urged to apply. Opportunities are available to participate in a developing international program in natural resources. Twelve-month salary is negotiable. Submit a letter of application, a statement of research interests, curriculum vitae, and three letters of recommendation to: **Kenneth R. McKaye, Fisheries Chair, Appalachian Environmental Laboratory, University of Maryland, Frostburg, MD 21532,** by 1 November 1988.

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

### GENETICIST— VISITING ASSISTANT PROFESSOR

The Department of Biology, Hamilton College, announces a 1-year visiting assistant professorship in genetics to assist in the teaching of the introductory sequence, to teach a course in general genetics and an upper-level course in some aspect of genetics. Applicants should send curriculum vitae and three letters of reference by 15 December 1988, to: **Tom Brady, Chairman, Biology Department, Hamilton College, Clinton, NY 13323.** *Hamilton College is an Equal Opportunity Employer. Women and minorities are strongly encouraged to apply.*

### IMMUNOLOGIST—UNIVERSITY OF SOUTHERN CALIFORNIA (USC) COMPREHENSIVE CANCER CENTER

The USC Comprehensive Cancer Center is recruiting an immunologist to complement its program in Cancer Immunology. The appointment will be at the assistant professor level and is a tenure-track position in the Department of Microbiology at the USC School of Medicine. The successful candidate will be expected to develop an independent research program in modern immunology and to interact with other cellular and molecular immunologists. Send résumé and names of three references to: **Gunter Dennert, Ph.D., Chair, Search Committee, University of Southern California Comprehensive Cancer Center, 1441 Eastlake Avenue, Los Angeles, CA 90033.** *Affirmative Action/Equal Opportunity Employer.*

## POSITIONS OPEN

**INSECT GENETICS:** The USDA Forest Service has a 2-year position available immediately to study and improve fitness of laboratory-reared gypsy moth used for research, virus production, and sterile male application. Ph.D. required. Training or experience in quantitative genetics is desirable but not essential. Salary range \$27,000 to \$32,000. Position is located at the Center for Biological Control of Northeastern Forest Insects and Diseases, Hamden, Connecticut. For information call: Dr. William Wallner, telephone 203-773-2022. Send résumés to: Dr. Wallner, U.S.D.A. Forest Service, 51 Mill Pond Road, Hamden, CT 06514.

**INSTRUCTOR/ASSISTANT/ASSOCIATE PROFESSOR,** Unit for Laboratory Animal Medicine, University of Michigan, Ann Arbor. Candidates must have D.V.M./V.M.D. degree, advanced training, and evidence of productivity in research. Board-certification in a veterinary specialty is also desired. Duties include establishment of a productive research program; training veterinary residents in research and laboratory animal medicine; service responsibilities in the Unit for Laboratory Animal Medicine. The primary emphasis of the position will be research. Rank and salary are commensurate with training and experience. Send curriculum vitae and names of three references to: Daniel H. Ringler, D.V.M., Director, Unit for Laboratory Animal Medicine, University of Michigan, Ann Arbor, MI 48109-0614. The University of Michigan is an Affirmative Action/Equal Opportunity Employer.

**THE UNIVERSITY OF QUEENSLAND**  
*Equal Opportunity Employment is University Policy*  
**LECTURER/SENIOR LECTURER—**  
**DEPARTMENT OF BIOCHEMISTRY**

Applications are invited from suitably qualified graduates for the position of lecturer/senior lecturer in the Department of Biochemistry. The successful applicant will be required to teach undergraduate and postgraduate students and to establish a program of research which is compatible with the existing research strengths of the Department. These lie within the areas of enzymology, medical biochemistry, molecular genetics, plant biochemistry, and protein chemistry.

Preference will be given to applicants with experience and expertise in a branch of modern molecular biology such as recombinant DNA technology or protein structure and engineering. The University has recently established a Centre for Molecular Biology and Biotechnology under the direction of Professor John Mattick. There will be an excellent opportunity for the appointee to establish close links with the Centre.

The University campus is located on the Brisbane River, a few kilometers from the centre of a progressive city in the most rapidly expanding region of the country. The city has a subtropical climate with facilities and environs for an excellent lifestyle.

Appointment will be for 5 years in the first instance. Extensions of appointment will be subject to a performance review in the fourth year.

Salary: Lecturer: \$A29,842 to \$A38,932 per annum.

Senior Lecturer: \$A39,745 to \$A46,179 per annum.

Closing date: 14 October 1988. Reference No: 44988.

Further information may be obtained from: Professor Brian Shanley, Head, Department of Biochemistry, The University of Queensland, St. Lucia, Queensland, 4067, Australia, telephone: (07) 377 2130.

### MASS SPECTROSCOPIST

The Division of Clinical Pharmacology, The Johns Hopkins University, has an immediate opening for a mass spectroscopist at the faculty research associate level in the Clinical Research Center Core Mass Spectrometry Laboratory. The Laboratory will be involved in quantitative studies of the metabolism of zidovudine and other compounds being tested for efficacy in the treatment of the Acquired Immune Deficiency Syndrome. Applicants should have experience in quantitative mass spectrometry using GC/MS and LC/MS, including sample preparation, purification and derivatization techniques. The facility will be equipped with a triple quadrupole GC/LC/MS/MS instrument with a thermospray interface. Access to the resources of The Middle Atlantic Mass Spectrometry Center and collaboration with Dr. Robert Cotter may be possible as well. Experience in the mass spectral analysis of nucleosides and nucleotide metabolites is desirable. Applicants should contact: Dr. David Kornhauser, The Johns Hopkins School of Medicine, Osler 525, 600 North Wolfe Street, Baltimore, MD 21205.

## Glaxo's Growth Is Your Opportunity

Glaxo Inc. is not only one of the Top 10 ethical pharmaceutical firms in America, we're also the fastest growing research-oriented company in the country. As such, we can offer exceptional career opportunities, state-of-the-art facilities, and a firm commitment to producing the most effective pharmaceuticals that experience, imagination, and advanced technology can create. Join Glaxo, and apply your knowledge and career ambitions where they'll do you the most good.

We currently have the following positions available at our Corporate Headquarters located in Research Triangle Park, N.C.

## POSTDOCTORAL FELLOW

### Molecular Pharmacology

This position, within our Research & Development Department will develop and investigate new areas of research. Major duties will include investigating the biochemical and physiological mechanisms for regulation in muscle contractility using isolated tissues and isolated myocytes.

Background must include a Ph.D. in Pharmacology, Physiology, Biochemistry or other related sciences. General knowledge of muscle mechanisms and the use of computers in physiological and biophysical studies are required.

Candidates responding to this position should refer to Job #9110X864 on all resumes.

## SENIOR SCIENTIST

### Molecular Pharmacology

Due to the expansion of our research activities and the implementation of new research programs, we seek a Senior Scientist to establish laboratory within Molecular Pharmacology. This individual will investigate the factors controlling blood coagulation and thrombus lysis and develop novel research approaches to the treatment of abnormal thrombotic diseases.

Background must include a Ph.D. in Biological Sciences with 2-4 years of postdoctoral experience. Demonstrated expertise in thrombotic and fibrinolytic research is required, as well as the ability to establish independent laboratory and collaborate fully with other members of the department. A comprehensive knowledge and understanding of the coagulation cascade mechanism is required.

Candidates responding to this position should refer to Job #9110B904 on all resumes.

At Glaxo Inc., growth opportunities and up-to-date facilities are complemented by a location (near Raleigh/Durham) that has excellent resources in close proximity. Prestigious universities, scenic vistas, lively recreational areas, and exciting cultural opportunities. Further, we reward talent and creativity with an excellent salary and benefits package (including a completely equipped, on-site athletic facility). Candidates interested in these positions, please send your resume, including salary history and CORRESPONDING JOB # AS MENTIONED ABOVE, to:

Human Resources Department

**Glaxo Inc.**  
PO Box 13398

Research Triangle Park, N.C. 27709

(No Phone Calls, Please)

No Private Agency Referrals, Please

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## POSITIONS OPEN

### MALARIA FIELD STUDIES PAPUA NEW GUINEA INSTITUTE OF MEDICAL RESEARCH

The Papua New Guinea Institute of Medical Research, a statutory body of the Papua New Guinea Government, conducts research into the diseases affecting the people of Papua New Guinea. The Institute has recently been awarded funding by the U.S. Agency for International Development to conduct a variety of field and clinical studies associated with malaria vaccine development efforts. Applications are sought for the following professional staff positions for this major malaria field project:

1. Research Fellow in Epidemiology
2. Research Fellow in Clinical Malariology
3. Research Fellow in Parasitology
4. Research Fellow in Immunology
5. Research Fellow in Entomology
6. Research Fellow in Biostatistics
7. Laboratory Manager

Positions will be located initially in a branch of the Institute in Madang, PNG, with several later relocated to a new field station to be constructed in East Sepik Province. Salaries and other allowances (which include annual bonus, clinical supplement, housing, education, transportation and home leave) are as established for Contract Officers by the PNG Government. For further information and application instructions, write:

**IMR Recruitment**  
**American Institute of Biological Sciences**  
1800 North Kent Street, Suite 930  
Arlington, VA 22209

### MEDICAL SOCIOLOGIST

Full-time position. Direct clinical educators to develop a curriculum, conduct, and evaluate an "Urban Medicine" program to integrate psychosocial training throughout internship and general practice residency training in an expanding inner-city hospital/healthcare complex. Ph.D. or M.A. preferred. Previous clinical application of sociology, anthropology, or behavioral science principles are required. Experience in education program development and teaching skills necessary. Active research involvement preferred and encouraged. Competitive salary and benefit package. DHHS grant-awarded project. Position available immediately. Send résumé to: **Eldon Nelson, Ph.D., Associate Director, Medical Education, Michigan Osteopathic Medical Center, 2700 M. L. King Jr. Boulevard, Detroit, MI 48208.** *Affirmative Action/Equal Opportunity Employer.*

### MOLECULAR BIOLOGISTS

The American Registry of Pathology is recruiting molecular/cellular biologists at the B.S., M.S., and Ph.D. levels to develop and implement diagnostic methods for use in pathology and to conduct research on molecular biology of human disease. Work will be conducted at the Armed Forces Institute of Pathology, the world's largest pathology research and consultation organization.

Salary ranges from \$23,000 to \$46,500 per year, depending on training and experience.

Send curriculum vitae and names of three references to: **Timothy J. O'Leary, M.D., Department of Cellular Pathology, Armed Forces Institute of Pathology, Washington, DC 20306-6000.**

### MOLECULAR, CELLULAR, AND DEVELOPMENTAL BIOLOGY DEPARTMENT OF BIOCHEMISTRY BAYLOR COLLEGE OF MEDICINE

The Department of Biochemistry has two tenure-track **FACULTY POSITIONS** in the areas of molecular, cellular, and developmental biology. These positions provide newly renovated laboratory space, institutional start-up funding, limited teaching requirements, and an excellent opportunity to build a research program within a large and interactive research community. Applicants at the assistant professor level are preferred, but more senior candidates will be considered. Interested individuals should send their curriculum vitae, a statement of present and future research interests, and the names of three references to:

**Dr. John Wilson, Search Committee**  
**Department of Biochemistry**  
**Baylor College of Medicine**  
**Houston, TX 77030**  
*An Equal Opportunity Employer*

## POSITIONS OPEN

### MOLECULAR AND CELL BIOLOGY OF HIV MOLECULAR MEDICINE PROGRAM FRED HUTCHINSON CANCER RESEARCH CENTER

The Molecular Medicine Program of the Fred Hutchinson Cancer Research Center invites applications for a tenure-track **FACULTY POSITION** at the assistant member level, in the area of HIV cellular and molecular biology. The position offers interactions with a diverse group of basic and clinical scientists, and will complement an ongoing program in the molecular biology of HIV. Candidates should have a Ph.D. or M.D. degree, as well as significant postdoctoral research experience and potential for developing an independent research program.

Interested applicants should forward a brief description of research plans, curriculum vitae, and names of three or four references to:

**Molecular Medicine Search Committee**  
**c/o Beth Carlson**  
**Fred Hutchinson Cancer Research Center**  
**1124 Columbia Street**  
**Seattle, WA 98104**

on or before 15 December 1988.

*The Fred Hutchinson Cancer Research Center is an Equal Opportunity/Affirmative Action Employer.*

### MOLECULAR BIOLOGIST

A professionally rewarding staff position exists for a molecular biologist in the expanding Medical Research Institute of The Mary Imogene Bassett Hospital, affiliated with Columbia University. Ample laboratory space, generous start-up funds, and excellent salary and benefits are offered. Academic appointment to an appropriate department in Columbia University is encouraged. The Institute provides a supportive, congenial environment in which the successful candidate will develop a full-time independent research program and interact with colleagues investigating significant biomedical problems. Postdoctoral experience is desirable. A starting date of July 1989, is anticipated. Located on a lake in the scenic foothills of the Catskill Mountains in upstate New York, Cooperstown and the surrounding area offer affordable housing, good schools, and a range of cultural and outdoor activities. Applicants should submit research interests, curriculum vitae, and the names of three references by 1 November 1988 to: **Dr. William E. Bowers, Associate Director of Basic Research, Medical Research Institute, The Mary Imogene Bassett Hospital, Cooperstown, NY 13326.**

**MOLECULAR DEVELOPMENTAL BIOLOGIST** with excellent scientific credentials to develop independent program at appropriate professional rank from assistant through full professor in the tenure-track. Submit curriculum vitae, a short statement of future plans and direct three letters of recommendation to be sent to: **Dr. Gerald Litwack, Deputy Director, Fels Institute for Cancer Research and Molecular Biology, Temple University School of Medicine, 3420 North Broad Street, Philadelphia, PA 19140.** *An Equal Opportunity Employer.*

### UNIVERSITY OF ALASKA FAIRBANKS MUSEUM DIRECTOR

University of Alaska Museum (AAM accredited natural history museum emphasizing the circumpolar north) seeks a director by nomination or application. Minimum qualifications: Ph.D., research accomplishments in a field of natural history, 5 years of experience in museum administration as a curator or director. University museum experience preferred. Candidates must be committed to developing the Museum's role within the University and sensitive to its tripartite mission of research, teaching, and public service. Director is responsible for development, balance and integration of programs, fundraising, budget planning and management, personnel, public relations, research, and other forms of scholarship.

Curriculum vitae, letter of interest, and names of three referees to: **D. F. Murray, Chair, Search Committee, University of Alaska Museum, Fairbanks, AK 99775-1200 (telephone: 907-474-7505) by 31 October 1988.** Position will be filled by 1 July 1989.

*UAF is an Affirmative Action/Equal Employment Opportunity Employer and Educational Institution.*

## POSITIONS OPEN

### MOLECULAR AND CELLULAR BIOLOGY POSITIONS AT THE UNIVERSITY OF ARIZONA

As part of a University-wide expansion of Biological Sciences and Biotechnology, the Department of Molecular and Cellular Biology at the University of Arizona is seeking three new tenure-track faculty members. Preference will be given to applicants with research interests in the areas of cell biology or molecular and genetic studies of development, although outstanding candidates in other areas will be considered. We prefer candidates at the assistant professor level, but more senior appointments may be made for exceptional individuals. Successful candidates will be expected to establish excellent research programs, and teach at the undergraduate and graduate levels. Send curriculum vitae, one to two page statement of research interests, and have three supporting letters sent to: **Professor Samuel Ward, Head, Department of Molecular and Cellular Biology, Biosciences West Building, University of Arizona, Tucson, AZ 85721.** To ensure consideration, applications should be received by 30 October 1988, but applications will be accepted until the positions are filled. *The University of Arizona is an Equal Opportunity/Affirmative Action Employer. Women and minorities are encouraged to apply.*

**PATHOLOGY CHAIR**—The Oregon Health Sciences University School of Medicine is seeking applicants for the position of Professor and Chair of the Department of Pathology. This university-based program has over 25 faculty engaging in clinical and anatomic pathology service, research, and the teaching of residents, medical students, and medical technologists. The position requires strong academic, organizational and administrative skills. Submit curriculum vitae to: **Robert C. Neerhout, M.D., Chairman, Pathology Search Committee, School of Medicine, Oregon Health Sciences University, Portland, OR 97201.** *An Affirmative Action/Equal Opportunity Employer.*

**PHARMACOLOGY**—Temple Medical School—The Department of Pharmacology at Temple Medical School invites applications for a tenure-track faculty position at the assistant professor or associate professor level. We seek an individual who will develop an active research program in the areas of molecular, cellular, cardiovascular or neuropharmacology and teach medical and graduate students. Candidates should have a Ph.D., postdoctoral experience, and a strong record of research productivity. Please submit a résumé and a concise state of research interests, and arrange for three letters of recommendation to be sent to: **Faculty Search Committee, Department of Pharmacology, Temple Medical School, 3400 North Broad Street, Philadelphia, PA 19140.** *Affirmative Action/Equal Opportunity Employer.*

### POSTDOCTORAL ASSOCIATES IN PLANT MOLECULAR BIOLOGY CORNELL PLANT SCIENCE CENTER

Two-year postdoctoral positions available 1 October 1988 or thereafter, to carry out research in collaboration with one or more of the following scientists associated with the Cornell Biotechnology Program: **Elizabeth Earle, Maureen Hanson, Karen Kindle, Elizabeth Keller, Andre Jagendorf, John Sanford, Steven Tanksley, and Ray Wu.** Contact the Biotechnology Program for further information on research projects concerning the isolation, analysis, and transfer of plant genes. To apply, send curriculum vitae and three letters of reference to: **Plant Science Center, Biotechnology Program, 130 Biotechnology Building, Cornell University, Ithaca, NY 14853-2703.** *Cornell University is an Affirmative Action/Equal Opportunity Employer.*

**NEPHROLOGY RESEARCH—A POSTDOCTORAL FELLOWSHIP** is available beginning 1 October 1988 in the Nephrology Research and Training Center at the University of Alabama at Birmingham. The applicant should be familiar with protein purification and separation, and with immunoprecipitation techniques. The focus of the project is on the identification and purification of membrane transport proteins, especially the Na/H exchanger. Send curriculum vitae and three letters of recommendation to: **David G. Warnock, M.D., Director, Division of Nephrology and the Nephrology Research and Training Center, University of Alabama at Birmingham, University Station, Birmingham, AL 35294.** *UAB is an Affirmative Action/Equal Opportunity Employer.*

# MOLECULAR BIOLOGY SENIOR SCIENTIST SANDOZ RESEARCH INSTITUTE

Sandoz Pharmaceuticals Corporation is responsible for products that improve the quality of life. Our developments are the result of research conducted by professionals who specialize in many different fields.

The Sandoz Research Institute is seeking a senior scientist to play a vital role in molecular biology research. The position offers a unique opportunity to develop creative, independent research programs utilizing recombinant DNA and other molecular biological technology to identify novel therapeutic approaches in the following areas: glucose regulation and diabetes mellitus, lipoprotein metabolism and atherosclerosis, monoclonal antibodies, and platelet activating factor and other mediators of inflammation and immune function. The successful candidate will work closely with interdisciplinary teams of intramural scientists and collaborate with extramural scientists.

Requirements for the position include a Ph.D. in Molecular Biology or closely related discipline, and a minimum of 5 years' research experience beyond the doctoral degree in molecular biology preferably with emphasis on eukaryotic gene expression. You must have demonstrated ability to plan sound scientific projects, to conduct innovative independent research, to achieve research goals and to make significant intellectual contribution. A record of significant publications in major scientific journals as well as excellent written and oral communication skills are also required.

Positions at Sandoz offer personal satisfaction, professional opportunity/challenge, competitive salaries and an excellent benefits package. Our campus-like facilities are conveniently located in a residential community of northern New Jersey, approximately 30 miles from New York City.

For prompt consideration, please forward your resume and salary requirements in confidence to:



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Manager, Staffing Department (122-3)  
**SANDOZ**  
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The Sterling Research Group, the worldwide pharmaceutical research and development organization of Sterling Drug Inc., announces openings for a Postdoctoral Fellow and Research Scientists in the Drug Delivery Department at its Great Valley, PA facility, near Philadelphia.

The Drug Delivery Department is establishing an in vitro research program directed toward site specific drug delivery. The initial phase of this program will focus on elucidating factors that influence cellular uptake and endocytic routing of macromolecules and polymeric nanoparticulates. The Department is seeking:

**POSTDOCTORAL FELLOW:** To study and develop molecular probes for various cellular organelles that play a role in targeting macromolecules to specific cellular destinations. The successful candidate will be a recent Ph.D. in biological sciences who has expertise in state of the art techniques in cell and molecular biology. (When responding to this advertisement, refer to position G.)

**RESEARCH SCIENTIST:** A B.S. degree with a minimum of 3-5 years of experience in general biochemical techniques such as gel electrophoresis, protein purification, and subcellular fractionation. (When responding to this advertisement, refer to position H.)

**RESEARCH SCIENTIST:** A B.S. or M.S. degree with a minimum of 3-5 years of experience, skill in processing tissue for transmission electron microscopy, and exposure to tissue culture techniques. (When responding to this advertisement, refer to position I.)

Sterling Drug Inc. offers competitive salaries and a comprehensive benefits program, along with outstanding career opportunities for personal and professional growth. For confidential consideration, please forward your resume with salary history/requirements and the names of three references to:



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## POSITIONS OPEN

### PHYSIOLOGIST

Applications are invited for a full-time position in the Department of Physiology. The individual filling this position is expected to have an active fundable research program in cardiovascular, neurotransmitter, or renal physiology. Other areas of specialization will be considered. A priority of our program is on delivering a high quality of teaching to our medical students. The school has special commitments to increasing the number of physicians from presently underrepresented minority groups, to emphasizing the role of primary care, and to training for community-based primary care service to underserved urban areas of New York City. The position is currently available. Salary and rank commensurate with experience. Closing date for applications is 14 October 1988, or until a suitable candidate is found. Send curriculum vitae to: **Dr. Stanley Kalsner, Chairman, Department of Physiology, PP, CUNY Medical School, 138th Street and Convent Avenue, New York, NY 10031.**

*Equal Opportunity/Affirmative Action Employer M/F*

**POSTDOCTORAL FELLOWSHIP** is available immediately for a recent Ph.D. to explore the sequence specificity of reactions between reactive metabolites of hydrocarbon carcinogens and DNA. Candidate should be interested in the problems of carcinogenesis and should submit curriculum vitae and names of three references to:

**Dr. Anthony Dippe  
Bionetics Research Inc.  
Basic Research Program  
NCI-FCRF P.O. Box B  
Building 538  
Frederick, MD 21701**

### YALE UNIVERSITY SCHOOL OF MEDICINE DEPARTMENT OF THERAPEUTIC RADIOLOGY

**POSTDOCTORAL FELLOWSHIP:** Exciting opportunity for Ph.D. with background in protein biochemistry/molecular biology and interest in vascular biology or cell motility to join a vascular cell biology laboratory at Yale Medical School. Current investigations center around isolation, characterization, and cloning of vascular cell migration factor(s). Academic appointment and competitive salary. Please send curriculum vitae to: **Dr. Eliot M. Rosen, Department of Therapeutic Radiology, 132 HRT, Yale University School of Medicine, 333 Cedar Street, New Haven, CT 06510.**

**POSTDOCTORAL POSITION** available immediately to study human epithelial cell transformation, differentiated function, and the molecular genetics of cystic fibrosis. The program will involve biochemical and genetic characterization of primary and transformed epithelial cells with emphasis on differentiated function and regulation of gene expression. Background in mammalian molecular biology, recombinant DNA techniques, pulsed field gel electrophoresis, cytogenetics, and/or chemical carcinogenesis desirable. Send curriculum vitae, brief description of research interests, and names of three references to: **Dr. Dieter Gruenert, Cardiovascular Research Institute/Cancer Research Institute, Box 0130, University of California Medical Center, San Francisco, CA 94143. Affirmative Action/Equal Opportunity Employer.**

**POSTDOCTORAL POSITION** available immediately to join research team studying **MULTIDRUG RESISTANCE (MDR)** in human tumors. Areas involve the molecular biology, enzymology and pharmacology of "atypical" MDR, associated with alterations in topoisomerase II activity. St. Jude Children's Research Hospital is a multidisciplinary biomedical research center with many opportunities for scientific interactions. Annual salaries are commensurate with experience, and begin at \$22,000. Send curriculum vitae and names of three references to: **William T. Beck, Ph.D., Department of Pharmacology, St. Jude Children's Research Hospital, 332 North Lauderdale, Memphis, TN 38101.**

*St. Jude Children's Research Hospital is an Affirmative Action/Equal Opportunity Employer.*

# PHARMACEUTICAL RESEARCH

Anaquest, a division of The BOC Group, is a recognized leader in the development and manufacture of specialized drug products for anesthesia and critical care. The continued growth of our research program has provided career opportunities for professionals in the following areas:

## Cardiovascular Research Supervisor

PhD in Pharmacology or other life science and 1-3 years of postdoctoral or industrial experience is necessary. You will assess hemodynamic and respiratory effects of anesthesia related drugs. Experience with *in vivo* systems is preferred.

## Cardiovascular Scientist

BS or MS level positions available. Knowledge of autonomic pharmacology and experience with cardiorespiratory and blood flow monitoring is desired.

## EEG Analyst

MS in Pharmacology, Physiology or other life science needed to assess the effects of anesthesia related drugs on electroencephalographic activity (EEG). Prior experience with EEG techniques and methods in either an industrial or academic setting is required.

At Anaquest you will enjoy our competitive compensation package which includes excellent salaries and comprehensive benefits as well as an environment filled with talented individuals. For consideration please send your resume to: Anaquest, Personnel Supervisor, Human Resources, 100 Mountain Avenue, Murray Hill, New Jersey 07974.

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# Anaquest

**BOC Health Care**



# Yale UNIVERSITY

## Director Occupational & Environmental Health Services

Yale University seeks an individual to oversee the University's Division of Occupational and Environmental Health Services, which comprises a number of departments related to special safety disciplines, including Radiation Safety, Chemical Safety, Biological Safety, and Occupational Safety. The Director provides leadership, planning and direction for the staff of the Division, and serves as liaison between the Division and other units of the University, the New Haven community and governmental health and safety officials. Responsibilities will include:

- Implementing safety and training programs to achieve a safe working environment for students and employees
- Overseeing compliance with applicable governmental safety regulations
- Developing and administering the Division's budget
- Serving on appropriate University safety committees

Qualifications include a Doctorate in medicine, public health or other discipline related to the professional activities of the Division. A Master's degree in one of those fields and exceptional experience may be considered as an alternative. Significant experience in an academic or research setting in one or more of the safety disciplines represented by the Division is desired.

Liberal fringe benefit program includes 1 month vacation, 13 holiday/recess days, comprehensive group health and life insurance, pension plan and tuition assistance.

Send resumes to: C.E. Parler, Yale University Department of Human Resources, 155 Whitney Ave., P.O. Box 1404, Yale Station, New Haven, CT 06520.

Yale University is an affirmative action, equal opportunity employer.



## FACULTY POSITIONS IN MOLECULAR BIOLOGY AND BIOCHEMISTRY

Applications are invited for tenure-track faculty positions at the assistant or associate professor level in the Department of Molecular Biology at the Northwestern University Medical and Dental Schools. Applicants should have a Ph.D. degree in molecular biology, biochemistry, genetics, or a related area or an M.D. or D.D.S. degree and also have several years of postdoctoral training. The successful applicants will be expected to establish vigorous independent research programs and to participate in the teaching of graduate, medical and/or dental courses and in the training of graduate and postdoctoral students. Applicants should send complete curriculum vitae, a brief description of previous and future research and teaching interests (three to four pages), a bibliography and reprints of significant published work or preprints of manuscripts in press, and recommendations from at least three references by 31 October 1988 to:

**Dr. Robert H. Rownd**  
Professor and Chairman  
Department of Molecular Biology  
Northwestern University  
Medical and Dental Schools  
303 E. Chicago Avenue  
Chicago, Illinois 60611

Northwestern University is an equal opportunity/affirmative action employer and invites applications from all qualified individuals.

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This is an equal opportunity program open to all qualified persons without regard to race, color, age, religion, sex, national origin, handicap, or being a disabled veteran or a veteran of the Vietnam era.

# RESEARCH Opportunities

faculty, students, graduates, postgraduates

## Neurobiology of *Schizophrenia*

Columbia University and New York State Psychiatric Institute are seeking an outstanding Assistant or Associate Professor level candidate to initiate an innovative state-of-the-art research program exploring basic mechanisms of schizophrenia. Research interests may be in neuropathology, molecular neurobiology, cellular or systems physiology, or molecular psychopharmacology. The successful candidate would join four groups pursuing interest in (i) cell biology of glia and neurodegenerative diseases, (ii) neurophysiology of the mesolimbic dopamine system, (iii) receptor biochemistry and developmental determinants of dopamine system maturation, and (iv) pathological effects of somatic treatments on cultured cells. Joint appointments in Psychiatry, Neuropathology, one of several basic science departments and/or the Center for Neurobiology & Behavior are possible. Competitive salary with liberal benefits offered.

Address inquiries to: **Neuropathology Search Committee, c/o Dr. Stephen Rayport, N.Y. State Psychiatric Institute Box #62, (212) 960-5571. Additionally, applicants should forward CV's to: Mr. Joseph Borgovini, Personnel Office, N.Y. State Psychiatric Institute Box #57, 722 W. 168th St., New York, N.Y. 10032.** This N.Y. State Office of Mental Health Facility is an AA/EOE.

## STAFF POSITIONS

## DEPARTMENT OF CELL AND DEVELOPMENTAL BIOLOGY

### ROCHE INSTITUTE OF MOLECULAR BIOLOGY



As part of a newly expanded program in developmental biology, applications are invited for several positions equivalent in rank to Assistant and Associate Professor. Candidates are sought who are applying contemporary experimental approaches to basic research in developmental biology. Institute staff enjoy total freedom and independence in their choice and pursuit of research problems, as well as full funding of their research programs, including postdoctoral fellows, by Hoffmann-La Roche. The Institute is located in a suburban setting only 10 miles west of New York City. Send curriculum vitae, names of three references, and summary of research interests to: **Dr. Paul Wassarman, Chairman, Department of Cell and Developmental Biology, Roche Institute of Molecular Biology, Nutley, New Jersey 07110.** We are an equal opportunity employer.



## Roche Institute of Molecular Biology

Hoffmann-La Roche Inc.

## POSITIONS OPEN

### POSTDOCTORAL POSITION

Postdoctoral position available for an individual with a Ph.D. or M.D. interested in cell biology of AIDS. Looking for an independent scientist who wants to explore where lymphocytes and macrophages enter and leave the male and female reproductive tracts. The principal techniques are likely to be immunocytochemistry and radioautography. Send curriculum vitae and the names of three references or contact: **Dr. David M. Phillips, The Population Council, Center for Biomedical Research, 1230 York Avenue, New York, NY 10021. Telephone: 212-570-8744.**

**POSTDOCTORAL POSITION** available for neuropharmacologist/physiologist to study neuroimmunoregulation of gastrointestinal motility and transport in a productive research laboratory at USUHS School of Medicine, Bethesda, and Walter Reed Army Institute of Research, Washington D.C. Experience with in vivo techniques or in vitro muscle strips desirable. Salary is \$24,000 to \$28,000 commensurate with qualifications. Position available September 1988. Initial appointment is for 1 year and is renewable subject to availability of funding. Send curriculum vitae and names of three references to: **USUHS School of Medicine, Civilian Personnel, Attention: Dr. Robert Sjogren, 4301 Jones Bridge Road, Bethesda, MD 20814.**

### UNIVERSITY OF WISCONSIN MADISON POSTDOCTORAL POSITION

Position available to study ion channel regulation in axo-glial interactions. Projects explore plasticity of glial ion channels and its link to myelinogenic and proliferative behaviors. Patch-clamp recordings of glial channels will be made in purified cultures, in neurone-glia cocultures, and in neurological mutants. Changes in intracellular  $[Ca^{2+}]$  following glial activation will be measured with cytoplasmic-trapped fluorescent probes. Experience in patch-clamp, molecular biology, or  $Ca^{2+}$  imaging is desirable.

Send curriculum vitae and names of three referees to: **Dr. S. Y. Chiu, Department of Neurophysiology, 283 Medical Sciences Building, 1300 University Avenue, Madison, WI 53706. An Affirmative Action/Equal Opportunity Employer.**

**POSTDOCTORAL POSITION** available immediately in Arteriosclerosis SCOR program to investigate the regulation of lipoprotein metabolism and atherosclerosis, using biochemical and molecular biological approaches. *Minority applicants desired.* Send curriculum vitae to:

**Dr. Alan Tall  
Department of Medicine  
Columbia University  
New York, NY 10032**

**POSTDOCTORAL POSITION** available 1 December 1988 for NIH-funded studies of free radical processes in Photodynamic Therapy. Must have background in Electron Spin Resonance, Spin Label and/or Spin Trapping beneficial and knowledge of Photochemistry required. Salary competitive and based on experience. Respond to: **B. Kalyanaraman, Ph.D., National Biomedical EFR Center, Medical College of Wisconsin, 8701 Watertown Plank Road, Milwaukee, WI 53226. Equal Opportunity Affirmative Action Employer M/F/H.**

### POSTDOCTORAL POSITION

The Dana-Farber Cancer Institute is seeking to fill a research position at the postdoctoral level in the Division of Cancer Pharmacology. Candidate will study the biochemistry and hormonal regulation of mammalian liver P-450 enzymes active in the metabolism of cholesterol, steroid hormones, and xenobiotics using biochemical and molecular approaches. Experience in biochemistry, molecular biology or enzymology highly desirable. Joint appointment will be held in the Department of Biochemistry and Molecular Pharmacology at Harvard Medical School. Start date is flexible. Send curriculum vitae, copies of representative publications, and names of three references to: **Dr. David J. Waxman, Dana-Farber Cancer Institute, 44 Binney Street, Boston, MA 02115. An Equal Opportunity Employer.**

## POSITIONS OPEN

**POSTDOCTORAL POSITION** available immediately to study structure-function relationships in enzymes which are integral membrane proteins. Experience with recombinant DNA techniques required. Send curriculum vitae and names of three references to: **Dr. David Zakim, Director, Division of Digestive Diseases, F-231, Cornell University Medical College, New York, NY 10021. Equal Employment Opportunity/Affirmative Action M/F/H/V.**

### POSTDOCTORAL POSITION WASHINGTON STATE UNIVERSITY

Candidates are being sought for a postdoctoral position in biochemical toxicology. Research will be directed at identifying mechanisms by which dichloroacetate and trichloroacetate induce single strand breaks in hepatic DNA and relating this effect to their hepatocarcinogenic effects in mice. Candidates should be familiar with cell culture techniques. Experience in intermediary metabolism and spectroscopic methods is desirable. Salary is negotiable depending upon experience. The position is available 1 November 1988. Contact: **Dr. Richard J. Bull, College of Pharmacy, Washington State University, Pullman, WA 99164-6510. Telephone: 509-335-2139.**

*WSU is an Equal Opportunity/Affirmative Action Educator and Employer. Protected group members are encouraged to apply.*

**POSTDOCTORAL POSITION** available immediately to study cellular migration, activity and interaction during wound healing. Background in immunology. Ability to work with rodents required with experience in cell separation and culture techniques, cell identification and cloning desired. Send curriculum vitae and three references to: **Adrian Barbul, M.D., Department of Surgery, Sinai Hospital of Baltimore, 2401 West Belvedere Avenue, Baltimore, MD 21215.**

**POSTDOCTORAL POSITION** available immediately to study the synthesis and regulation of fibrocartilage proteoglycan core protein. A background in cell biology or molecular biology is required. Experience in recombinant DNA techniques is desirable. Send curriculum vitae and three references to:

**Richard J. Webber, Ph.D.  
Director, The Center For  
Musculoskeletal Research  
Slot 517**

**University of Arkansas For Medical Sciences  
4301 West Markham Street  
Little Rock, AR 72205**

### POSTDOCTORAL POSITION

Position available to study the molecular biology of salt tolerance in alfalfa, with emphasis on the regulation of transcription of chloroplast and nuclear genes coding for proteins involved in photosynthesis. A Ph.D. in molecular biology or biochemistry preferred. Experience in recombinant DNA techniques and sequencing is also desirable. Deadline for applications is 1 November 1988. Send letter of application, curriculum vitae, and names of three references to: **Drs. Ilga Winicov and Jeffrey Seemann, Department of Biochemistry, University of Nevada, Reno, NV 89557. The University of Nevada is an Equal Opportunity/Affirmative Action Employer. UNR employs only U.S. citizens and aliens lawfully authorized to work in the U.S.**

### UNIVERSITY OF COLORADO AT BOULDER POSTDOCTORAL POSITIONS IN YEAST MOLECULAR BIOLOGY

Two positions are available to study the molecular mechanisms of protein targeting, nuclear and mitochondrial gene expression, and mitochondrial assembly in *Saccharomyces cerevisiae*. Candidates should have a Ph.D. in biochemistry, molecular biology, or microbiology and should have experience in one or more of the following areas: yeast or prokaryotic genetics; recombinant DNA techniques; in vitro gene expression; polyclonal antibody preparation/use; protein isolation. Send curriculum vitae and names of three references to: **Dr. Robert O. Poyton, Department of Molecular, Cellular, and Developmental Biology, Campus Box 347, University of Colorado at Boulder, Boulder, CO 80309-0347. The University of Colorado is an Equal Opportunity Employer.**

## POSITIONS OPEN

**POSTDOCTORAL POSITION** to investigate the actions of calcemic hormones, growth factors and cytokines on bone and bone cells, with emphasis on the calcium-phosphatidylinositol second messenger system and interactions with the cAMP second messenger system. Send curriculum vitae and names and addresses of three references to: **Dr. Paula H. Stern, Department of Pharmacology, Northwestern University Medical School, Chicago, IL 60611.**

*An Equal Opportunity/Affirmative Action Institution.*

**POSTDOCTORAL POSITION** available in July 1989. Research is on the chemistry, biosynthesis, and function of the vitamin K-dependent proteins Bone Gla Protein (Osteocalcin) and Matrix Gla Protein. The candidate must have a recent Ph.D. in a related field. Experience in cell culture and protein separation is desirable. Funding is available for up to 4 years. Send curriculum vitae and three letters of recommendation to: **Satoru Ken Nishimoto, Biochemistry Department, University of Tennessee, Memphis, 800 Madison Avenue, Memphis, TN 38163. An Equal Opportunity/Affirmative Action Employer.**

**POSTDOCTORAL POSITION**, molecular biology/gene regulation, University of Massachusetts Medical School (UMMC), Worcester—A postdoctoral research position is available immediately for studies on the molecular mechanisms regulating bile acids metabolism using biochemical and recombinant DNA techniques. Send curriculum vitae and three letters of recommendation to: **Dr. Gregorio Gil, Department of Biochemistry, University of Massachusetts Medical School, 55 Lake Avenue North, Worcester MA 01655. UMMC is an Equal Opportunity/Affirmative Action Employer.**

**POSTDOCTORAL POSITION** available to study the mechanisms of absorption of inhaled vapors under NIH-supported research grants. A Ph.D. in chemistry, biochemistry, physiology, toxicology, or related areas with strong interest in broadening research skills is required. Successful candidate will be expected to develop expertise in the research area and contribute to this area by devising research protocols and writing manuscripts. One-year appointment, renewable for second year with third year possible. Initial year stipend of \$21,000 per annum plus medical benefits and relocation assistance provided. U.S. citizenship or permanent residency required. Contact: **Dr. Alan R. Dahl, Lovelace Biomedical and Environmental Research Institute, P.O. Box 5890, Albuquerque, NM 87185. An Equal Opportunity/Affirmative Action Employer.**

### POSTDOCTORAL POSITIONS

Available starting February to July, 1989 to study the molecular basis of insulin action, and the action of related hormone/growth factors. Ongoing projects include structure/function studies of the insulin and EGF receptors employing biochemical and recombinant DNA technology. A second major focus is to determine how certain cells maintain a unique insulin-sensitive organelle that moves to the cell surface in response to insulin. Proteins will be purified and cloned from this organelle as a starting point. Please send curriculum vitae to: **Dr. Paul F. Pilch, Department of Biochemistry, Boston University School of Medicine, 80 East Concord Street, Boston, MA 02118.**

**SEVERAL POSTDOCTORAL POSITIONS** are available to study the genetic regulation of limb development and chondrogenesis as part of an NIH funded multidisciplinary program project. Projects include the molecular regulation of gene expression during limb development and pattern formation; the role of extracellular matrix proteins and growth factors in limb development; use of retroviral vectors to study cis- and trans-acting regulatory elements; genetic linkage studies and molecular analysis of human skeletal dysplasias and mutations in matrix protein genes. Investigators include **Drs. S. Clark, R. Koshier, A. Lichtler, D. Rowe, M. Tanzer, P. Tsipouras, and W. Upholt.** Experience in recombinant DNA techniques and/or cell-matrix interactions desirable. Send curriculum vitae and names of references to: **Dr. David W. Rowe, Department of Pediatrics, University of Connecticut Health Center, Farmington, CT 06032. An Affirmative Action/Equal Opportunity Employer M/W/H.**

# Molecular Biologists/Virologists

## Infectious Disease Research Department of Virology

Bristol-Myers has a broad program in antiviral research, encompassing diagnostics, prophylactics and chemotherapeutics. The Department of Virology of the infectious disease research program is committed to the discovery and development of novel chemotherapeutic agents of natural, semi-synthetic or synthetic origin. We are now entering a new phase with several candidate antiviral agents already under clinical evaluation.

To ensure our future growth and success, we are now expanding in the field of MOLECULAR VIROLOGY. Initially, the molecular virology group will consist of six scientists, and will collaborate with scientists at Wallingford in medicinal chemistry, in vitro and in vivo evaluation, biochemistry, and immunology of antiviral agents. Furthermore, interactions with other Bristol-Myers laboratories at Oncogen in Seattle (involved with vaccines and other immunological approaches) and at the Bristol-Myers Research Institute in Tokyo, Japan (which has a broad-based fermentation screening program) will be important for this group. If you want to join our active, motivated and successful antiviral research program and think you can contribute to the discovery of new antiviral agents and help develop novel strategies, you should contact us.

We are looking for top quality, highly motivated candidates to fill the following positions:

### SENIOR RESEARCH SCIENTIST

To lead the molecular virology group. Qualifications: Ph.D. in molecular biology or molecular virology; 5-10 years of post-doctoral experience; experience with viral glycoproteins, retroviruses, vector biology and immunological techniques; a good record of publications; good communicative and supervisory skills.

### RESEARCH SCIENTIST

To develop a strong research program in molecular biology related to antiviral drug development. Qualifications: Ph.D. in molecular virology; 2-4 years of post-doctoral experience with retroviruses or other RNA-viruses; a sound understanding of biochemistry.

### POST-DOCTORAL RESEARCH FELLOWS (2)

Qualifications: Ph.D. in molecular biology, biochemistry or immunology; experience with immunological techniques and/or site-directed mutagenesis are assets.

### ASSISTANT/ASSOCIATE RESEARCH SCIENTISTS (2)

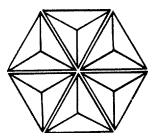
Qualifications: B.S. or M.S.; hands-on laboratory experience with biochemical and molecular techniques; experience with cell culture work and isotope techniques.

We offer excellent research facilities in superbly equipped laboratories in a new research complex; an interactive, fertile and interdisciplinary scientific environment; a commitment towards antiviral drug development, an excellent salary and a comprehensive benefits package.

For confidential consideration forward your resume, and salary history to:

**Bristol-Myers Company**  
Pharmaceutical Research and Development Division  
Dept. SS6-SC9, 5 Research Parkway  
Wallingford, CT 06492

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## Bristol-Myers Company

### Pharmaceutical Research & Development Division





# Technical Manager

## Protein and Nucleotide Core Facility

Immediate opening for Technical Manager to supervise multi-user protein and nucleotide core facility jointly run by the Woods Hole Oceanographic Institution and the Marine Biological Laboratory. The facility will contain state-of-the-art protein sequencing, and peptide and nucleotide synthesis equipment.

Candidate should have a higher degree in Chemistry or Biochemistry with experience in at least two of the above areas, be expected to participate in training workshops, and assist in promoting facility use.

Curriculum Vitae and names and addresses of three references to:

Personnel Manager  
Box 54P



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Woods Hole, MA 02543

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## CENTER FOR GENETIC AND BIOCHEMICAL ALTERATION OF PLANT LIPIDS AND STARCH

Michigan State University

### Postdoctoral Research Associateships Graduate Assistantships

Michigan State University has received funding to establish a **Plant Science Center** under a program sponsored by USDA, NSF and DOE. Several positions are available in four established labs for scientists wishing advanced training in plant biochemistry and molecular biology. The core laboratories of this center are united in their interest in the fundamental processes of plant lipid and carbohydrate biosynthesis. The long term goal of the center is to provide the basic knowledge which will permit genetic manipulation of crop species to produce new classes of industrially valuable lipids and carbohydrates.

For information about this program contact one of the following individuals at Michigan State University, East Lansing, MI 48824:

- **John B. Ohlrogge**  
Dept. of Botany and Plant Pathology  
*Biochemistry and molecular biology of plant lipid synthesis*
- **Jack Preiss**  
Dept. of Biochemistry  
*Biochemistry and molecular biology of plant and microbial carbohydrate synthesis*
- **Christopher R. Somerville**  
Plant Research Laboratory and Dept. of Botany and Plant Pathology  
*Biochemistry, genetics and molecular biology of plant lipid synthesis*
- **N. Edward Tolbert**  
Dept. of Biochemistry  
*Photosynthetic carbon metabolism, peroxisomes, glycerol metabolism.*

MSU is an Affirmative Action Equal Opportunity Institution

## SENIOR RESEARCH ASSOCIATE

### Toxicology Studies

At Baxter Healthcare Corporation, our R&D investment begins with our people. We have an exceptional team of scientists and other technical professionals bringing depth to our vast product lines. We're also investing in state-of-the-art facilities, in new development and seeking out future possibilities. Now within our Applied Technologies Group, we seek a Senior Research Associate to support our efforts in the testing of new drugs and devices. Our technical R&D center is located in Round Lake, Illinois, an attractive community near Chicago.

Responsibilities include study director for preclinical toxicology studies in laboratory animals. Author protocols and reports in compliance with GLP's. Supervise conduct of studies and organize and analyze data. Author literature reviews or technical reports on hazard and risk assessment of chemicals and biologicals. M.S. in biological sciences (Ph.D. preferred). Technical knowledge of toxicology, animal medicine and pathology. Skills in computer use and statistics desired. DABT eligible.

Baxter employees enjoy a competitive salary and comprehensive benefit program including relocation assistance, tuition reimbursement, 401(k) and stock purchase. For confidential consideration, please forward your resume and salary history to: **Pamela Miller, Human Resource Director (WG1-1N), Baxter Healthcare Corporation, Route 120 and Wilson Road, Round Lake, IL 60073.** Equal Opportunity Employer.

**Baxter**

## PROTEIN BIOCHEMIST

Pitman-Moore, Inc., a leading animal health company, has a challenging opportunity for a Protein Biochemist with experience in peptide mapping of proteins.

The successful candidate will have a M.S. in protein biochemistry or equivalent experience, excellent written and verbal communication skills and supervisory experience. Extensive experience in preparation of protein digests, HPLC separation of proteins and peptides, and interpretation of tryptic peptide maps is required. Knowledge of protein sequencing (ABI 477A) and amino acid analysis is also desirable.

As a member of the Bioanalytical Research Section, the successful candidate will join a dynamic research group that is solving problems related to biotechnology, drug delivery, and new product development. This individual will report to a scientist who is a recognized expert in protein primary structure analysis.

Salary will be commensurate with experience and includes a complete benefits package. Please send resume and list of publications in confidence to:

**Mr. M.G. Ray, Pitman-Moore, Inc., P.O. Box 207, Terre Haute, IN 47808** An Equal Opportunity/Affirmative Action Employer

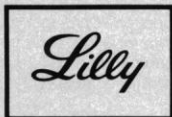


**PITMAN-MOORE**



## BS/MS SCIENTISTS

### Pharmacologist/Drug Metabolism



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For more than a century, scientists at ELI LILLY AND COMPANY have developed innovative, high quality pharmaceutical products. In 1988, Lilly is investing over \$500 million in research-and-development programs. More than 3,000 scientists at the company's Lilly Research Laboratories and Biochemical Development Divisions are pursuing creative research programs that involve many important health care needs.

To further build its research capabilities, Lilly is seeking self motivated, innovative scientists to work with senior investigators studying chemical transformations in biological systems. The ideal candidate will have the following qualifications:

- Bachelor's or Master's degree in analytical chemistry, biochemistry, or a related discipline.
- Experience in developing and implementing quantitative bioanalytical methods to study absorption, distribution, metabolism, and excretion of potential new drugs in animal models.
- Excellent organizational and communication skills.
- Experience with HPLC, computer data systems, radiochemicals, and immunoassays also desired.

Eli Lilly and Company is committed to scientific excellence. Lilly provides a stimulating professional atmosphere with many opportunities for collaborative, multidisciplinary research. The company offers an attractive total compensation program. Entry level and salary will be based upon each candidate's experience.

For prompt consideration, please forward your *résumé* to:

Maria L. Poor  
Science Recruitment (AP2)  
Eli Lilly and Company  
Lilly Corporate Center  
Indianapolis, Indiana 46285

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### POSITION ANNOUNCEMENT CELL AND MOLECULAR BIOLOGISTS

The Department of Cell and Structural Biology at the University of Illinois, Urbana-Champaign, is continuing the expansion of its faculty. Several new tenure-track faculty will be recruited over the next few years at the Assistant Professor level. One position is available for the 1989-1990 academic year, with a starting date of August 21, 1989. Applicants should hold the Ph.D. degree or equivalent, and show exceptional promise in research, which preferably should address molecular issues in developmental, neural, or cell biology. Salary will be commensurate with rank and experience. Duties will include participating in the teaching of eukaryotic cell and molecular biology. Substantial start-up funds and laboratory facilities will be available to initiate new faculty research programs, for which the UIUC offers exceptional and broad-based supporting resources. These resources include the Center for Electron Microscopy, with state-of-the-art instrumentation; the Center for Biotechnology, which includes facilities for molecular cloning and DNA and protein synthesis and sequencing; the Cell Science Center, which houses and staffs a hybridoma facility and flow cytometry unit; School of Life Sciences-subsidized shops; and a superb university library system, the third largest in the nation. The UIUC is a National Center for Supercomputing Applications, and is home to the Beckman Institute for Advanced Science and Technology, which combines research in the physical and biological sciences. Many other units within the Schools of Life Sciences and Chemical Sciences, and the Colleges of Medicine and Engineering offer opportunities for interactions in the cellular and molecular sciences. Urbana-Champaign combines the residential advantages of a medium-sized city (population 120,000) with outstanding cultural amenities within the University, and its location in east-central Illinois gives easy access to the cities of Chicago and St. Louis. Applicants are requested to send a curriculum vita, a summary of research interests, and three letters of reference to:

David L. Stocum, Search Committee Chairman  
Department of Cell and Structural Biology  
University of Illinois  
506 Morrill Hall  
505 South Goodwin Avenue  
Urbana, Illinois 61801  
Telephone: (217) 333-6118

In order to ensure full consideration, applications should be received by January 15, 1989. Interviews may be conducted before January 15, 1989, but all applications received by that date will receive full consideration and the final selection will not be made until after that date. The University of Illinois is an Affirmative Action, Equal Opportunity Employer.

## POSITIONS OPEN

**POSTDOCTORAL POSITION IN CLINICAL NUTRITION** Studies ongoing are related to fatty acid metabolism, microcirculatory platelet endothelial cell interaction, lipoprotein metabolism and flow parameters in Raynaud's disease. Send curriculum vitae and names of three references with telephone numbers to: **Dr. Geza Bruckner, Chairman; Department of Clinical Sciences, Division of Clinical Nutrition, Medical Center Annex Two, University of Kentucky, Lexington, KY 40536-0080.**

**POSTDOCTORAL POSITION(S) IN DEVELOPMENTAL NEUROBIOLOGY** available 1 January 1989 to study cell-cell interactions involved in neuronal lineage commitment in the frog. We use single cell microinjection, transplantation, and biochemical techniques to determine the role of lineage in neuronal determination and neuromuscular specificity. Send curriculum vitae and three letters of recommendation to: **Dr. Sally A. Moody, Department of Anatomy and Cell Biology, Box 439 Medical Center, University of Virginia, Charlottesville, VA 22908.**

**POSTDOCTORAL POSITIONS IN LANDSCAPE ECOLOGY** available at Colorado State and New Mexico for research on ecological scaling and animal movement in habitat mosaics. Experience in spatial modelling and statistics, GIS, fractals, and/or diffusion models desirable. Send for information or apply (two sets: curriculum vitae, three letters of reference, publications, and a statement of research interests) by 1 November 1988 to: **John A. Wiens, Department of Biology, Colorado State University, Fort Collins, CO 80523. (BITNET: BEAJOHNN@CSUGREEN).**

**POSTDOCTORAL POSITIONS** in neuroimmunology/neuro-oncology in the Division of Neurology, Harvard Medical School. A multidisciplinary approach is used to understand and manipulate the immune response to neural antigens. Focus is on neural tumors and autoimmune disorders. Send résumé with reprints and names of references to: **Dr. Lois Lampson, Center for Neurologic Diseases, Biosciences Research Building, Brigham and Women's Hospital, Boston, MA 02115. An Equal Opportunity Employer.**

**POSTDOCTORAL POSITIONS** available immediately and in early 1989 to study the mode of action, delivery and targeting of drugs, DNA-binding agents and biologic response modifiers at cellular and in vivo levels using antibodies, glycopeptides, oligonucleotides, hormones and liposomes. Recent Ph.D. Experience in protein chemistry, organic synthesis, cell culture, molecular biology, biophysics or biodistribution in vivo is helpful. Send résumé and three letters of recommendation to: **Dr. Karl J. Hwang, Drug Targeting Research Program, School of Pharmacy, University of Southern California, 1985 Zonal Avenue, Los Angeles, CA 90033. Equal Opportunity Employer.**

**POSTDOCTORAL POSITIONS** available for multidisciplinary studies of photoreceptor cell biology and retinal degenerations. Cultures of photoreceptors isolated from normal and mutant animals are being used for studying regulation of their survival and differentiation (by cell-cell interactions, trophic factors, extracellular molecules, and retinoids and other lipids), as well as mechanisms of cell polarity and the expression of microinjected and transfected genes. Acceptable backgrounds include cell biology, developmental biology, biochemistry, and cellular or molecular neurobiology. Please mail curriculum vitae and names, telephone numbers, and addresses of three references to: **Dr. Ruben Adler, Wilmer Institute, Johns Hopkins University School of Medicine, Baltimore, MD 21205.**

**POSTDOCTORAL POSITIONS** for cell/developmental biologists to study the role of growth factors and cytoskeletal organization in connective tissue differentiation (particularly cartilage and bone) during craniofacial and limb development or cell-extracellular matrix interactions during cell migration in the sea urchin embryo. Biochemical or molecular training preferred. Send résumé and three references to: **Dr. Michael Solursh, Department of Biology, University of Iowa, Iowa City, IA 52242. The University of Iowa is an Equal Opportunity/Affirmative Action Employer.**

## POSITIONS OPEN

**POSTDOCTORAL/RESEARCH ASSOCIATE** position available immediately to study the biology of cell surface proteoglycans of epithelial and/or myeloid cells. Studies examine proteoglycan structure, expression and interactions with the cytoskeleton and matrix. Experience in recombinant DNA methods and cell/developmental biology desirable. Send curriculum vitae to: **Dr. Alan Rapraeger, Department of Pathology, University of Wisconsin, 1300 University Avenue, Madison, WI 53706.**

### POSTDOCTORAL RESEARCH ASSOCIATE

The Division of Radiation Biology, Department of Radiation Oncology, Stanford University School of Medicine has an opening for a tumor biologist at the research associate level. Successful candidate will join research team investigating means of measuring and increasing tumor oxygenation to improve cancer therapy. Areas under investigation at present include use of calcium channel antagonists for increasing tumor blood flow and also agents that affect hemoglobin-oxygen binding. Experience with assays of animal tumors, culture of mammalian cells, and basic biochemical procedures is sought. Salary: \$28,000 plus, depending on experience. Applicants should submit curriculum vitae and names of three references to: **Dr. J. Martin Brown, Division of Radiation Biology, Department of Radiation Oncology, Stanford Medical Center, Stanford, CA 94305.**

*Stanford University is an Equal Opportunity Employer and welcomes nominations of women and minority group members and applications from them.*

### POSTDOCTORAL RESEARCH ASSOCIATES

Postdoctoral positions are available for studies on the cellular metabolism of cholesterol and retinoids with focus on (i) characterization and purification of hepatic cholesteryl ester and retinyl ester hydrolases, (ii) the role of cellular retinoid binding proteins in retinoid transport, and (iii) retinoid metabolism in the breast using cultured cell models. Applicants should have recent training in protein and lipid biochemistry including protein isolation, membrane characterization, or relevant experience in cell biology and differentiation. Please submit a letter describing training and future goals, curriculum vitae, and names of three references to:

**Dr. A. Catherine Ross or  
Dr. Earl Harrison  
Department of Physiology and Biochemistry  
The Medical College of Pennsylvania  
3300 Henry Avenue  
Philadelphia, PA 19129**

**POSTDOCTORAL RESEARCH BIOCHEMIST TOXICOLOGIST.** Position available to study mechanisms of action of neurotoxic agents. Candidates with experience in biochemistry, neurobiology, or toxicology preferred. Send curriculum vitae and names of three references to: **Dr. M. Anthony Verity, Department of Pathology (Neuropathology), UCLA Center for Health Sciences, Los Angeles, CA 90024-1732. Telephone: 213-825-7230. UCLA is an Equal Opportunity/Affirmative Action Employer.**

### POSTDOCTORAL RESEARCH POSITION

Available immediately (M.D. or Ph.D.) for research on the molecular basis of inherited immunodeficiency disease. The project will focus on X-linked severe combined immunodeficiency. Candidate should be recent Ph.D. graduate. Experience in molecular biology techniques essential. Salary support is available for up to 3 years. Send curriculum vitae and names of two references to: **Louise Markert, M.D., Ph.D., Department of Pediatrics, Duke University Medical Center, Durham, NC 27710. Affirmative Action/Equal Opportunity Employer.**

**POSTDOCTORAL RESEARCH POSITION** available immediately for Ph.D. with training in cell biology to study the role of membrane-associated filaments in fertilization, development and implantation in the mouse embryo. Experience in electron microscopy; 3 years. Send curriculum vitae and names of three references to: **Dr. J. Sabina Sobel, Department of Anatomical Sciences, 321 Farber Hall, State University of New York at Buffalo, Buffalo, NY 14214. SUNY is an Equal Opportunity and Affirmative Action Employer.**

## POSITIONS OPEN

**POSTDOCTORAL/RESEARCH ASSOCIATE POSITION IN NEUROSCIENCE** available for 2 or more years to study the distribution, coexistence and regulation of neurotransmitters in visceral sensory neurons of the vagus and glossopharyngeal nerves. Applicant should be a recent Ph.D. Interest in neurotransmitters, cellular neuroanatomy and regulation of autonomic functions is essential. Experience with immunocytochemistry, retrograde tracing, RIA, and/or in situ hybridization histochemistry is desirable. Salary is competitive and commensurate with experience. Send curriculum vitae, description of research interests and the names of three references to: **Dr. C. J. Helke, Department of Pharmacology (c/o Personnel), Uniformed Services University of the Health Sciences (USUHS), 4301 Jones Bridge Road, Bethesda, MD 20814.**

**PROTEIN BIOCHEMIST** with excellent scientific credentials to develop his/her own program preferably in the areas of growth factors or receptors to qualify for a tenure-track position at any professorial rank. Submit curriculum vitae, a short statement of future plans, and direct three letters of reference to be sent to: **Dr. Gerald Litwack, Deputy Director, Fels Institute for Cancer Research and Molecular Biology, Temple University School of Medicine, 3420 North Broad Street, Philadelphia, PA 19140. An Equal Opportunity Employer.**

### RADIATION BIOLOGIST

Oak Ridge National Laboratory's (ORNL) Biology Division is seeking applicants with a Ph.D. or equivalent in radiation biology with a research emphasis on the mechanisms of induction of cancer. Persons with experience in molecular biology, experimental pathology, or related disciplines are encouraged to respond. The successful applicant will be expected to develop their own research as well as collaborate in ongoing projects of the Radiation Carcinogenesis Program.

ORNL offers an excellent benefits package and a generous relocation program plus a stimulating working environment. Salary commensurate with experience. Qualified applicants should forward résumé, publication list, copies of academic transcripts, and names of three references to: **R. J. Michael Fry (Chairman, Search Committee), Biology Division, P.O. Box 2009, Oak Ridge National Laboratory, Oak Ridge, TN 37831-8077.**

*ORNL Operated by Martin Marietta  
for the*

*U.S. Department of Energy  
An Equal Opportunity Employer  
U.S. Citizenship/Permanent Resident Required*

### RESEARCH ASSISTANT PROFESSOR

The Department of Pathobiology at the University of Washington announces an immediate faculty position opening. Applicants must have a Ph.D. with at least 3 years of postdoctoral research experience in isolation and characterization of glycosyl-transferases and hydrolases as related to mechanisms of oncogenesis and infection. The successful candidate is expected to participate in teaching and precepting graduate students in the department and will hold a concurrent position at The Biomembrane Institute of Seattle, Washington. Applicants should send a letter of interest, curriculum vitae, and names and addresses of three references to: **Chair, Search Committee, The Biomembrane Institute, 201 Elliott Avenue West, Suite 305, Seattle, WA 98119. The application deadline for this position is 28 October 1988.**

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

**RESEARCH ASSOCIATE** position available to be involved in isolation of nitrogenous compounds, determination of effects of these compounds on biological membranes, chemical modification of these compounds and determination of structure-activity relationship, and chemical synthesis of photoaffinity probes. Must have experience in isolation of pharmacologically active compounds, a knowledge of the chemistry and structure of these compounds, familiarity with isolation techniques such as HPLC. Requires Ph.D. degree in chemistry. Salary \$21,000 per year for 40-hour week. Qualified applicants send résumés to: **Georgia Department of Labor, 601 Greene Street, Augusta, GA 30913, or to the nearest Georgia Job Service Center. Control #GA 5308807. An Equal Opportunity/Affirmative Action Employer.**



# RESEARCH SCIENTISTS

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Athena Neurosciences, Inc., located in the San Francisco Bay Area, is a biotechnology-based company committed to the discovery and development of new products to diagnose and treat diseases of the nervous system. Our research focuses on Alzheimer's disease and the delivery of drugs to the brain. We will be occupying our newly constructed facility in January of 1989 and this expansion has created the following opportunities to join our company.

**Cell Biology**—Two positions exist at the Ph.D. level for cell biologists. The first one requires a strong background in biochemistry. Qualifications include experience in cell culture, protein purification and characterization, as well as the design and implementation of tissue culture bioassays. (Ad #20)

The second position will require a Ph.D. or equivalent in cellular neurobiology, cell biology or biochemistry. Experience with tissue culture of nervous system or endothelial cells is highly desirable, as is familiarity with immunocytochemistry, membrane receptors and molecular trafficking in mammalian cells. (Ad #21)

**Enzymology**—One position is available at the Ph.D. or possibly M.S. level for an individual with proven experience in protease enzymology. Responsibilities will include proteolytic enzymatic assays and kinetic measurements. In addition, experience with routine biochemical and immunochemical techniques is desired. (Ad #22)

**Immunochemistry/Biochemistry**—An individual is sought at the Ph.D. level who has proven leadership skills in the areas of immunochemistry and biochemistry. The optimal candidate will have experience in the use of both monoclonal and polyclonal antibodies to resolve fundamental and applied biological problems. (Ad #23)

**Pharmacology**—Two positions are available in our pharmacology effort. The first is for an individual with a Ph.D. in pharmacology or related field with two or three years experience in pharmacokinetics related to CNS-active drugs. Experience with tumor models and receptor binding assays is desirable. (Ad #24)

The second position is for an individual at the B.S. or M.S. level in pharmacology or related areas such as physiology or toxicology. In vivo pharmacology and HPLC experience are essential. Studies will involve pharmacokinetics of CNS-active drugs. (Ad #25)

**Transgenics**—One individual is sought with a B.S. or M.S. in the biological sciences and three to five years of experience in the development of transgenic mice. Duties will include the design of experimental protocols, isolation, microinjection and implantation of ova. Experience with maintenance of breeding colonies is desirable. (Ad #26)

**Research Assistants and Associates**—Positions are available at the B.S. and M.S. levels in molecular biology, cell biology, media preparation, enzymology, protein purification and characterization. (Ad #27)

Athena Neurosciences is financially secure and backed by the most prominent and successful venture capitalists in the biotechnology industry. We are committed to scientific excellence and offer an exciting professional environment in addition to competitive salaries, benefits and equity participation. Please send curriculum vitae to: Athena Neurosciences, Inc., 957-P Industrial Road, San Carlos, CA 94070. Please refer to the appropriate ad number in correspondence. An equal opportunity employer.

## Athena Neurosciences, Inc.

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## POSITIONS OPEN

**RESEARCH ASSOCIATE** (in New York, NY) Perform research at the Laboratory of Biochemical Genetics and Metabolism in connection with human apo B gene variation in a variety of clinical disorders related to LDL abnormalities. The work involves constructing genomic libraries with DNA from patients and by functional assays of apo B gene expression and DNA sequencing, determine the molecular defect. Once identified, specific defects can be screened for in the population to ascertain their prevalence. The research is expected to have important implications for the diagnosis of atherosclerosis susceptibility. Ph.D. in biological science required. Minimum 2 years of experience in the job offered or 2 years of experience as postdoctorate in the research of human apo B. Forty hours per week/5 days per week, \$28,000 per year. Send résumé or letter in duplicate describing qualifications to: **RG #366, Room 501, One Main Street, Brooklyn, NY 11201.**

**RESEARCH ASSOCIATE.** Research in the stereospecific synthesis of cyclooctanoid natural products. Plans and designs new synthetic routes to the same. Supervises research assistants in execution of new sequences. Assists training of new research assistants. Ph.D. in organic chemistry plus 1 year of experience; or postdoctoral fellow with 1 year of experience in synthesis of cyclooctanoid natural products. Ability to use modern analytical instrumentation including high field NMR, HPLC, LC, TLC, UV, IR and Column Chromatography; ability to utilize techniques for handling air and moisture sensitive compounds, published work on synthetic organic chemistry in recognized scientific publication. An *Equal Employment Opportunity Employer (M/F)*. Salary: \$17,100 per year. Submit résumé to: **Sharon L. Van Kempen, Job Service, 140 West Main Street, Rochester, NY 14614.**

## RESEARCH ASSOCIATE

To conduct pending project in synthesis and expression of artificial peptides. Must have Ph.D. and experience with manual and automated methods of DNA synthesis, sequencing, cloning, transfer, and expression; and protein purification methodology. If funded, initial appointment will be for 1 year, with renewal for a second. Competitive salary and excellent benefits. Applicant must be in compliance with current immigration law regarding legal residency and ability to take a position in the U.S. Send current curriculum vitae, and names, addresses, and telephone numbers of three references not later than 31 October 1988 to: **Dr. Thomas Caceci, Department of Veterinary Biosciences, Virginia Maryland Regional College of Veterinary Medicine, Virginia Polytechnic Institute and State University, Blacksburg, VA 24060.**

*Virginia Tech is an Equal Opportunity/Affirmative Action Institution*

**RESEARCH ASSOCIATE—DEVELOPMENTAL PHARMACOLOGY:** Available immediately for preclinical studies of long term effects of prenatal exposure to psychotropic drugs. Requires familiarity either with biochemical methods for study of monoamine neurotransmission or with operant behavior. Send curriculum vitae, description of research experience and names of three references by 1 November 1988 to: **Brian A. McMillen, Ph.D., Department of Pharmacology, School of Medicine, East Carolina University, Greenville, NC 27858.** Federal law requires proper documentation of identity and employability at the time of employment. It is requested this documentation be included with your application. An *Affirmative Action/Equal Employment Opportunity Employer.*

**RESEARCH ASSOCIATE/INSTRUCTOR** position available to study molecular biology of streptococcal genes involved in oxidative metabolism and in defense against oxidative stress. Graduate or postdoctoral experience with construction and screening of  $\lambda$  expression libraries, DNA sequencing and oligonucleotide-directed mutagenesis, or heterologous expression of streptococcal gene products is preferred. Salary will be commensurate with experience; start date is flexible. Send curriculum vitae, list of publications, and names of three references to: **Dr. Al Claiborne, Department of Biochemistry, Wake Forest University Medical Center, 300 South Hawthorne Road, Winston-Salem, NC 27103.** *Affirmative Action/Equal Opportunity Employer.*

## POSITIONS OPEN

### RESEARCH BIOCHEMIST

HyClone Laboratories, a leader in the manufacture of cell growth products, has an opening for a research biochemist in protein separation. The position requires an M.S. degree or equivalent experience in biochemistry or related field. Experience in enzymology, dairy chemistry, growth factors, or cell culture would be advantageous. The position requires that the individual have 3 to 5 years of management and supervisor experience in a laboratory setting. Applicants should submit résumé, three letters of reference and salary requirements to: **Personnel Manager, HyClone Laboratories, Inc., 1725 South Highway 89-91, Logan, UT 84321.** *HyClone Laboratories, Inc. is an Equal Opportunity Employer.*

**RESEARCH-EXTENSION, VEGETABLE AND FORAGE INSECTS. ASSISTANT PROFESSOR,** 12-month tenure-track, research/extension, available 1 January 1989. Conduct IPM research with insects of commercial vegetables and forage. Advise and train graduate students. Extension education programs in vegetable and forage insects.

Minimum qualifications: Ph.D. or equivalent foreign doctorate in entomology, or closely related field. Crop-related experience in insect pest management.

Letter regarding career goals, curriculum vitae, graduate and undergraduate transcripts and names of five references should be sent by 31 October 1988 to: **Dr. R. L. Jones, Department of Entomology, University of Minnesota, 219 Hodson Hall, 1980 Folwell Avenue, St. Paul, MN 55108.** A full position description is available upon request by telephoning 612-624-3278. *The University of Minnesota is an Equal Opportunity Employer and Employer and specifically invites and encourages applications from women and minorities.*

**RESEARCH SCIENTIST.** Career professional research staff position in (i) microbial physiology/genetics or (ii) biogeochemistry to develop new research program in applying modern molecular or chemical techniques to solving problems of environmental significance at the interfaces between aquatic ecology, cellular/molecular biology, microbial physiology, and geochemistry. The potential exists for a concurrent tenured or tenure-track faculty appointment in chemistry, biology or geology, subject to approval. Qualifications: Ph.D., superior academic and research capabilities, and proven record in attracting extramural funding. Interests that bridge field and laboratory research are desirable. Salary commensurate with experience and qualifications. Send curriculum vitae, selected reprints, and the names, addresses, and telephone numbers of three references, by 30 November 1988 to: **Dr. Kenneth H. Nealson, Center for Great Lakes Studies, University of Wisconsin-Milwaukee, P.O. Box 413, Milwaukee, WI 53201.** *Minority and women scientists are encouraged to apply.*

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

### RESEARCH TECHNOLOGIST

American Breeders Service, a leader in the field of animal genetics and a division of W. R. Grace and Co., has an immediate opening for a technologist in its cloning laboratory.

The person selected will assist in the research on bovine nuclear transfer and embryo development. The principle duties include collecting and culturing embryos, culturing of oviductal cells, preparing of media, and performing in vitro fertilization and micromanipulation.

The ideal applicant should have a B.S. and 3 years of experience, a M.S. and 1 year of experience, or have appropriate experience in lieu of a degree. Experience in sterile technique and culturing of cells, as well as large animal handling and surgery assistance is a plus.

The position will initially require a rotating work schedule, so that the days worked will vary from week to week.

We are offering a competitive salary, a comprehensive benefit package, and an opportunity to work for the recognized industry leader in animal genetics.

Interested candidates should mail a résumé, along with their salary history/requirements to:

**Employment Coordinator  
American Breeders Service  
P.O. Box 459  
DeForest, WI 53532**

*An Equal Opportunity Employer M/F/H/V.*

## POSITIONS OPEN

**RESEARCH BIOCHEMIST, Ph.D.** needed to purify and characterize bacterial proteins. Must have strong background in protein biochemistry with experience in protein modification and peptide mapping strategies. Send complete résumé to: **MicroLife Technics, P.O. Box 3917, Sarasota, FL 34230.**

### RESEARCH CLINICAL CHEMIST

Two research clinical chemist positions are available in the Clinical Chemistry Laboratory, California Department of Health Services, Berkeley, California. One position is in Forensic Alcohol and Urine Drug Analyses; the other in Newborn and Prenatal Screening for Heritable and Congenital Diseases. The research clinical chemist acts as a project leader to ensure the competency of the activities of licensed and contract screening laboratories. The requirements are either (i) a doctoral degree with specialization in biochemistry, clinical chemistry, or a closely related subject and 1 year of research experience within the last 5 years in clinical chemistry or (ii) master's degree with specialization in biochemistry, clinical chemistry, or a closely related subject and 3 years of research experience within the last 5 years in clinical chemistry. Experience with laboratory computers preferred. The salary range is \$3807 to \$4601 per month.

Selection of the candidates will be on the basis of a competitive State Civil Service examination, followed by job interviews. The final postmark date for submission of applications is 3 November 1988. Applications with résumé are to be sent to: **Division of Laboratories, California State Department of Health Services, 2151 Berkeley Way, Berkeley, CA 94704.** Application forms are available at any California State Personnel Board Office or you may obtain an application by contacting the Division of Laboratories at telephone: **415-540-2408.** *An Equal Opportunity Affirmative Action Employer.*

### RESEARCH EMBRYOLOGIST

American Breeders Service, a leader in the field of animal genetics and a division of W. R. Grace and Co., has an immediate opening for a research embryologist in its cloning laboratory.

The person selected will be responsible for designing, supervising and conducting research in the areas of in vitro fertilization, embryo culturing, and development and nuclear transfer. The principle duties include collecting and culturing embryos, culturing of oviductal cells, and micromanipulation. Experience in handling large animals and surgery is a plus.

The ideal candidate should have a Ph.D. in a field relevant to the work and have a proven record of related experience.

We are offering a competitive salary, comprehensive benefit coverage, and an opportunity to work for the recognized industry leader in animal genetics.

Interested candidates should mail a résumé, along with their salary history/requirements to:

**Employment Coordinator  
American Breeders Service  
P.O. Box 459  
DeForest, WI 53532**

*An Equal Employment Opportunity M/F/H/V.*

**RESEARCH WILDLIFE BIOLOGIST—Incumbent** is assigned to the Pacific Southwest Forest Experiment Station, Arcata, California. Research will focus on wildlife populations and habitats in mature and old-growth forests of northern California. Initial responsibility is to continue a radio-telemetry study designed to estimate the home range size and habitat use patterns of the Spotted Owl. A Ph.D. in some area of vertebrate ecology is required. For application information contact: **Dr. Barry R. Noon, Redwood Sciences Laboratory, 1700 Bayview Drive, Arcata, CA 95521.**

Established, growing immunodiagnostic company in the Galveston Bay area invites applications from **SCIENTISTS** to develop RIA and EIA kits. Candidate will have a Ph.D. in chemistry or life science. Must have at least 3 to 5 years of industrial or academic experience in immunoassay development. Please submit résumé to:

**Personnel Manager  
Diagnostic Systems Laboratories, Inc.  
P.O. Box 57946  
Webster, TX 77598**

## POSITIONS OPEN

THE UNIVERSITY OF QUEENSLAND  
*Equal Opportunity in Employment is  
University Policy*  
**SENIOR LECTURER/READER  
IN CLINICAL BIOCHEMISTRY  
(FIXED TERM)  
DEPARTMENT OF BIOCHEMISTRY**

Applications are invited from suitably qualified medical or science graduates for the position of senior lecturer/reader in clinical biochemistry in the Department of Biochemistry. The successful applicant will be required to teach undergraduate and postgraduate medical and science students and to establish a program of research which is compatible with the existing research strengths of the Department.

Preference will be given to candidates with experience and expertise in a branch of molecular medicine such as genetics, immunology, neurobiology, and pharmacology.

The appointee will be located in the departmental laboratories on the Royal Brisbane Hospital campus and will be eligible for appointment as Deputy Director of the Joint Clinical Biochemistry Program which has recently been initiated by the University and the Royal Brisbane Hospital Foundation to promote biochemical research in the Hospital environment. The Director of the Program is Associate Professor **Graham Cooksley** who is also responsible for the establishment and operation of the Foundation's Clinical Research Centre. A medically qualified appointee will be eligible for an honorary appointment to the Royal Brisbane Hospital. There will also be the opportunity for the appointee to establish links with the University's newly formed Centre for Molecular Biology and Biotechnology which is under the direction of Professor **John Mattick**.

The Royal Brisbane Hospital is the largest teaching hospital of The University of Queensland. It is located a few kilometers from the centre of a progressive city in the most rapidly expanding region of the country. The city has a subtropical climate with facilities and environs for an excellent lifestyle.

Appointment will be for a 5-year term.

Salary: Senior Lecturer \$A39,745-\$A46,179 per annum. Reader \$A52,107 per annum. Clinical loading (medical appointee) \$A10,850 per annum. Closing date: 14 October 1988. Reference No: 44488.

Further information may be obtained from: Professor **Brian Shanley**, Head, Department of Biochemistry, The University of Queensland, St. Lucia, Queensland, 4067, telephone: (07) 377 2130 or Associate Professor **Graham Cooksley**, Department of Biochemistry, The University of Queensland, Medical School, Herston Road, Herston, Queensland, 4006, telephone: (07) 253 5112.

**TENURE-TRACK** position available 1 July 1989. An M.D. Board-eligible or certified in neurology is required. Research, clinical and teaching responsibilities will be equally divided. The Department of Neurosciences at the University of California San Diego (UCSD) is accepting applications for a clinical neuroimmunologist at the Assistant Professor level who will be expected to develop a clinical unit at the UCSD Medical Center for the study and treatment of immune mediated neurologic diseases. Additionally, the successful candidate will demonstrate research accomplishment and an ability to generate external support. The area of research is open; however, clinical and/or basic science investigators with an emphasis in such disorders as multiple sclerosis, other autoimmune diseases, or AIDS will be given preference. Candidates will be expected to teach at the post-M.D., and undergraduate medical student levels, and to supervise Ph.D. graduate student research. A competitive salary (commensurate with candidate's experience and University policy), basic start up funds, and research space will be provided. Long-term, it is expected that a portion of the candidate's salary will be generated from clinical income and/or grant funding. Applications received through 28 February 1989 will be considered. Interested applicants send curriculum vitae, brief statement of research objectives, and five referee names and addresses to:

**Robert Katzman, M.D.**  
Professor and Chair  
Department of Neurosciences, M024  
University of California, San Diego  
La Jolla, CA 92093

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

## The science of a great career.

Liposome Technology, Inc. (LTI), develops and manufactures innovative liposome-based pharmaceutical products. These products are designed to improve efficacy, safety, and convenience of pharmaceutical products. Our impressive technological breakthroughs have created an exciting opportunity in our Northern California research headquarters for a:

### Formulations Scientist

Your primary responsibility will be to design and develop lipid/liposomal formulations for various drugs with emphasis on aerosols for administration into the human respiratory tract. In addition, you will perform in vitro assessment of delivery characteristics and stability optimization.

To qualify, you must have a PhD or equivalent degree in pharmacy, physical chemistry or related field, with a strong analytical background. In addition, 2-4 years' industrial experience in formulation or 2-6 years' post PhD academic experience in aerosol physics or pharmaceuticals is necessary. A working knowledge and familiarity with drug formulation, analytical methodology and powder technology essential. Excellent organization and communication skills are desirable as well as a strong interest in interdisciplinary development activities.

LTI is committed to providing its employees with both sophisticated facilities and a competitive salary/benefits package. Send your resume to: LTI, Professional Staffing, Dept. HR-FS, 1050 Hamilton Court, Menlo Park, CA 94025. Principals only; please, no phone calls. We are an equal opportunity employer.

## GROUP LEADER Environmental Surveillance

Los Alamos National Laboratory, an international leader in technological and scientific research and development, has a position available for a Group Leader in Environmental Surveillance.

Responsibilities include managing and leading multidisciplinary environmental surveillance group supporting Laboratory operations and other DOE facilities. Will supervise programs including environmental regulations, environmental sampling, environmental impact analysis, meteorology and special studies. Provide technical leadership for professionals in health physics, radiation biology, hydrogeology, environmental engineering, air and water quality, meteorology, and ecology.

This position requires experience in interpreting environmental regulations, environmental data and preparing environmental assessments. A significant background in regulatory compliance aspects of environmental programs for air, water, foods and soils. Excellent management and communications skills are essential. A Master's or PhD in environmental engineering, environmental science or other broadly based discipline or equivalent experience is needed.

Superior compensation and benefits are provided. For prompt consideration, send resume to: Leona Thorpe (MS P280), Personnel Services Division 80579-BV, Los Alamos National Laboratory, Los Alamos, NM 87545.

Affirmative Action/Equal Opportunity Employer  
U.S. Citizenship Required

University of California

# Los Alamos



## POSITIONS OPEN

**SENIOR RESEARCH ASSOCIATE BIO-ELECTRIC SIGNAL PROCESS**—The Liberty Mutual Insurance Company has a full-time position available in the Motor Unit Laboratory of the NeuroMuscular Research Center located on the campus of Boston University. Research projects in progress include the study of control properties of motor units during muscle contraction and the analysis of myoelectric signals using decomposition techniques. The successful candidate will be an expert in electrical or biomedical engineering and familiar with signal processing techniques of stochastic signals. A Master of Science or Ph.D. in an appropriate discipline is required. Competence in experimental design, statistics, and computer programming is assumed. Applicants should have experience in acquisition and analysis of bioelectric signals and kinetic measurements in humans. The senior research associate is a technical resource to the Liberty Mutual Insurance Company and its policyholders. Salary will be commensurate with experience and training. Candidates with the appropriate background would be considered for an uncompensated faculty appointment at Boston University. Send curriculum vitae to: **Dr. C. J. De Luca, NeuroMuscular Research Center, Boston University, 44 Cummington Street, 5th Floor, Boston, MA 02215. An Equal Opportunity Employer.**

## SENIOR STAFF ENGINEER

A Colorado industrial firm is seeking a senior staff engineer whose responsibilities will include designing, developing and constructing custom state-of-the-art vacuum, ultra-high vacuum, and semiconductor deposition/processing systems. The candidate must have a Ph.D. in electrical engineering or related field and a minimum of 7 years of experience in the deposition and processing of semiconductors by vacuum evaporation, rf sputtering, ion implantation, diffusion, CVD, ECR-Plasma CVD and related techniques. Furthermore, the applicant must be able to act as a consultant on cryogenic vacuum systems and helium leak detectors. Salary is \$36,000 per year for 40 hours per week. Send résumés to: **Colorado Department of Labor and Employment, 600 Grant Street, Suite 900, Denver, CO 80203-3528 and refer to Job Order No. CO2918078.**

**T-CELL IMMUNOLOGIST** with an interest in cytotoxic T-cell biology and **TUMOR CELL BIOLOGIST** with expertise in culture of human tumors to supervise clinically-oriented research in a private foundation setting. Send résumé to: **William H. West, M.D., Cellular Therapy Foundation, 910 Madison Avenue, Memphis, TN 38103.**

**VISION SCIENTIST, Ph.D.** Visual Psychophysics or Psychology. Experience in signal detection/processing, image processing/analysis and math modeling of visual system. Prefer 2 years of postdoctorate experience. Contact: **Dr. R. H. Schrimsher 205-598-6388. An Equal Opportunity Affirmative Action Employer.**

**WILDLIFE ECOLOGIST.** The Appalachian Environmental Laboratory (AEL) of the University of Maryland's Center for Environmental and Estuarine Studies announces the availability of a tenure-track position as assistant professor of wildlife. Persons with research interests in wildlife population biology, conservation biology, or ecosystems ecology are urged to apply. Opportunities are available to participate in and help coordinate a developing international program in natural resources. The University of Maryland system has formal linkage agreements with the Universities of Zimbabwe and Malawi. Applicants with research interests or experience in Africa will be given top priority. Twelve-month salary is negotiable. Submit a letter of application, a statement of research interests, curriculum vitae, and three letters of recommendation to: **J. Edward Gates, Wildlife Chair, Appalachian Environmental Laboratory, University of Maryland, Frostburg, MD 21532, by 1 November 1988.**

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

## AWARDS

**ANNOUNCEMENT:** The Joseph P. Kennedy, Jr. Foundation will make **RESEARCH AWARDS** of \$50,000 to \$100,000 for projects on the biomedical or biosocial bases of mental retardation on 1 July 1989. Applications from investigators new to mental retardation research or "high-risk" proposals from established investigators are encouraged. Two-page letters of intent including objectives, methodology, summary budget, and curriculum vitae of principal investigator are due 1 November 1988. Complete proposals will be solicited after preliminary review. Write to:

**Jess G. Thoenes, M.D., Medical Director  
The Joseph P. Kennedy, Jr. Foundation  
1350 New York Avenue, Suite 500  
Washington, DC 20005-4709**

## CONFERENCE

**3rd INTERNATIONAL CONFERENCE  
ON INSECT NEUROCHEMISTRY  
AND NEUROPHYSIOLOGY  
10 to 12 July 1989  
University of Maryland, College Park  
Plenary sessions,  
Contributed papers, Posters**

Topics will include physiology, chemistry, and molecular biology of regulatory peptides, neurotransmitters, hormone receptors and ion channels, and morphology and development of the nervous system. Attendance is limited to 200 participants. For more information contact: **ICINN '89 Registration, Insect Reproduction Laboratory, USDA, Building 306, Room 323, BARC-East, Beltsville, MD 20705.**

## COURSE

**THE JAMES S. MCDONNELL FOUNDATION SUMMER INSTITUTE IN COGNITIVE NEUROSCIENCE.** The second annual Summer Institute will be held at Dartmouth College, 26 June-7 July, 1989. The course will examine how information about the brain bears on issues in cognitive science, and how approaches in cognitive science apply to neuroscience research. A distinguished faculty will lecture on current topics in vision and memory; laboratories and demonstrations will provide practical experience with cognitive neuropsychology experiments, connectionist/computational modeling, and neuroimaging techniques. At every stage, the relationship between cognitive issues and underlying neural circuits will be explored.

The Institute directors will be **Ira Black, Michael Gazzaniga, Steven Hillyard, Ralph Linsker, and Gordon Shepherd.** Applications are invited from beginning and established researchers. The Foundation will provide limited support for travel expenses and room/board. For further information and applications please write to:

**McDonnell Institute in Cognitive Neuroscience  
Michael S. Gazzaniga, Ph.D.  
HB 7915-A  
Dartmouth-Hitchcock Medical Center  
Hanover, NH 03756**

## FELLOWSHIPS

### SMITHSONIAN INSTITUTION FELLOWSHIP PROGRAM

**GRADUATE STUDENT, PRE-, POST-, AND SENIOR POSTDOCTORAL FELLOWSHIPS** in American history and material culture, anthropology, biological sciences, earth sciences, history of art, history of science and technology. Tenable in residence at the Smithsonian and its research facilities. Stipends and tenures vary. Deadline: January 15th annually. Contact: **Smithsonian Institution, Office of Fellowships and Grants, 955 L'Enfant Plaza, Suite 7300, Desk N, Washington, DC 20560. Telephone: 202-287-3271. Awards are based upon merit, without regard to race, color, religion, sex, national origin, age, or condition of handicap of applicant.**

## FELLOWSHIPS

### SURGICAL ONCOLOGY FELLOWSHIP HARVARD-AFFILIATED TEACHING HOSPITALS

Two NIH-funded Surgical Oncology Research Fellowships are available July, 1989.

Eligibility: (i) Surgical residents who have completed at least 2 years of residency training. (ii) Chief residents in surgery and recently graduated Board-eligible surgeons wishing to pursue academic careers in surgical oncology.

Training Facilities: This fellowship is based at the New England Deaconess Hospital, The Dana-Farber Cancer Institute, and other Harvard-affiliated teaching hospitals and their research institutions.

The 2-year fellowship will provide intensive research training in oncology, immunology and tumor biology. Graduate courses at Harvard Medical School will supplement the laboratory experience. Formal clinical rotations in medical and radiation oncology will provide multidisciplinary exposure.

Competitive salary is commensurate with level of training and experience. Applicants interested in this fellowship are invited to send their curriculum vitae to:

**Department of Surgery  
Attention: Surgical Oncology Fellowship  
New England Deaconess Hospital  
110 Francis Street, 3A  
Boston, MA 02215**

## FELLOWSHIPS

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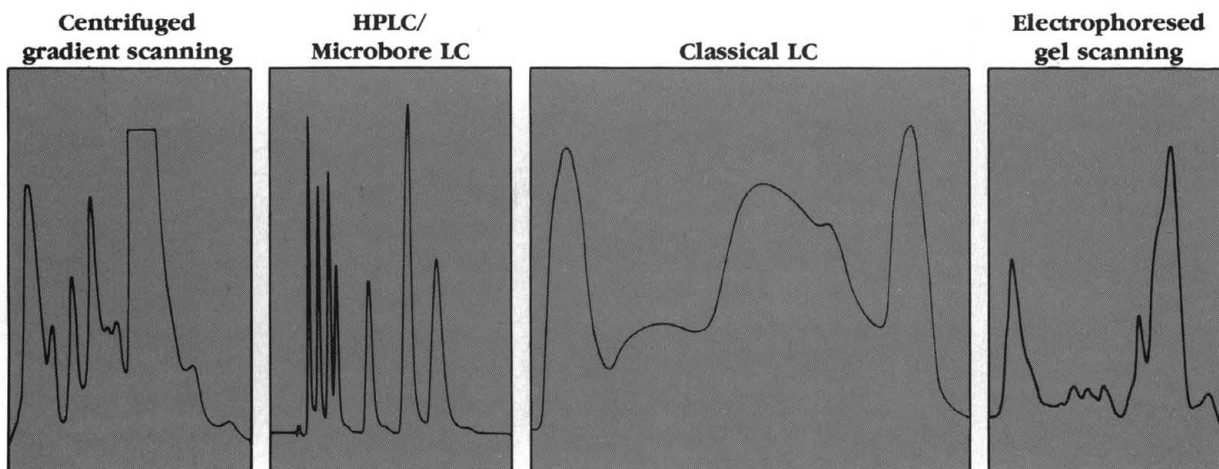
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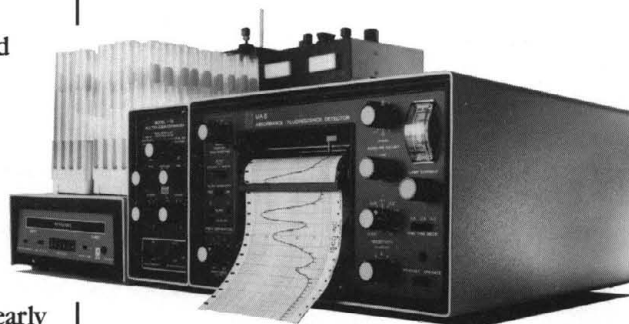
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