

The presentation of the "old" and "new" sociobiology and the examination of their significance for ethics are clear and stimulating.

Jerram Brown discusses cooperation and competition as the paradoxical goals of cells and organisms. Much of the discussion is interesting, but the view that cooperation and competition are the sources of morals and ethics is questionable and the focus on the major histocompatibility complex and its potential role in mate selection is confusing and seems wildly speculative.

Colin Beer provides a fascinating exploration of intentionality but skirts the ethical issues that this topic raises and that are mentioned in his introduction and conclusion—that is, the issue of animal rights and the relationship between sentience and humane treatment of animals. A discussion of these issues might well have been included in a monograph on ethical concerns of particular relevance to neuroscience.

The final chapter, by Pfaff, broaches the topic of a neurobiologically determined and therefore universal ethical principle but concludes with an oversimplified analysis of the components of ethical behavior determined by such an ethical principle. Yet the idea that human values have neurobiological origins and the idea, suggested by Caplan, that there may be biologically determined limits that could realistically constrain ethical ideals, should be investigated further.

This volume only partly fulfills the goal set forth in the introductory chapter, "to include informed discussions of the most difficult theoretical problems and statements of the theoretical opportunities encountered at the interface between ethics and modern neurobiology." Some of the thorniest and most compelling topics that occur to a neuroscientist reflecting on potential ethical ramifications of the work in this field are not mentioned in the book. Such issues include not only the use of animals in pain research but also the role that social values and assumptions play in determining the direction of research and in influencing the perception and interpretation of data, and the potential for producing false expectations and spurious treatments for mental illness and social ills that emphasis on neurobiological factors to the exclusion of psychological and social ones can create.

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## Adaptive Strategies

**Behavioral Energetics.** The Cost of Survival in Vertebrates. Papers from a colloquium, Columbus, Ohio, Oct. 1980. WAYNE P. ASPEY and SHELDON I. LUSTICK, Eds. Ohio State University Press, Columbus, 1983. xii, 300 pp., illus. \$27.50. Ohio State University Biosciences Colloquia.

This book is a collection of nine papers derived from a colloquium. It is dedicated to the memory of William Keeton, whose death in August 1980 prevented his participation in the colloquium. The contributions reflect the goals of the editors to synthesize information from ethology, ecology, and physiology as it relates to energetics and adaptations of vertebrates. The various chapters are organized about three survival strategy themes: "making your way," "reproduction and aggression," and "cost-benefits of temperature regulation and foraging."

The book is a readable synthesis of literature that will interest both specialists and students. It includes information touching on many of the topics suggested by the title: energy budgets for growth and metabolism, reproductive strategies, territoriality, costs of aggression, energetic consequences of ectothermy and endothermy, activity and foraging energetics, optimal foraging, feeding behavior, heat balance and thermoregulation. There is in it a reasonably satisfying blend of theory, mathematical models, and empirical data, but the blending and the level of analysis vary greatly from paper to paper. Some of the papers are reviews and others are case studies, and two of the contributions do not directly address the subject of energetics. Thus Melvin Kreithen's paper is strictly a descriptive review of orientation and navigation mechanisms in birds, and Cathleen Cox analyzes costs of breeding attempts by elephant seals solely on the basis of behavioral data.

Two ideas are held to be centrally important by the editors and are reflected in various of the contributions. One is the value of integration of disciplines such as ecology, ethology, and physiology for understanding the survival strategies of animals. In this regard Harvey Pough's chapter is perhaps the strongest and most eloquent contribution. He discusses how ectothermy and the metabolic organization of amphibians and reptiles account for ways in which their behavioral ecology differs from that of endothermic birds and mammals. Amphibians and reptiles are generally adapted to low energy flux but high efficiency of biomass production. Pough's discus-

sion of this subject is a masterly synthesis of mechanistic physiology (which is scant among the other chapters), descriptive life history, ecology, and behavior throughout which the focus remains clearly on energetics.

The second idea is that animals that obtain food, avoid predators, and reproduce at the least cost of energy can be considered the most fit. Many of the authors appear to accept this hypothesis, yet the papers provide little conclusive evidence that economy of energy expenditure does maximize fitness. Some have a good handle on measures of fitness but no correlative data on energetics, and others present comparisons of energy costs but lack correlative measures of fitness. In either case, there is little or no discussion of whether or not a population or species is actually energy-limited. Natural selection, of course, favors whatever works. An energetically costly mode ought to "work" if the necessary energy is freely available, and the availability of energy would therefore seem to be as important a consideration as are the energy costs that are emphasized in this book.

The measurements and estimates of energy costs (or gains) discussed throughout the book include some interesting and sometimes new information. John Brett's analysis of salmon energetics presents energy budgets for each stage of the life cycle. This level of detail is evidently attempted here for the first time. In broadest overview, however, much of the information in this book is already available or familiar. It is disappointing that the book includes no contribution from anyone using radioisotopes to measure field metabolic rates, for the use of this technique is fostering a substantial growth of meaningful energetics analyses for animals in natural settings.

The book is attractively printed, has an index, and contains only a few typographical errors. The small number of editorial deficiencies include the presence of jargon ("lab" for laboratory), tense switching within paragraphs, a few ponderous statements, and incorrect equations (equating units of temperature with units of heat flux).

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## Books Received

**Assessing the Impacts of Information Technology.** Hope to Escape the Negative Effects of an Information Society by Research. Norbert Szyperski et al., Eds. Vieweg, Braunschweig, Germany, 1983 (U.S. (Continued on page 631))

## BOOKS RECEIVED

(Continued from page 596)

- distributor, Heyden, Philadelphia). x, 210 pp. Paper, \$25.50. Program Applied Informatics.
- Atomic and Molecular Physics of Controlled Thermonuclear Fusion.** Charles J. Joachain and Douglass E. Post, Eds. Plenum, New York, 1983. x, 576 pp., illus. \$79.50. NATO Advanced Science Institutes Series B, vol. 101. From an institute, Santa Flavia, Italy, July 1982.
- Atomic Physics 8.** Ingvar Lindgren, Arne Rosén, and Sune Svanberg, Eds. Plenum, New York, 1983. xii, 592 pp., illus. \$79.50. From a conference, Göteborg, Sweden, Aug. 1982.
- Attribute Sampling Plans, Tables of Tests and Confidence Limits for Proportions.** Robert E. Odeh and D. B. Owen. Dekker, New York, 1983. xii, 368 pp. \$69.75. Statistics, vol. 49.
- Austenitic Steels at Low Temperatures.** R. P. Reed and T. Horiuchi, Eds. Plenum, New York, 1983. xii, 388 pp., illus. \$62.50. Cryogenic Materials Series. From a conference, Kobe, Japan, May 1982.
- The Australopithecine Face.** Yoel Rak. Academic Press, New York, 1983. xvi, 169 pp., illus. \$45.
- BASIC Numerical Mathematics.** J. C. Mason, Butterworths, Boston, 1983. xii, 143 pp., illus. Paper, \$19.95.
- The Behavior and Ecology of the African Buffalo.** Mark J. Mloszewski. Cambridge University Press, New York, 1983. x, 256 pp., illus. \$37.50.
- The Coast of Puget Sound.** Its Processes and Development. John Downing. Washington Sea Grant, Seattle, 1983 (distributor, University of Washington Press, Seattle). xiv, 126 pp., illus. Paper, \$8.95. Puget Sound Books.
- Coastal Lagoons.** Pierre Lasserre and Hank Postma, Eds. C.D.R.-Centrale des Revues, Montrouge, France, 1983. 463 pp., illus. Paper, 465 F. *Oceanologica Acta*, vol. spécial, Dec. 1982. From a symposium, Bordeaux, Sept. 1981.
- Color.** Essence and Logic. Rolf G. Kuehni. Van Nostrand Reinhold, New York, 1983. vi, 138 pp., illus. \$17.50.
- Color Vision in Clinical Pharmacology.** Norbert Rietbrock and Barry G. Woodcock, Eds. Vieweg, Braunschweig, Germany, 1983 (U.S. distributor, Heyden, Philadelphia). vi, 118 pp., illus. Paper, \$15. Methods in Clinical Pharmacology, No. 4. From a symposium, Frankfurt/Main, Germany.
- Colour Science in Television and Display Systems.** W. N. Sproson. Hilger, Bristol, 1983 (U.S. distributor, Heyden, Philadelphia). xiv, 222 pp., illus. \$36.
- The Commodore Puzzle Book.** BASIC Brainteasers. Gordon Lee and Nevin B. Scrimshaw. Birkhäuser, Boston, 1983. x, 125 pp., illus. Paper, \$7.95.
- The Commodore 64 Music Book.** A Guide to Programming Music and Sound. James Vogel and Nevin B. Scrimshaw. Birkhäuser, Boston, 1983. x, 130 pp., illus. Paper, \$14.95.
- Comparative Ophthalmic Pathology.** Robert Louis Peiffer, Jr., Ed. Thomas, Springfield, Ill., 1983. xiv, 359 pp., illus. \$60.
- Concepts in Pediatric Neurosurgery.** Vol. 4. Robin P. Humphreys, Ed. Karger, Basel, 1983. xiv, 392 pp., illus. \$139. From a meeting, Barbados, 1983.
- Conference on Differential Geometric Methods in Theoretical Physics.** (Trieste, June 1981.) G. Denardo and H. D. Doebner, Eds. World Scientific, Singapore, 1983 (U.S. distributor, Heyden, Philadelphia). vi, 294 pp., illus. \$33.
- Consciousness Regained.** Chapters in the Development of Mind. Nicholas Humphrey. Oxford University Press, New York, 1983. xii, 222 pp., illus. \$24.95.
- Contributions to Botany.** Studies in Plant Geography, Phylogeny and Evolution, Ethnobotany and Dendrological and Horticultural Botany. Hui-Lin Li. Epoch, Taipei, Taiwan, 1982. 527 pp., illus. \$24.50.
- The Counterfeit Ark.** Crisis Relocation for Nuclear War. Jennifer Leaning and Langley Keyes, Eds. Ballinger (Harper and Row), Cambridge, Mass., 1984. xxvi, 337 pp. \$29.95; paper, \$11.95. A Physicians for Social Responsibility Book.
- Developments in the Theory of Turbulence.** D. C. Leslie. Clarendon (Oxford University Press), New York, 1983. xx, 368 pp. Paper, \$24.95. Reprint, 1973 ed.
- Diving and Asphyxia.** A Comparative Study of Animals and Man. Robert Elsner and Brett Gooden. Cambridge University Press, New York, 1983. x, 168 pp., illus. \$49.50. Monographs of the Physiological Society no. 40.
- Dorsal Ventricular Ridge.** A Treatise on Forebrain Organization in Reptiles and Birds. Philip S. Ulinski. Wiley-Interscience, New York, 1983. xvi, 284 pp., illus. \$39.95. Wiley Series in Neurobiology.
- Double Flowers.** A Scientific Study. Joan Reynolds and John Tampion. Scientific and Academic Editions (Van Nostrand Reinhold), New York, 1983. 183 pp., illus. \$22.50.
- Ecology and Evolution.** M. S. Mani. Satish, Motikatra, Agra, India, 1983. viii, 256 pp. Rs. 175.
- Equilibria, Nonequilibria, and Natural Waters.** Riccardo M. Pytkowicz. Wiley-Interscience, New York, 1983. Two volumes. Vol. 1, xvi, 351 pp., illus. \$49.95; vol. 2, xviii, 353 pp., illus. \$49.95.
- Equilibrium in the Balance.** A Study of Psychological Explanation. Sophie Haroutunian. Springer-Verlag, New York, 1983. xviii, 157 pp., illus. \$23.50. Springer Series in Cognitive Development.
- L'Esprit des Protéines.** Histoire et Philosophie Biochimiques. Claude Debru. Hermann, Paris, 1983. xvi, 365 pp. Paper, 96 F.
- Essentials of Human Biochemistry.** C. R. Paterson. Pitman, London, 1983 (U.S. distributor, Urban & Schwarzenberg, Baltimore). x, 275 pp., illus. Paper, \$15.50.
- Ether Lipids.** Biochemical and Biomedical Aspects. H. K. Mangold and F. Paltauf, Eds. Academic Press, New York, 1983. xviii, 439 pp., illus. \$58.
- Ethopharmacology.** Primate Models of Neuropsychiatric Disorders. Klaus A. Miczek, Ed. Liss, New York, 1983. xii, 338 pp., illus. \$56. Progress in Clinical and Biological Research, vol. 131. From a symposium, Atlanta, Aug. 1982.
- Evolutionary Biology.** Vol. 16. Max K. Hecht, Bruce Wallace, and Ghilleen T. Prance, Eds. Plenum, New York, 1983. xiv, 499 pp., illus. \$49.50.
- Fundamentals of Theoretical Physics.** I. V. Savelyev. Mir, Moscow, 1982 (U.S. distributor, Imported Publications, Chicago). Two volumes. Vol. 1, Mechanics, Electrodynamics. 424 pp., illus. Vol. 2, Quantum Mechanics. 368 pp. \$16.95. Translated from the Russian edition (Moscow, 1975 and 1977) by G. Leib.
- General Topology.** Mangesh G. Murdeshwar. Halsted (Wiley), New York, 1983. xii, 369 pp. \$19.95.
- Genetic Aspects of Plant Nutrition.** M. R. Sarić and B. C. Loughman, Eds. Nijhoff, The Hague, 1983 (U.S. distributor, Kluwer Boston, Hingham, Mass.). x, 495 pp., illus. \$85. Developments in Plant and Soil Sciences, vol. 8. From a symposium, Belgrade, Aug. 1982.
- The Genetics and Biology of Drosophila.** Vol. 3c. M. Ashburner, H. L. Carson, and J. N. Thompson, Jr., Eds. Academic Press, New York, 1983. xx, 428 pp. + index. \$86.
- Genetics, Evolution, and Disease.** Dennis H. O'Rourke, Gloria M. Petersen, and Francis E. Johnston, Eds. Liss, New York, 1983. viii, 127 pp., illus. \$29. Also published in *American Journal of Physical Anthropology*, vol. 62, No. 1. From symposia, Eugene, Ore., April 1982.
- Genetics of Influenza Viruses.** Peter Palese and David W. Kingsbury, Eds. Springer-Verlag, New York, 1983. xvi, 360 pp., illus. \$55.
- Glacial-Marine Sedimentation.** Bruce F. Molnia, Ed. Plenum, New York, 1983. x, 844 pp., illus. \$65.
- Glassy Metals II.** Atomic Structure and Dynamics, Electronic Structure, Magnetic Properties. H. Beck and H.-J. Güntherodt, Eds. Springer-Verlag, New York, 1983. xvi, 395 pp., illus. \$44. Topics in Applied Physics, vol. 53.
- Globin Gene Expression and Hematopoietic Differentiation.** George Stamatoyannopoulos and Arthur W. Nienhuis, Eds. Liss, New York, 1983. xx, 548 pp., illus. \$120. Progress in Clinical and Biological Research, vol. 134. From a conference, Orcas Island, Wash., Sept. 1982.
- Good Thinking.** The Foundations of Probability and Its Applications. I. J. Good. University of Minnesota Press, Minneapolis, 1983. xviii, 333 pp. \$35; paper, \$14.95.
- Hormones and Behaviour in Higher Vertebrates.** J. Balthazart, E. Prové, and R. Gilles, Eds. Springer-Verlag, New York, 1983. xiv, 489 pp., illus. \$55. Proceedings in Life Sciences. From a conference, Bielefeld, Germany, Sept. 1982.
- How to Delegate.** A Guide to Getting Things Done. Herbert M. Engel. Gulf Publishing, Houston, 1983. viii, 254 pp. \$15.95.
- Human Carcinogenesis.** Curtis C. Harris and Herman N. Autrup, Eds. Academic Press, New York, 1983. xxiv, 986 pp., illus. \$69.50.
- Human Sexuality in Perspective.** Richard A. Maier. Nelson-Hall, Chicago, 1984. xx, 556 pp., illus. \$22.95.
- Human Tumor Markers.** Biological Basis and Clinical Relevance. Herbert E. Nieburgs, Georg D. Birkmayer, and Janis V. Klavins, Eds. Liss, New York, 1983. viii, 337 pp., illus. \$56. From a conference, Munich, June 1982.
- The Infancy of Atomic Physics.** Hercules in His Cradle. Alex Keller. Clarendon (Oxford University Press), New York, 1983. x, 230 pp., illus. \$18.95.
- Infrared and Millimeter Waves.** Vol. 8. Electromagnetic Waves in Matter, Part 1. Kenneth J. Button, Ed. Academic Press, New York, 1983. xvi, 435 pp., illus. \$65.
- Metal Ions in Biological Systems.** Vol. 16, Methods Involving Metal Ions and Complexes in Clinical Chemistry. Helmut Sigel, Ed. Dekker, New York, 1983. xviii, 397 pp., illus. \$75.
- Microprocessors in Signal Processing, Measurement and Control.** Syrrros G. Tzafestas, Ed. Reidel, Boston, 1983 (distributor, Kluwer Boston, Hingham, Mass.). xiv, 442 pp., illus. \$59. International Series on Microprocessor-Based Systems Engineering.
- Modeling, Simulation and Parameter-Estimation of the Human Cardiovascular System.** Dietmar Möller, Dobrivoje Popović, and Georg Thiele. Vieweg, Braunschweig, Germany, 1983 (U.S. distributor, Heyden, Philadelphia). viii, 253 pp., illus. Paper, \$36. Advances in Control Systems and Signal Processing, vol. 4.
- Modern Synthetic Methods.** Vol. 3 Transition Metals in Organic Synthesis. R. Scheffold, Ed. Wiley, New York, 1983. vi, 440 pp., illus. Paper, \$33.95. From a conference, Interlaken, Switzerland, May 1983.
- Molecular Approaches to Evolution.** Jacques Ninio. Princeton University Press, Princeton, N.J., 1983. vi, 133 pp., illus. \$25; paper, \$12.50. Translated from the French edition (Paris, 1979) by Robert Lang.
- Molecular Biology of Mutagens and Carcinogens.** B. Singer and D. Grunberger. Plenum, New York, 1983. xii, 347 pp., illus. \$37.50.
- Prediction and Regulation by Linear Least-Square Methods.** P. Whittle. 2nd ed. University of Minnesota Press, Minneapolis, 1983. xvi, 187 pp., \$29.50; paper, \$12.95.
- Presenting Science to the Public.** Barbara Gastel. ISI Press, Philadelphia, 1983. xii, 146 pp., illus. \$17.95; paper, \$11.95. The Professional Writing Series.
- Primary Immunodeficiency Diseases.** Ralph J. Wedgwood *et al.*, Eds. Liss, New York, 1983. xviii, 370 pp., illus. \$78. Birth Defects: Original Article Series, vol. 19, No. 3. From a workshop, Orcas Island, Wash., Sept. 1982.
- Priorities in Research.** John Kendrew and Julian H. Shelley, Eds. Excerpta Medica, Amsterdam, 1983 (U.S. distributor, Elsevier, New York). xxvi, 191 pp. \$54. From a symposium, Kronberg, Taunus, Germany, May 1982.
- Producer Gas.** Another Fuel for Motor Transport. National Academy Press, Washington, D.C., 1983. viii, 101 pp., illus. Paper.
- Quantum Metrology and Fundamental Physical Constants.** Paul H. Cutler and Amand A. Lucas, Eds. Plenum, New York, 1983. xii, 658 pp., illus. \$95. NATO Advanced Science Institutes Series B, vol. 98. From an institute, Erice, Sicily, Italy, Nov. 1981.
- The Soviet Union Today.** An Interpretive Guide. James Cracraft, Ed. University of Chicago Press, Chicago, 1983. x, 348 pp. Paper, \$9.95. Reprinted from *Bulletin of the Atomic Scientist*.
- Spires of Form.** Glimpses of Evolution. Victor B. Scheffer. University of Washington Press, Seattle, 1983. viii, 152 pp., illus. \$13.95.
- The Starship and the Canoe.** Kenneth Brower. Harper and Row, New York, 1983. 270 pp., illus. Paper, \$5.95. Reprint, 1978 ed.
- Structural Crashworthiness.** Norman Jones and Tomasz Wierzbicki, Eds. Butterworths, Boston, 1983. xx, 443 pp., illus. \$89.95. From a symposium, Liverpool, Sept. 1983.
- Superstition and the Press.** Curtis D. MacDougall. Prometheus, Buffalo, N.Y., 1983. xii, 616 pp. \$29.95; paper, \$16.95.
- Surface Physics.** M. Prutton. 2nd ed. Clarendon (Oxford University Press), New York, 1983. xii, 138 pp., illus. \$24.95. Oxford Physics Series, 11.
- T Lymphocytes Today.** J. R. Inglis, Ed. Elsevier, New York, 1983. viii, 194 pp., illus. Paper, \$19.50. Reprinted from *Immunology Today*.
- TEQC83.** T. Feest, Ed. Butterworths, Boston, 1983. vi, 342 pp., illus. Paper, \$34.95. From a conference, Guildford, England, Sept. 1983.
- Taming the Atom.** Facing the Future with Nuclear Power. Ian Blair. Hilger, Bristol, 1983 (U.S. distributor, Heyden, Philadelphia). x, 247 pp., illus. Paper, \$11.50.
- The Thunderstorm in Human Affairs.** Edwin Kessler, Ed. 2nd ed. University of Oklahoma Press, Norman, 1983. xiv, 186 pp., illus. \$24.95. Thunderstorms: A Social, Scientific, and Technological Documentary, vol. 1.
- Timescape.** An Atlas of the Fourth Dimension. Nigel Calder. Viking, New York, 1983. 288 pp., illus. \$19.95.
- Treating Child-Abusive Families.** Intervention Based on Skills-Training Principles. Jeffrey A. Kelly. Plenum, New York, 1983. xiv, 220 pp. \$22.50. Applied Clinical Psychology.
- Tumor Viruses and Differentiation.** Edward M. Scolnick and Arnold J. Levine, Eds. Liss, New York, 1983. xxii, 454 pp., illus. \$88. UCLA Symposium on Molecular and Cellular Biology, New Series, vol. 5. From a symposium, Squaw Valley, Calif., March 1982.

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Applications are invited for a tenure-track position beginning 1 July 1984. Candidates are expected to conduct independent fundable research utilizing cell and molecular approaches to biological structure-function relationships. Experience in TEM, SEM, and immunocytochemistry are highly desirable. Preference will be considered for individuals with keen interest and ability in teaching histology to medical students (11 weeks) or dental students (15 weeks) and a graduate course. For fullest consideration, applicants should submit curriculum vitae, a brief statement of research and teaching interests, and request three letters of recommendation to be sent directly to: **Chairman, Search Committee, Department of Anatomy, Indiana University School of Medicine, 635 Barnhill Drive, Indianapolis, Indiana 46223.** Application deadline: 1 June 1984. *An Equal Opportunity/Affirmative Action Employer*

## THE UNIVERSITY OF CALGARY DEPARTMENT OF BIOLOGY

The University of Calgary invites applications for a 3-year limited term position at the **ASSISTANT PROFESSOR** level in the **Department of Biology**. The successful candidate will be expected to develop an active research program in the area of cellular/molecular biology of microbial eukaryotes, to teach an undergraduate course in cell biology, and to participate in biotechnology and molecular genetics laboratory teaching. Applicants must have postdoctoral experience and strong credentials in molecular biology. Preference will be given to those with experience in recombinant DNA techniques.

The appointment will be open as of 1 January 1985, with an expected starting salary in the range of \$29,700 to \$35,000 per annum, based on the 1983-1984 scale.

*In accordance with Canadian immigration requirements, this advertisement is directed to Canadian citizens and permanent residents of Canada.*

Applicants are requested to submit complete curriculum vitae and to have three letters of academic reference forwarded by 1 September 1984 to:

**Dr. R. W. Davies  
Department of Biology  
The University of Calgary  
2500 University Drive, NW  
Calgary, Alberta, Canada T2N 1N4**

**ASSISTANT PROFESSOR.** The neurobiologic research group of the Yale University Department of Psychiatry is seeking applications for a position to begin after 1 October 1984. Applicants must have at least 2 years of postdoctoral training. Experience with biochemical studies on brain dopamine systems including interactions with neuropeptides and other neurotransmitters is preferred. Applicants should show promise of being able to initiate and conduct an independent research program studying the interaction of brain dopamine systems with neuropeptides. Some teaching is expected. Applicants should submit complete curriculum vitae to:

**Boris Astrachan, M.D., Deputy Chairman  
Department of Psychiatry  
Yale University  
34 Park Street  
New Haven, Conn. 06508**

*An Equal Opportunity/Affirmative Action Employer*

**FACULTY POSITION IN  
QUANTITATIVE SILVICULTURE  
COLLEGE OF FOREST RESOURCES  
UNIVERSITY OF WASHINGTON**

Applications are invited for a 12-month, tenure-track appointment at the assistant professor rank beginning 1 September 1984. Qualifications include a Ph.D. with research emphasis on analysis and modeling of growth of commercially important trees. Applicant should have a background in forestry, ecology, and quantitative methods including mathematics, statistical analysis, experimental design, and systems analysis. Applicant should also have a demonstrated interest in application of quantitative methods to silvicultural problems, and the ability to synthesize biological information and theory into models of forest growth. Although the college is seeking a person at the assistant professor rank, under unusual circumstances and commensurate with the qualifications of the individual, appointment may be made at a higher rank.

The successful candidate will be expected to develop an externally funded program of research on effects of stand management on forest growth. This program should complement existing research programs in forest nutrition and young-growth stand management. The incumbent will also be expected to play an active role in the newly organized Stand Management Cooperative. Teaching responsibilities will include graduate and undergraduate instruction and participation in the college continuing education program.

Please submit curriculum vitae, recent reprints and/or manuscripts, and three letters of reference to:

**Professor Charles C. Grier  
College of Forest Resources, AR-10  
University of Washington  
Seattle, Wash. 98195**

Closing date for applications is 30 June 1984.

*The University of Washington is an Affirmative Action/Equal Opportunity Employer. Qualified women and minorities are urged to apply.*

## PHARMACEUTICAL FORMULATOR

S. C. JOHNSON & SON, INC. has an opening in Pharmaceutical Formulation and Development for a Pharmaceutical Formulator.

The person selected will join a small group responsible for providing scientific support of our newly formed OTC subsidiary, Rydelle Laboratories. To be considered, the candidate should have an advanced degree (Ph.D./MS) in a chemical or pharmaceutical industry, and knowledge of one or more of the following: preformulation/formulation of liquid or solid dosage forms, GLP/GMP, biopharmaceuticals. A high degree of independence and energy is essential.

This position offers the opportunity to significantly affect the development of a new pharmaceutical company, a competitive salary, and an excellent benefits program including cash and deferred profit sharing programs.

For confidential consideration forward detailed resume to Mr. R. H. Kastler, Personnel Manager -Racine, S. C. JOHNSON & SON, INC., 1525 Howe Street, Racine, WI 53403.

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An Equal Opportunity Employer M/F

SERI is a division of Midwest Research Institute, and is the nation's primary federal laboratory for basic and applied research in solar energy. We are now considering applications for a key position within our organization.

# Director Solar Fuels Research Division

The person chosen will lead a division concerned with the production and conversion of biomass into fuels and the direct use of solar energy through its photo-conversion into potential energy. The major responsibility is management of an integrated research program that includes both in-house and contracted work.

Candidates must have a Ph.D. or equivalent background in either physical, biological or engineering sciences. In addition, we require demonstrated experience that includes recognized contributions in applying biological sciences and related new concepts in the production of fuels. Sound leadership ability and substantial managerial experience, preferably in the industrial sector, are also needed.

The position offers:

- outstanding opportunities for professional development and recognition

- competitive salary and benefits
- relocation assistance

Please send your resume and salary requirements to:

**M.J. Webb, E230-490  
Manager, Human Resources Office  
Solar Energy Research Institute  
1617 Cole Boulevard  
Golden, Colorado 80401**



**Solar Energy Research Institute**

Equal Opportunity Employer

## MANAGER DIAGNOSTIC CLINICAL RESEARCH

Marion Laboratories, Inc., currently has an outstanding opportunity available in our Research and Development Department for a Manager of Diagnostic Clinical Research. This key position will be located at our Marion Park facility in Kansas City, Mo.

Primary responsibilities will be to manage and participate in the design, implementation, monitoring of and evaluation of multiple site clinical trials to demonstrate the efficacy of in vitro diagnostic products.

The successful candidate will have a PhD in microbiology, immunology, virology or parasitology with at least 4 years of experience. This individual must possess superior oral and written communication skills. Strong human relations skills, supervisory skills, and the ability to effectively interface with all levels of management are absolutely necessary.

We offer an excellent total compensation and benefits package including stock options, profit sharing, comprehensive group health, dental and life insurance benefits. Please send a detailed resume including salary history, in confidence, to:

Recruiting & Placement  
Dept. CJM



MARION LABORATORIES, INC.

10236 Bunker Ridge Road  
Kansas City, Missouri 64137

An Equal Opportunity Employer M/F

## UNUSUAL OPPORTUNITY FOR A TOXICOLOGIST Ph.D. & Senior Research Scientist AT BRISTOL-MYERS

### OPPORTUNITY

You'll head a team responsible for acute, subacute, dose range finding, and certain chronic toxicity studies, including protocol design, conducting, interpreting, and reporting research results. Requires a Ph.D. in toxicology and at least three years' experience in a pharmaceutical company or contract laboratory serving the pharmaceutical industry.

### INNOVATION

Bristol-Myers, a world-wide leader in research and development, has a strong heritage of accomplishments and a strong future. Our uninterrupted growth is the direct result of our innovation. Our operating style encourages personal creativity and contribution and we're thoroughly professional.

### LOCATION

This unit of Bristol-Myers is located at Mead Johnson in Evansville, Indiana, a community of beautiful residential areas, outstanding recreational opportunities, exceptional education and cultural facilities, and more. Best of all, Evansville couples the advantages of southern economy with the changing beauty of four-season living.

To investigate these reasons for joining Bristol-Myers Research is to discover a wealth of others: Excellent salaries, superb benefits, including paid relocation, and real growth, both personal and professional. Discover us! When it comes to your career, no one can offer more!

Send resume in confidence to: Employment Dept. 6L08, Bristol-Myers Research Recruitment, Mead Johnson & Company, Evansville, IN 47721.

An Equal Opportunity Employer M/F/H/V



## POSITIONS OPEN

**ASSISTANT/ASSOCIATE PROFESSOR** (tenure-track), **DEPARTMENT OF MEDICINE, STANFORD.** The Division of Oncology will be appointing a laboratory based medical oncologist at Stanford. We are searching for an individual with independent research capability and a record of productivity, preferably in the areas of molecular biology as it relates to viral oncology, immunology, genetics, or chemotherapy of neoplasia. In addition, this individual will be expected to participate in teaching programs and patient care in medical oncology. Send résumé including bibliography and summary of research goals to: **Dr. Ronald Levy, Chairman, Search Committee, Division of Oncology, Stanford University School of Medicine, Room SO25, Stanford, California 94305.** *Stanford is an Equal Opportunity Employer and welcomes nominations of women and minority group members and applications from them.*

### ASSISTANT PROFESSOR OF PHARMACOLOGY AND TOXICOLOGY

Applications are invited for a faculty position available September 1984. Qualifications include a doctoral degree, significant postdoctoral experience, a demonstrated commitment to research, and potential for establishing a quality research program. Candidates with training in any area of pharmacology will be considered with special consideration given to those with a background in molecular pharmacology. Participation in departmental teaching programs. Application deadline: 30 June 1984. Send curriculum vitae and the names of three references to: **Albert E. Langley, Ph.D., Department of Pharmacology and Toxicology, Wright State University School of Medicine, Dayton, Ohio 45435.** *An Equal Opportunity/Affirmative Action Employer.*

### ASSISTANT/ASSOCIATE PROFESSOR OF PHYSIOLOGY

A tenure-track position is open in the Department of Physiology in the School of Medicine, University of Missouri-Columbia. The successful applicant is expected to establish an independent laboratory for cardiovascular research at the cellular, membrane, biophysical, or molecular level. The department currently has seven laboratories conducting cardiovascular research with ample opportunity for interaction. Other duties will include teaching in the medical physiology course and at the advanced graduate level. Deadline for submission is 15 June 1984. Send curriculum vitae and list of three references to:

**Allan W. Jones, Chairman  
Department of Physiology  
University of Missouri School of Medicine  
M411 Medical Sciences Building  
Columbia, Missouri 65212**

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

### ASSISTANT RESEARCH PROFESSOR

Applicants are invited for an assistant research professorship (nontenure track) available immediately. Applicant should have postdoctoral experience in cardiovascular physiology. Level of salary commensurate with education and experience. Applicants should submit a letter of application, curriculum vitae, and names of three individuals to serve as references. Reply to:

**Edward P. Todd, M.D., Ph.D., Chairman  
Division of Cardiovascular and Thoracic Surgery  
University of Kentucky Medical Center  
Lexington, Kentucky 40536**

*The University of Kentucky is a nondiscriminatory, Affirmative Action Employer.*

**ASSISTANT SCIENTIST/GEOSTATISTICIAN.** Ph.D., D.Sc., D.E., or equivalent in earth sciences; 5 years of experience with emphasis in regionalized variable theory and fluid flow, as in reservoir engineering or hydrology. Strong background in mathematics, computer applications, and quantitative analysis, particularly sampling theory. Record of scientific publications. Develop and conduct independent geostatistical research programs using geostatistical methods. Faculty-equivalent career position with initial 1-year appointment, subject to job security and review policies of the University of Kansas. Annual salary: \$35,000. Contact: **Job Service Center, 833 Ohio, Lawrence, Kans. 66044.** Telephone: 913-843-0531. Refer to Job Order 929347. *Equal Opportunity/Affirmative Action Employer.*

# L A CHANCE EST AVEC VOUS

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## RECHERCHE PHARMACEUTIQUE

vous convie à participer à la forte expansion de nos Laboratoires, conséquence logique d'une recherche créative, soutenue par des moyens en hommes et matériels que beaucoup nous envient.

C'est en

## PHARMACOLOGIE

que nos besoins sont les plus urgents.

Des postes de

## DIRECTEURS

d'Unités sont à pourvoir mais nous sommes disposés à examiner toute candidature de haut niveau humain et scientifique qui nous parviendrait, y compris pour des fonctions voisines nécessitant une vaste culture scientifique.

Pour l'essentiel, notre Entreprise a ses bases à PARIS et sa région, mais notre rayonnement scientifique et commercial est mondial. Inutile de préciser que la rémunération est à la hauteur de nos exigences et de l'autonomie intellectuelle de nos chercheurs.

Prière envoyer lettre manuscrite rédigée en français, C.V. et photo, en précisant sur l'enveloppe la référence 6311, à Emplois et Carrières, 30 rue Vernet 75008 Paris.

# DIVISION OF RESEARCH RESOURCES NATIONAL INSTITUTES OF HEALTH PUBLIC HEALTH SERVICE DEPARTMENT OF HEALTH AND HUMAN SERVICES

The National Institutes of Health (NIH), Division of Research Resources (DRR) invites nominations and applications for the position of Health Scientist Administrator (Biomedical Sciences), GM-601-14 in the Biotechnology Resources Program Branch (BRP).

This is a Civil Service position with a salary range of \$42,722 to \$55,538 per annum.

The Biotechnology Resources Program Branch is responsible for the administration of a program currently supporting resource centers which serve as regional and national resources for the acquisition, development and maintenance of ultrasophisticated technologies including instruments, and application of the technologies to study biomedical research problems. The Health Scientist Administrator is responsible for the administration of assistance and procurement awards to the centers. The administrator conducts visits to grantee or potential grantee institutions, plans workshops, symposia and other *ad hoc* meetings, and serves as Executive Secretary of the Biotechnology Resources Review Committee.

Applicant must possess research experience in biomedical computer sciences or biomedical engineering, and meet the

minimum requirements for Health Scientist Administrator:

(a) Minimum educational requirements requires a Ph.D. (or equivalent) in a academic field of science allied to health or health related research, *plus*

(b) One year of experience in research program administration in which professional judgments require the application of scientific knowledge of health or health related research to plan, review, and evaluate research projects, and to access accurately the significance of results and progress accomplished.

Further information concerning the position and qualification requirements may be obtained by contacting Ms. Patheria A. Wiggins at (301) 496-1524. Applications (Personal Qualifications Statement, SF-171) accompanied by a current curriculum vitae and bibliography should be submitted to Ms. Wiggins at the DRR Personnel Office, National Institutes of Health, Building 31, Room 5B06, 9000 Rockville Pike, Bethesda, Maryland 20205. Applications should be post marked no later than May 31, 1984.

Applications from women and minority group members are especially solicited.

THE NATIONAL INSTITUTES OF HEALTH IS AN EQUAL OPPORTUNITY EMPLOYER.



## POSITIONS OPEN

**ASSISTANT OR ASSOCIATE PROFESSOR, VIROLOGY.** Tenure-track, full-time position now available for a tumor virologist. The Department of Microbiology of the Dental Branch, University of Texas Health Science Center at Houston, has a vacancy for an innovative person to establish and maintain a high-quality independent research program in any area of either DNA or RNA tumor virology. The department is an actively growing, research-oriented component of a major health science center, with opportunities for interaction with other programs on the campus. Teaching of graduate and undergraduate students will also be expected. The level of appointment will depend on training and experience. Applications should include curriculum vitae and brief statement of accomplishments and future goals. Closing date: 31 May 1984. Direct applications and inquiries to: **Dr. Edward J. Shillito, Chairman, Department of Microbiology, Dental Branch, University of Texas Health Science Center at Houston, P.O. Box 20068, Houston, Texas 77225. An Equal Opportunity Employer. Women and minorities are encouraged to apply.**

**ASSISTANT SCIENTIST**—Studies of complex nuclear reaction mechanisms. Skills require following experience: (i) design and operation of A = 1–80, Z = 1–35 nuclide identification systems involving < 100-picosecond fast timing and gas detectors, (ii) linear and logic electronics, (iii) interactive computer usage for acquisition and reduction of data, and (iv) theoretical analysis. Ph.D. with 3 years and 3 months of postdoctoral experience. Salary range: \$22,000 to \$25,000 per year. Send résumé and Social Security number to: **Indiana State Employment Service, 10 North Senate Avenue, Indianapolis, Indiana 46204; attention: W. F. Shepherd, I.D. Number 021335.**

### ASSOCIATE PROFESSOR OF RADIOLOGY (RESEARCH)

The Division of Radiobiology, Department of Radiology, Stanford University School of Medicine, invites applications for this position which will become available 1 September 1984. This is a non-tenured research appointment, with renewable terms of 6 years, coterminous with research support. Research in the Radiobiology Division is multifaceted, and is concerned primarily with the experimental investigation of major problems in clinical radiotherapy. Candidate must have experience and interest in the role of blood and the vascular system in modulating tissue/tumor radiosensitivity, and a graduate degree for work in a related field. Background is also desirable in cell kinetics and the use of cytotoxic chemotherapeutic drugs coupled with dose modifying agents. The candidate selected would bear operational responsibility for major research projects on combined modalities and on optimizing the oxygen carrying capacity of the blood relative to cancer therapy. *Stanford University is an Equal Opportunity Employer and welcomes nominations of women and minority group members and applications from them.* Qualified candidates should send complete curriculum vitae and the names and addresses of four references to:

**Dr. Robert F. Kallman, Director  
Radiobiology Division, AO-38  
Department of Radiology  
Stanford University Medical Center  
Stanford, California 94305**

**BIOLOGICAL COLLECTIONS MANAGER**—Temporary (9-month) appointment starting September 1984 (salary \$1400 per month) for management of research and teaching collections of modern plants, vertebrates, and mollusks, plus paleontologic collections in the latter two categories. Applicant must have a Ph.D. in an appropriate field, a good background in vascular plant or vertebrate taxonomy with basic knowledge in the alternate field. Collections management background is desirable. Duties include all areas of curation, handling of loans and inquiries, and some public relations. Submit curriculum vitae and have three letters of recommendation sent to: **A. H. Harris, Laboratory for Environmental Biology, University of Texas at El Paso, El Paso, Texas 79968. Closing date is 25 May 1984. The University is an Equal Opportunity/Affirmative Action Employer.**

**CELLULAR RADIOBIOLOGIST**—The newly formed Medical Research Council of Canada Group in the Radiation Sciences has an opening for an established cellular radiobiologist at the associate professor level. Send résumé to: **Dr. Etienne LeBel, Associate Dean of Research, University of Sherbrooke Medical Center, Sherbrooke, Quebec, Canada J1H 5N4.**

## POSITIONS OPEN

Assistant research scientist nontenured position is available for **BIOCHEMICAL TOXICOLOGIST** to carry out research on transition state inhibitors of hydrolytic enzymes. Ph.D. in entomology, biochemistry, toxicology, or related field. Background in biochemistry or toxicology essential. Experience in enzyme kinetics and isolation, organic synthesis, and QSAR analysis, and in vivo toxicity testing in vertebrate and insect systems desirable. Submit résumé, transcripts, list of publications, and names and addresses of at least three references to: **Bruce D. Hammock, Departments of Entomology and Environmental Toxicology, University of California, Davis, Calif. 95616, by 15 June 1984. Position available 1 July 1984. The University of California is an Affirmative Action/Equal Opportunity Employer.**

**BIOCHEMIST**—Faculty position. Salary \$30,402 to \$55,538 per annum, depending upon experience. Excellent opportunity to develop research laboratory in multidisciplinary neuroscience research group in neuropsychiatric hospital. Ph.D. who has demonstrated outstanding potential for independent research with postdoctoral experience and who is interested in working with clinician. Faculty appointment with Western Psychiatric Institute and Clinic, University of Pittsburgh, may be offered depending on experience and past performance. Send curriculum vitae, bibliography, and names of three references to: **D. P. van Kammen, M.D., Ph.D., Professor of Psychiatry, VA Medical Center, Highland Drive, Pittsburgh, Pa. 15206.**

**BIOCHEMISTRY**: Two tenure-track assistant professors effective from 1 September 1984. Postdoctoral experience and a commitment to teaching and research required. Research areas open, but preferences to neurochemistry and molecular/cell biology. **Application deadline: 1 July 1984.** Send résumé, research plans, summary of teaching experience, and at least three letters of recommendation to: **Chairman, Departmental Affairs Committee, Department of Biochemistry, Emory University, Atlanta, Ga. 30322. An Equal Opportunity/Affirmative Action Employer.**

### CHAIRPERSON DEPARTMENT OF MEDICINE

Applications and nominations are invited for the position of Professor and Chairperson, Department of Anatomy, University of South Carolina (USC) School of Medicine, Columbia, South Carolina. Candidates should have a record of scholarly activity, including excellence in teaching, preferably in gross anatomy, active research interests, and administrative and leadership skills. Applications and nominations will be accepted until 30 June 1984. Please submit to: **O'Neill Barrett, Jr., M.D., chairman, Anatomy Search Committee, USC School of Medicine, c/o Richland Memorial Hospital, ACC#2, Columbia, S.C. 29203. An Equal Opportunity/Affirmative Action Employer.**

**West Virginia University** invites applications and nominations for the position of **DEAN of the College of Agriculture and Forestry and Director of the Agricultural and Forestry Experiment Station.** The dean is responsible for all educational, research, extension and service programs of the college and experiment station. Qualifications include an earned doctorate, a record of academic and research excellence, a firm commitment to the mission of a comprehensive land grant university, and ability to communicate effectively with faculty, staff, students, and representatives of commodity groups. Demonstrated administrative leadership is desired. Applications including a résumé, other supporting material, and names of three references will be accepted until 15 July 1984. Nominations and applications should be addressed to: **Chairman of the Search Committee, School of Dentistry, Medical Center, West Virginia University, P.O. Box 6305, Morgantown, West Virginia 26506-6305.**

*West Virginia University is an Affirmative Action/Equal Opportunity Employer.*

**ENDOCRINOLOGY/NUTRITION**: Assistant professor in the Division of Comparative Medicine, University of Puerto Rico School of Medicine, with interest and expertise in endocrinology/nutrition of nonhuman primates. The successful candidate will establish an independent research program and collaborate with other faculty members on collaborative research projects. Applicants should send curriculum vitae, a brief summary of research interests, and the names of three references by 15 June 1984 to: **Director, Caribbean Primate Research Center, University of Puerto Rico, Medical Sciences Campus, P.O. Box 1053, Sabana Seca, P.R. 00749.**

## POSITIONS OPEN

**CHAIRPERSON, DEPARTMENT OF PSYCHIATRY.** Louisiana State University School of Medicine in Shreveport is seeking an individual with demonstrated ability in research, teaching, and clinical psychiatry to head an academic department with an approved residency training program in a growing medical center. Inquiries should be accompanied by curriculum vitae and the names of three references who may be contacted for reference letters and should be addressed to: **Gwendolyn R. Hogan, M.D., Department of Neurology, Louisiana State University Medical Center, P.O. Box 33932, Shreveport, La. 71130. Louisiana State University is an Affirmative Action/Equal Opportunity Employer.**

### CYTOGENETICIST

Immediate opening for a cytogeneticist to supervise our laboratory and establish and maintain quality control standards. Reporting to the medical director, the cytogeneticist oversees full-service cytogenetics laboratory, utilizing standard culture techniques and common banding procedures. M.D. or Ph.D. in genetics with 3 to 5 years of direct cytogenetics laboratory experience. Please send résumé and salary requirements to:

**Joyce Matrascia  
Employment Manager  
The Children's Medical Center  
One Children's Plaza  
Dayton, Ohio 45404**

*An Equal Opportunity/Affirmative Action Employer*

### TWO POSITIONS IN VIROLOGY DIVISION, DEPUTY CHIEF AND SECTION HEAD, MICHIGAN DEPARTMENT OF PUBLIC HEALTH

Qualifications include a doctoral degree in microbiology with education and/or experience in virology. Two years of postdoctoral training and/or experience required for section head and an additional year for deputy chief. Deputy chief is responsible for daily operation of public health virology laboratory. Section head is chief of viral isolation and identification. Salary range: \$29,000 to \$31,000. *Equal Opportunity/Affirmative Action Employer.* Send curriculum vitae to: **Dr. Bertina B. Wentworth, P.O. Box 30035, Lansing, Mich. 48909.**

### FACULTY POSITIONS IN MOLECULAR GENETICS

Applications are invited for a senior and a junior tenure-track faculty position in the Department of Microbiology. Candidates should have made significant accomplishments in research and should be prepared to maintain an active, independent research program in molecular genetics. It is anticipated that at least one of the positions will be filled by a person working in the prokaryotic area. Teaching responsibilities are limited, and include participation in courses for graduate and professional students. The department provides a stimulating scientific environment, and administers several NIH institutional fellowship programs that will be available to provide stipend support for predoctoral and postdoctoral students.

Applicants should submit curriculum vitae, a statement of research plans, and the names of three people from whom letters of recommendation can be requested. Applications should be sent to: **Gillian Air, Chairman, Molecular Genetics Search Committee, Department of Microbiology, University of Alabama in Birmingham, Birmingham, Alabama 35294.**

*An Equal Opportunity/Affirmative Action Employer*

### FACULTY POSITIONS IN MOLECULAR VIROLOGY

Applications are invited for a senior and a junior tenure-track faculty position in the Department of Microbiology. Candidates should have made significant accomplishments in research and should be prepared to maintain an active, independent research program in molecular virology. Teaching responsibilities are limited and include participation in courses for graduate and professional students. The department provides a stimulating scientific environment, and administers seven NIH institutional fellowship programs that will be available to provide stipend support for predoctoral and postdoctoral students.

Applicants should submit curriculum vitae, a statement of research plans, and arrange for three letters of recommendation to be sent to: **Virology Search Committee, Department of Microbiology, University of Alabama in Birmingham, Birmingham, Alabama 35294.**

*An Equal Opportunity/Affirmative Action Employer*

#### **Biological Materials Institute**

Growing international biotechnology company seeks energetic senior scientists with post-doctoral experience to develop and direct research programs in the area of biological materials.

#### **CARBOHYDRATE CHEMIST**

To develop research program in the isolation, characterization, and modification of polysaccharides. Experience in biochemistry and synthesis of carbohydrates strongly desired.

#### **BIOCHEMICAL ENGINEER (POLYSACCHARIDES)**

To develop and scale-up isolation and purification processes for biological materials. Experience in recovery of fermentation-derived polysaccharides desired.

#### **BIOCHEMICAL ENGINEER (PROTEIN)**

To develop and scale-up isolation and purification processes for enzymes. Experience with both microbial and mammalian systems desired.

#### **BIOPOLYMER RHEOLOGIST**

To develop program for characterization and functional performance analysis of biological polymers. Experience with advanced rheological instrumentation desired.

#### **PROTEIN CHEMIST**

To develop research program in isolation, modification, and characterization of proteins. Experience in enzymology required.

POSITIONS ARE ALSO AVAILABLE FOR QUALIFIED RESEARCH SCIENTISTS IN THE ABOVE AREAS.

The positions offer the opportunity to work with new and expanding technology and to interface extensively with internationally recognized scientists in many biotechnological fields.

Excellent salary and benefits, commensurate with experience.

Please send C.V., including personal publications and salary history, in confidence to:

Genzyme Corporation  
75 Kneeland Street  
Boston, MA 02111  
Attention: Cindy Caracci.

genzyme

## **Industrial Protein Chemist**

Biogen, a leading biotechnology company with laboratories in the United States and Switzerland, has an opening in our Biochemical Engineering Research Department for a specialist in large scale pharmaceutical protein purification process development. Requirements:

- Ph.D. with experience in isolation and purification of proteins on an industrial scale
- Previous experience in developing large scale processes to meet FDA, GMP standards for pharmaceutical grade protein production
- Previous experience in the following techniques on a lab and production scale:

Ion exchange chromatography  
Size exclusion chromatography  
Affinity chromatography  
Batch chromatography  
Ultrafiltration  
Extraction  
Immobilization

Biogen offers an attractive compensation and benefits package.

Please send your resume and the names of three references to: Nanci Pye, Manager of Human Resources, Biogen, Dept. IPC-4, 14 Cambridge Center, Cambridge, MA 02142.

BIOGEN

## **International Symposium on**

# **MONOCLONAL ANTIBODIES: BIOLOGICAL AND CLINICAL APPLICATIONS**

**Florence, Palazzo dei Congressi  
October 16-19, 1984**

**Scientific Secretariat:** A. Pinchera—  
G. Doria—F. Dammacco—A. Bargellesi

The meeting is intended to cover three broad areas of biological and clinical applications of monoclonal antibodies: Markers of the Immune System; Hormonal Receptors and Related Autoimmune Disorders; Experimental and Clinical Oncology.

The Scientific Program will consist of Invited Lectures and Poster Sessions. A limited number of Posters will be selected for oral presentation.

**Invited Speakers:** L. Adorini (Italy), R. C. Bast (USA), C. A. Bona (USA), M. I. Colnaghi (Italy), P. Comoglio (Italy), G. Corte (Italy), S. Dower (USA), P. A. W. Edwards (U.K.), A. Falaschi (Italy), I. D. Goldfine (USA), M. F. Greaves (U.K.), G. L. Greene (USA), C. Grossi (Italy), S. Hakomori (USA), L. D. Kohn (USA), J. Lindstrom (USA), R. G. Lynch (USA), J. P. Mach (Switzerland), S. L. Morrison (USA), K. Rajewski (FRG), M. D. Scharff (USA), R. H. Schwartz (USA), J. Strominger (USA), J. Schlessinger (Israel), T. Tada (Japan), I. S. Trowbridge (USA), P. E. Thorpe (U.K.), J. C. Venter (USA), T. A. Waldmann (USA), L. N. Warner (USA).

The deadline for submission of Abstracts is June 15, 1984.

For further information write to the **Organizing Secretariat:** Organizzazione Internazionale Congressi (O.I.C.), Via Gustavo Modena 19, 50121 Florence (Italy). Tel. (055) 53962-571082—Telex 570243 OICCONGRE



## INDOOR ATMOSPHERIC CHEMIST

The Lawrence Berkeley Laboratory's Applied Science Division is seeking an outstanding chemist to contribute to the Leadership of the Building Ventilation and Indoor Air Quality Program. Responsibilities include research efforts on characterization and chemistry of indoor atmospheric pollutants, primary emissions and secondary reaction products from indoor combustion sources, building materials, and consumer products. Requires strong scientific leadership experience and demonstrated excellence in independent research and writing in some area of chemistry. Substantial instrumental background required. Familiarity with gas chromatography, mass spectroscopy, and other analytical techniques applicable to air pollutant studies would be an asset, as would experience in environmental chemistry or atmospheric modeling. Prefer Ph.D. in Analytical Chemistry, Physical Organic Chemistry, or Physical Chemistry. Refer to Job #A/2848.

## STAFF SCIENTIST I

The Laboratory is also seeking a Staff Scientist to join its Building Ventilation and Indoor Air Quality Group of the Applied Science Division. Will assume responsibility for extending and managing a computerized national data base of field measurements of indoor air quality. This data base is being implemented in a microcomputer environment using dBase II and will contain both bibliographic and experimental data relating to field experiments. The successful applicant will have at least an undergraduate degree in one of the physical sciences and experience in indoor air quality, particularly in field-measurement techniques and practice. In addition, the applicant must have experience as a computer programmer/analyst and experience working with microcomputers. Some experience with data base applications is desired, preferably using dBase II. Refer to Job #A/2849.

Please send two resumes, indicating Job # and salary history to: Lawrence Berkeley Laboratory, Employment Office Building 90-1042, One Cyclotron Road, Berkeley, CA 94720. An Equal Opportunity Employer M/F/H.

**LB**  
LAWRENCE  
BERKELEY  
LABORATORY  
University of California

## POSITIONS OPEN

**FACULTY POSITIONS IN MOLECULAR BIOLOGY/GENETICS.** Tenure-track faculty appointments are available at the assistant or associate professor level, depending on experience. The Department of Biological Chemistry, along with other basic science departments in the College of Medicine, has made a major commitment to achieving excellence in research in molecular biology/genetics. Challenging and productive collaborative opportunities exist in the fields of DNA structure and dynamics, RNA synthesis, gene structure, gene regulation, and molecular virology. Applications are solicited from qualified candidates in all areas of molecular biology and genetics. Candidates will be expected to develop strong, extramurally funded research programs. Applications should include detailed outlines of future research plans as well as curriculum vitae and names of three references. Apply to: **Dr. Harry Rudney, Director, Department of Biological Chemistry, University of Cincinnati College of Medicine, 231 Bethesda Avenue, Cincinnati, Ohio 45267-0522.** An Affirmative Action/Equal Opportunity Employer.

### FACULTY POSITION IN PHARMACOLOGY/TOXICOLOGY

The University of Kentucky College of Pharmacy invites applications for a tenure-track position at the level of assistant or associate professor. Applicants must have a Ph.D. degree with two or more years of postdoctoral training. Evidence of a commitment to teaching and research excellence should be provided.

Submit applications by 15 June and include curriculum vitae, reprints of up to three recent publications, names of three references, and a brief description of future research plans.

**Dr. Louis Diamond, Director  
Pharmacology and Toxicology Division  
University of Kentucky, College of Pharmacy  
Lexington, Kentucky 40536-0053**

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

**FACULTY POSITION**—Applications are invited for an appointment at the rank of assistant professor of biological chemistry in the Department of Internal Medicine. Research experience in recombinant DNA techniques is essential with emphasis on eukaryotic gene expression and regulation. This is a non-tenure-track appointment. Salary negotiable. Send detailed résumé and a list of three references. Direct responses to: **William N. Kelley, M.D., Chairman, Department of Internal Medicine, University Hospital, Ann Arbor, Michigan 48109.** *The University of Michigan is a nondiscriminatory, Affirmative Action Employer.* 145BO.

**HEAD, DEPARTMENT OF MICROBIOLOGY,** North Carolina State University. Candidates for the position must have an earned doctorate in microbiology or a closely related area, plus a distinguished record in research, teaching, and other scholarly and professional accomplishments. Send curriculum vitae, the names of three references, and a summary of professional and leadership experiences to: **Dr. John G. Scandalios, Head, Department of Genetics, Box 7614, North Carolina State University, Raleigh, North Carolina 27695-7614.**

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### IMMUNODIAGNOSTICS RESEARCH & DEVELOPMENT

Wampole Laboratories has positions open in the R&D department. We are seeking an individual with B.S./M.S. in virology with at least 3 to 5 years of industrial research in virology, tissue culture, and viral immunoassays. The second position requires an M.S./Ph.D. in a basic science with hands-on experience in tissue culture, antibody production by hybridoma technology, ELISA, RIA, and immunochemical techniques. Send résumé with salary history and requirements to: **Al Aronson, Employment Manager, Carter-Wallace, Inc., Half Acre Road, Cranbury, N.J. 08512.**

### COLBY-SAWYER COLLEGE BIOLOGY POSITION New London, New Hampshire 03257

Three-year replacement position as **INSTRUCTOR OR ASSISTANT PROFESSOR** rank for biology program at small, independent, women's college. Ph.D. required with broad background in the biological sciences and special preparation in plant, environmental, and ecological areas; college-level teaching experience preferred. Send résumé, three letters of reference, and related credentials by 25 May 1984, to: **Guy Williams, Chair Natural Sciences, Colby-Sawyer College, New London, N.H. 03257.**

## POSITIONS OPEN

**IMMUNOLOGIST, Ph.D.** Roger Williams General Hospital seeks a researcher with postgraduate training and research experience in immunobiology. Candidate must qualify for a position on medical faculty at Brown University as assistant professor of medicine (research) in the Department of Medicine and must have skills and interest in the following areas: (i) immunological methods for the study of cell growth and differentiation of normal and neoplastic cells, (ii) generation of hybridomas and monoclonal antibodies, and (iii) tumor cell growth regulators and oncogenes. It is expected that 100 percent of the successful candidate's time will be devoted to research. Send curriculum vitae to: **Paul Calabresi, M.D., Chairman, Department of Medicine, Brown University, Roger Williams General Hospital, 825 Chalkstone Avenue, Providence, Rhode Island 02908,** by 25 May 1984. *Roger Williams General Hospital is an Equal Opportunity/Affirmative Action Employer.*

**IMMUNOLOGIST—RESEARCH ASSISTANT:** B.S. or M.S. level. Minimum of 2 years of experience with hybridomas and screening and utilization of monoclonal antibodies. Working knowledge of ELISA or RIA, viral and bacterial immunology, and general cell culture techniques advantageous. Must be self-motivated, creative, and able to work with minimum supervision. Applicants should send a complete résumé and three letters of recommendation to: **Dr. Yosh Teramoto, Syngene Products and Research, 225 Commerce Drive, Fort Collins, Colorado 80524.**

**INVERTEBRATE BIOLOGIST,** Assistant professor, tenure-track position beginning fall 1984. Ph.D. required; postdoctoral experience preferred. Teaching responsibilities in introductory biology, invertebrate biology, and an advanced course. Candidate will be expected to establish a vigorous research program in one of the following areas: aquatic biology, comparative physiology, genetics, or vector biology. Salary negotiable. Send résumé, statement of research interests, and the names (addresses and telephone numbers) of at least three references by 15 June 1984 to:

**Dr. William C. Marquardt  
Department of Zoology  
Colorado State University  
Ft. Collins, Colorado 80523**

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

## MOLECULAR BIOLOGIST

We have an opening for a molecular biologist who has skill and experience in developing instrumentation for protein and nucleic acid chemistry. We should like applicants to have a Ph.D., recent laboratory experience, and a proven record of accomplishment. Familiarity with Hoefer instruments would be helpful.

**HOEFER SCIENTIFIC INSTRUMENTS** is a leading designer and manufacturer of instrumentation for biochemical research. We offer excellent working conditions and generous employee benefits. We are located in San Francisco. To apply, please send your résumé and a cover letter to: **Dr. David Hawley, HOEFER SCIENTIFIC INSTRUMENTS, P.O. Box 77387, San Francisco, Calif. 94107.**

## OLD DOMINION UNIVERSITY (ODU)

**PHYSICAL OCEANOGRAPHER.** The Department of Oceanography seeks candidates for a newly created tenure-track faculty position. Of particular interest are scientists with experience and/or interest in both field work and geophysical fluid dynamics. The successful candidate will interact with an on-going observational program and should show strong potential for developing his/her own graduate teaching and funded research programs. ODU is a state-supported university, and the growing oceanography program currently has 15 faculty and 70 graduate students. Although we anticipate hiring at the assistant professor level, scientists with more experience are encouraged to apply. Salary will be commensurate with experience. A Ph.D. is required. Applicants should submit curriculum vitae by 30 June 1984 to: **Dr. Donald R. Johnson, Search Committee, Department of Oceanography, Old Dominion University, Norfolk, Va. 23508.** *Old Dominion University is an Affirmative Action/Equal Opportunity Institution.*

## MOLECULAR BIOLOGISTS

Research and Development of Phillips Petroleum Company is looking for experienced molecular biologists for its expanding Biotechnology Group.

Individuals with the following background and experience are needed: Ph.D. in Molecular Biology or Microbiology with emphasis in expression of cloned genes in yeast, *E. coli*, and gram positive bacteria. Laboratory experience in the following areas is desired: DNA sequencing, cloning and gene expression.

Phillips Research Center is located in Bartlesville, Oklahoma, a mid-western community which provides excellent cultural, educational, and recreational pursuits. Phillips Petroleum Company also offers competitive salary and benefits package.

Inquiries are kept in strict confidence and answered promptly. Please send resume with salary history to (no agency referrals please):

Jeannie E. Spain  
**PHILLIPS RESEARCH CENTER**  
 Bartlesville, OK 74004



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## CSIRO

**PLANT MOLECULAR BIOLOGIST**  
 A\$24,344 to A\$35,806  
**DIVISION OF PLANT INDUSTRY**  
**CANBERRA, ACT**  
**AUSTRALIA**

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

The CSIRO Division of Plant Industry conducts research on problems fundamental to plant biology and agricultural production. One of the Division's programs involves research on plant viruses. A new facet of this research is a project supported under the National Biotechnology Research Program which is administered by the Department of Science and Technology. It involves collaborative research with the Biochemistry Department of the University of Adelaide on the development of techniques for the detection of virus-induced diseases in Australian crop and pasture plants.

**DUTIES:** To undertake research in the cloning and characterisation of plant virus genomes which will be used in the development of nucleic acid probes for the identification of viruses in plants. Emphasis will be given to luteoviruses, their genome organisation, evolution and process of infection.

**QUALIFICATIONS:** A. Ph.D. degree or equivalent qualifications plus proven research ability and relevant research experience with nucleic acid techniques. Experience in virology would be an advantage.

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

**APPLICATIONS:** Stating full personal and professional details, the names of at least two referees, and quoting reference number M8629, should be directed to:

The Chief  
 CSIRO Division of Plant Industry  
 G.P.O. Box 1600  
 Canberra, ACT 2601  
 Australia

By 8 June 1984.

CSIRO is an Equal Opportunity Employer.

## NATIONAL CANCER INSTITUTE DIVISION OF CANCER TREATMENT RADIATION RESEARCH PROGRAM

Associate Director,  
 Radiation Research Program

Salary Range—\$58,938 to \$66,000  
 (Physicians may be eligible for a Physicians' Comparability Allowance up to \$10,000 per year)

Has overall responsibility for the planning, evaluation and coordination of broad national and international radiation research programs designed to determine effectiveness of radiation in cancer treatment, usefulness in diagnosis of cancer and other diseases, and biological effects of exposure to low doses of ionizing and non-ionizing radiations. Administers a \$60 million contract and grant program.

Position information and qualifications requirements may be obtained by contacting:

Cynthia A. Kauff, PMS  
 National Cancer Institute  
 Building 31 Room 3A08  
 Bethesda, Maryland 20205, 301-496-6503

Applications (SF-171, CV and Bibliography) must be submitted to above address and postmarked not later than May 31, 1984.

*AN EQUAL OPPORTUNITY EMPLOYER*

## RESEARCH SCIENTISTS

Bristol-Myers Company Pharmaceutical Research and Development Division, currently has 2 openings for Ph.D. Research Scientists in a rapidly expanding immunology Cancer Research Program located in Syracuse, NY. Post doctoral experience desirable. The successful candidate would be expected to employ state-of-the-art technology in developing lead discovery and development programs designed to investigate T-Cell regulation of immune responses to neoplastic and infectious diseases. An up to date working knowledge of Lymphokine and growth regulatory factor assay systems is a prerequisite. Bristol-Myers provides a scientific environment that encourages publication and career development.

There are also 2 openings for BS/MS level assistant/associate scientists in the immunology research program outlined above. Experience working in an immunology laboratory on Lymphokine/Cytokine assay system is desirable. A working knowledge of animal handling and in vitro tissue culture technique is advantageous.

We offer excellent salaries, all major benefits and a state-of-the-art environment conducive to your professional growth. For prompt, confidential consideration, forward your resume with salary history and requirement, to: **MANAGER OF EMPLOYMENT**



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

P.O. Box 4755, Syracuse, NY 13221  
 An equal opportunity employer M/F

## POSITIONS OPEN

### MOLECULAR BIOLOGIST/NEUROBIOLOGIST

**RESEARCH ASSOCIATE** position available June 1984 for a recent Ph.D. with experience in recombinant DNA technology, to join an ongoing study of the formation of synaptic contacts on sympathetic neurons during regeneration and development. He or she will have a major role in experiments designed to investigate the regulation of proteins associated with synapse function. Opportunity to learn functional and morphological approaches to neurobiological problems. Send curriculum vitae and names of three references to: **Dr. Lawrence M. Marshall, Department of Physiology 206H, University of North Carolina, Chapel Hill, N.C. 27514. An Affirmative Action/Equal Opportunity Employer.**

**MOLECULAR GENETICS.** Applications are again being invited to fill a tenure-track faculty position with an individual who will initiate a vigorous research program in some aspect of either prokaryotic or eukaryotic molecular genetics/biology. The successful candidate also will be expected to participate in the department's undergraduate and graduate teaching programs. Interested persons should provide curriculum vitae and a résumé of their proposed research program, and arrange to have three letters of reference sent to:

**Molecular Genetics Search Committee  
Department of Biological Sciences  
Wayne State University  
Detroit, Mich. 48202**

**NEUROLOGIST** with training in behavior and higher cortical function is sought by Tulane University School of Medicine, Department of Psychiatry and Neurology. There are excellent opportunities for research and leadership in a combined training program. Applications and curriculum vitae must be received by 30 June 1984. Mail to: **Joseph B. Green, M.D., Chairman, Department of Psychiatry and Neurology, Tulane Medical School, 1430 Tulane Avenue, New Orleans, La. 70112. An Affirmative Action/Equal Opportunity Employer. Qualified women and minority candidates are encouraged to apply.**

**PLANT PHYSIOLOGIST.** The Agricultural Research Service, Aiea, Hawaii, is seeking an independent scientist to study organelle DNA of sugarcane plants and cell cultures. Experience in recombinant DNA technology and knowledge of molecular biology and genetics is required. Appointment is for a period not to exceed 2 years. Salary of \$25,366 to \$30,402 commensurate with experience. Must be U.S. citizen. Contact: **RITA MILLARD**, for application procedures, telephone: 301-344-3138, by 4 June 1984. *An Equal Opportunity Employer.*

**POSTDOCTORAL FELLOW:** Develop methods to radiolabel monoclonal antibodies and covalently bind radiolabeled small molecules to whole and fragmented antibodies. Determine stability, affinity, immunoreactivity, and biodistribution of radiolabeled antibodies. Ph.D. in immunology or protein chemistry with experience in immunological methods required. Salary: \$26,220 to \$27,600 per annum, depending on experience, with possible renewal for second year. Send résumé, bibliography, three letters of reference, and undergraduate and graduate transcripts by 8 June 1984 to **Sandy Harding, Personnel Administration Division, Los Alamos National Laboratory, Los Alamos, N.M. 87545. An Affirmative Action/Equal Opportunity Employer. U.S. citizenship required.**

### POSTDOCTORAL OPPORTUNITIES IN BIOLOGY AT INDIANA UNIVERSITY—BLOOMINGTON

The Department of Biology and the Institute for Molecular and Cellular Biology regularly have openings for postdoctoral fellows to work with faculty on externally funded research projects and to teach within the department. The department and the institute have strong programs in **GENETICS, MICROBIOLOGY, MOLECULAR, CELLULAR AND DEVELOPMENTAL BIOLOGY, PLANT SCIENCES, AND ORGANISMAL, ECOLOGICAL AND EVOLUTIONARY BIOLOGY.** Individuals wishing to have more information about these opportunities or to apply for positions which may become available should write to: **Postdoctoral Opportunities, Department of Biology, Indiana University, Bloomington, Ind. 47405.** Applicants should include a résumé, copies of current publications, and the names, addresses, and phone numbers of their references. *Indiana University is an Affirmative Action/Equal Opportunity Employer.*

## POSITIONS OPEN

### NMR INSTRUMENTATION SPECIALIST DUKE UNIVERSITY MEDICAL CENTER

Position available in the Diagnostic Physics Section of the Radiology Department for instrumentation support of nuclear magnetic resonance imaging and spectroscopy. Successful candidate must have knowledge of the physics of NMR, digital systems, and programming details. He/she will work with state-of-the-art equipment developing an instrument for animal imaging and spectroscopy. Master's degree desired but will consider bachelor's degree in engineering, physics, or related field. Salary commensurate with experience. Send curriculum vitae to: **Dr. G. Allan Johnson, Director of Diagnostic Physics, Box 3332, Duke University Medical Center, Durham, N.C. 27710. Equal Opportunity Employer.**

**PHARMACOLOGIST,** academic year, tenure-track assistant or associate professor starting fall 1984. Ph.D., undergraduate pharmacy degree preferred. Any area of pharmacology considered. Primary responsibility of teaching is in team-taught undergraduate pharmacology courses. Applicant should submit curriculum vitae and the names of three references to: **Dean C. B. Granberg, College of Pharmacy, Drake University, Des Moines, Iowa 50311. Affirmative Action/Equal Opportunity Employer.**

**POSTDOCTORAL ASSOCIATE** position immediately available for recent Ph.D. biochemist to participate in research program on control mechanisms for cell growth. Focus on the molecular signals controlling transcription and translation of cardiac proteins. Expertise in nucleic acid and protein chemistry essential. Experience in purification and identification of peptides and cell free translation of mRNA important. This is a collaborative program between the Department of Surgery of Yale Medical School and the Department of Biology, Yale University. Salary will be above NIH guidelines. Send curriculum vitae to: **Graeme L. Hammond, M.D., Department of Surgery, Yale Medical School, P.O. Box 3333, New Haven, Conn. 06510. Equal Opportunity Employer.**

### POSTDOCTORAL POSITION—TUMOR VIROLOGY

Available immediately to study roles of SV40 T Ag and the associated p53 host tumor antigen in oncogenic transformation, studies especially involving biochemical and protein chemical techniques. Send curriculum vitae and names of three references to: **Dr. Robert Carroll, Department of Pathology, New York University Medical School, 550 First Avenue, New York, N.Y. 10016.**

**POSTDOCTORAL POSITION** available immediately to study the physico-chemical properties of glucose transport proteins in reconstituted systems. Either erythrocyte, adipocyte, or cultured cell system will be used. Support funded for 2 to 3 years. Send curriculum vitae and names of three references to: **Dr. Chan Y. Jung, Department of Biophysical Sciences, School of Medicine, State University of New York at Buffalo, Buffalo, N.Y. 14214.**

**POSTDOCTORAL POSITIONS,** available fall 1984. Projects include: biosynthesis and function of ribosomal and transfer RNA; expression of mitochondrial genomes (Dr. D. T. Dubin). Cloning and sequence analysis of parapoxvirus DNA; role of the viral antigens expressed on surfaces of infected cells in the immune response elicited after infection of a murine host with orthopoxviruses (Dr. J. A. Holowczak). Use of recombinant DNA methods to study viral double-stranded RNA of yeast (Dr. M. J. Leibowitz). Send curriculum vitae and names of references to: **Dr. D. T. Dubin, Department of Microbiology, University of Medicine and Dentistry of New Jersey—Rutgers Medical School, P.O. Box 101, Piscataway, N.J. 08854. An Equal Opportunity/Affirmative Action Employer.**

**POSTDOCTORAL POSITION** available immediately to study plant chloroplast gene expression. Experience with proteins/nucleic acids preferred. Salary: \$16,500 for up to 3 years. Send curriculum vitae and three letters of reference to: **Dr. John Mullet, Department of Biochemistry and Biophysics, Texas A&M University, College Station, Texas 77843. An Equal Opportunity/Affirmative Action Employer.**

**POSTDOCTORAL POSITION.** Available fall 1984 for research in membrane lipids, lipoproteins, lipid transfer proteins, or arteriosclerosis. Background in lipid/lipoprotein methodology desirable. Send résumé to: **D. B. Zilversmit, Nutritional Biochemistry, 200 Savage Hall, Cornell University, Ithaca, N.Y. 14853.**

## POSITIONS OPEN

### SEARCH REOPENED

**POSTDOCTORAL ASSOCIATE,** to study  $Ca^{2+}$ -calmodulin-cytoskeleton interaction during reception and transmission of the signal for cell differentiation and mitosis in the fungus, *Uromyces*; 2 years, \$17,500 per year. Available immediately. Skills in LM, EM, video-image processing, and immunocytochemistry will be helpful. Send curriculum vitae and three letters of reference to: **Dr. H. C. Hoch, Department of Plant Pathology, New York State Agricultural Experiment Station, Cornell University, Geneva, N.Y. 14456. Cornell is an Equal Opportunity Employer.**

**POSTDOCTORAL FELLOW/RESEARCH ASSOCIATE POSITION** available 1 July 1984 for Ph.D. with expertise and interest in enzyme isolation and characterization to join group study in removal of blood group antigens from the red cell surface. Send curriculum vitae and names of three references to: **Dr. J. Goldstein, Cell Biochemistry Laboratory, Lindsley F. Kimball Research Institute, New York Blood Center, 310 East 67 Street, New York, N.Y. 10021. Equal Opportunity Employer.**

**POSTDOCTORAL POSITION** in gene expression of glutathione S-transferases available 1 July 1984 for individual with background in molecular cloning and/or DNA enzymology. Salary negotiable. Send curriculum vitae and two letters of recommendation by 15 June 1984 to: **Dr. C.-P. David Tu, Biochemistry Program, The Pennsylvania State University, Altoona Laboratory, University Park, Pa. 16802.**

*An Equal Opportunity/Affirmative Action Employer*

**POSTDOCTORAL POSITIONS** available in developmental immunogenetics to study the regulation of cell surface molecules including immunoglobulin and fetal-tumor antigens. Prior experience with hybridoma techniques is desirable. Candidates should have a strong background in biochemistry or immunology. Please send curriculum vitae and three letters of reference to: **Dr. Rodney Dietert, 216 Rice Hall, Cornell University, Ithaca, N.Y. 14853.**

*An Affirmative Action/Equal Opportunity Employer*

**POSTDOCTORAL POSITION** available for a plant physiological ecologist with emphasis on computer modeling to study gas exchange, thermal relations, and productivity of desert succulents. Send curriculum vitae and names of three references to: **Dr. Park Nobel, Department of Biology, University of California, Los Angeles, Calif. 90024. Equal Opportunity/Affirmative Action Employer, M/F/H.**

### POSTDOCTORAL POSITIONS

Two positions available immediately for Ph.D. graduates interested in cellular and molecular aspects of early mammalian development, introduction of exogenous genetic material into mouse embryos and/or the relationship between embryonic and tumour cells. Background in molecular biology, cell culture, or developmental biology required. Salary: \$20,000 per annum. Positions tenable at Brock University until July 1985, and then at the new Mount Sinai Research Institute, associated with the University of Toronto. Apply to: **Dr. J. Rossant, Department of Biological Sciences, Brock University, St. Catharines, Ontario, Canada L2S 3A1.**

**POSTDOCTORAL POSITION (BIOPHYSICAL)** is available for a combined spectroscopic, kinetic, and thermodynamic study of the structure and dynamics of drug-nucleic acid complexes and carcinogen-nucleic acid complexes. We are particularly interested in cooperative binding and allosteric effects observed in these systems. The experiments range from 2D NMR studies with oligonucleotides to localization of hot spots on plasmid DNA molecules. State-of-the-art instrumentation is available to support these projects. Applicants should forward curriculum vitae and three letters of recommendation to: **Professor Thomas R. Krugh, Department of Chemistry, University of Rochester, Rochester, N.Y. 14627; telephone: 716-275-4224.**

**POSTDOCTORAL POSITION** available. Research on hepatic microsomal electron transport, fatty acid elongation, and ketone body metabolism. Lipid biochemistry background necessary. Contact:

**Dr. Dominick L. Cinti  
Department of Pharmacology  
University of Connecticut Health Center  
Farmington, Conn. 06032  
An Affirmative Action/Equal  
Opportunity Employer, M/W/H**

# PHYSICIANS

The Cancer Therapy Evaluation Program (CTEP) of the Division of Cancer Treatment, National Cancer Institute, has several opportunities for physicians. The CTEP supports, through grants, contracts and cooperative agreements, a worldwide network of clinical investigators. The physician staff directs the clinical drug development program of the NCI and assists investigators in the design and execution of single and multi-modality trials supported by the NCI, and monitors the conduct of those trials. NCI staff encourage the development of clinical research in surgery, radiation therapy and biological response modifiers as well as chemotherapeutic agents. Opportunities are available to pursue clinical or laboratory activities at the NIH during this appointment.

Candidates for these positions will have an M.D. or D.O. degree with several years of cancer clinical research experience. An interest in research administration is essential. The ideal candidate will be Board certified or Board eligible in an oncologic subspecialty. The National Cancer Institute is an equal opportunity employer.

Please submit your CV to:

**Ms. Cynthia Kauff**  
**Personnel Specialist**  
**National Cancer Institute**  
**Building 31, Room 3A08**  
**Bethesda, Md. 20205**

*Deadline for receipt of applications is July 15, 1984.*

## **DIRECTOR** **Center for** **Advanced Food** **Technology**

### **The Center**

- An Industry/University Partnership.
- Funded by Industry and Government.

### **Responsibilities** **of the Director**

- Provide Leadership and Liaison between Industry and University.
- Coordinate Multidisciplinary Research.
- Select Generic Research Areas and Goals.
- Select, Support and Manage Research Projects.
- Generate a Pool of Funds for Research.

### **Qualifications**

- Preeminent Food Scientist/Technologist.
- Earned Doctorate.
- Experience in Research Management, Grantsmanship, and Academic and Industrial Research.

Appropriate faculty appointment; salary negotiable.

Deadline for applications and nominations is July 15, 1984. Address correspondence to: Dr. Myron Solberg, Acting Director, Center for Advanced Food Technology, Food Science Building, Cook College, RUTGERS, The State University, New Brunswick, N.J. 08903.

THE STATE UNIVERSITY OF NEW JERSEY  
**RUTGERS**

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## **RIO GRANDE** **RESEARCH CORRIDOR** **Center for** **High Technology Materials**

## **DIRECTOR/ LEAD SCIENTIST**

The Center for High Technology Materials is one of five centers of technical excellence established by the State of New Mexico to enhance the State's leadership in science and technology. The Center is part of the Rio Grande Research Corridor (RGRC) which extends along a 300 mile stretch of the Rio Grande River from Los Alamos to Las Cruces. Research and educational facilities in the Corridor include Los Alamos National Laboratory, Sandia National Laboratories, Air Force Weapons Laboratory, White Sands Missile Range and the three advanced degree granting universities.

The Center for High Technology Materials at the University of New Mexico encompasses two major research areas: optical materials and microelectronics. The optical materials program is being developed within the Institute for Modern Optics and consists of research for application to industrial and governmental needs in optical and laser physics and the interaction of light with matter. The microelectronics program is being conducted within the Institute for Microelectronics and Thin Films and consists of research in thin film fabrication and characterization techniques, optical microlithography, and modeling of micro-circuitry fabrication processes. In addition, related materials science research support programs are sponsored within several other departments of the University.

The Director of the Center for High Technology Materials will coordinate and insure interdisciplinary interactions among all research areas within the Center. An outstanding senior scientist with leadership capabilities is sought for this position. A broad background in fundamental properties of materials is required with specific experiences in the areas of modern optics, optical properties of materials, solid state and surface science. The applicant should be a scientist of national and international esteem with an outstanding research background and demonstrated ability to define new problem areas and secure funding to support academic research. The successful applicant will receive a tenured academic appointment in an appropriate department. Connections with funding agencies throughout the country are necessary as is a good working relationship with various industrial laboratories associated with the topics of the Center.

Salary is competitive with public and private institutions and is commensurate with the requirements of the position.

Applicants should send a curriculum vitae and the names of three references to: **Dr. Ronald R. Bousek, CHTM Search Committee, Institute for Modern Optics, University of New Mexico, 800 Yale Blvd. NE, Albuquerque, NM 87131.**

The position will remain open until it is filled.

  
**UNIVERSITY**  
**OF NEW MEXICO**

**CENTER**  
**FOR**  
**HIGH TECHNOLOGY**  
**MATERIALS**

*An Affirmative Action/Equal Opportunity Employer*

## POSITIONS OPEN

**POSTDOCTORAL POSITION** to study embryonic limb development and cartilage differentiation at cell and molecular level. Studies include role of extracellular matrix and intracellular second messengers in regulation of cartilage differentiation and gene expression. Send curriculum vitae and names of references to: **Dr. Robert A. Kosher, Department of Anatomy, University of Connecticut Health Center, Farmington, Conn. 06032.** An Equal Opportunity/Affirmative Action Employer, M/W/H.

**POSTDOCTORAL POSITION** for 1 to 3 years available September 1984 with starting salary of \$18,000. Research project to study cell biology or neutrophil activation and normal and leukemic myeloid cell differentiation using biochemical, ultrastructural, and flow cytometric techniques. Send résumé and two letters of recommendation to: **Dr. Bruce H. Davis, Department of Pathology, Upstate Medical Center-State University of New York, 766 Irving Avenue, Syracuse, N.Y. 13210.**

**POSTDOCTORAL POSITION.** An NCI training grant-funded position is available to study mechanisms of ionizing radiation-induced damage and modification thereof. The candidate must have a Ph.D. in radiation biology or related field. Experience with mammalian cell tissue culture, DNA damage assays, or sulphydryl biochemistry is desirable. Submit curriculum vitae, transcripts, and names of three references to: **Kathryn D. Held, Ph.D., Fricke Radiobiology Research Laboratory, Division of Therapeutic Radiology, Mayo Clinic, Rochester, Minn. 55905.** An Equal Opportunity/Affirmative Action Institution.

**TWO POSTDOCTORAL POSITIONS—DRUG DELIVERY** available July 1984 to study liposomes targeting and release in liver at cellular level. Background in liver perfusion, liver cell fractionation, cell culture, or protein chemistry preferred. Support up to 3 years. Salary competitive. Send résumé and three letters of reference to: **Dr. Karl J. Hwang, School of Pharmacy, University of Southern California, 1985 Zonal Avenue, Los Angeles, Calif. 90033.** Equal Opportunity/Affirmative Action Employer.

## POSITIONS OPEN

### POSTDOCTORAL POSITION IN MICROBIOLOGY

Study of phosphorylation and other biochemical responses in lymphocytes; characterization and purification of protein kinases and substrates in lectin and phorbol ester treated cells. Background in biochemistry, protein purification desirable; cell biology, immunology experience useful. Send curriculum vitae and names of three referees by 1 July 1984 to:

**Dr. A. M. Mastro  
Microbiology Program  
The Pennsylvania State University  
South Frear Laboratory  
University Park, Pa. 16802**

An Equal Opportunity/Affirmative Action Employer

**POSTDOCTORAL RESEARCH ASSOCIATE POSITION** available 1 June 1984 with assured support for 3 years. Research involves microstimulation and chronic single unit recording techniques, measurement of eye position using the search coil technique, autoradiographic tracing techniques, behavioral control of saccadic and pursuit eye movements, and extensive use of laboratory computers. Salary range: \$17,500 to \$21,000, depending upon experience. Submit curriculum vitae and three letters of reference to: **Dr. David L. Sparks, Department of Physiology and Biophysics, University of Alabama in Birmingham, Birmingham, Ala. 35294.** An Equal Opportunity/Affirmative Action Employer.

**POSTDOCTORAL RESEARCH ASSOCIATE.** Available immediately, to isolate and characterize multienzyme complexes in DNA replication, from phage-infected bacteria. Experience in protein purification plus interests in nucleic acid biochemistry preferred. Salary: \$15,500 to \$18,000, depending on qualifications. Send inquiries, with curriculum vitae and names, addresses, and telephone numbers of three references, to: **Dr. Christopher K. Mathews, Department of Biochemistry and Biophysics, Oregon State University, Corvallis, Ore. 97331.** Closing date: 1 June 1984. *Oregon State University is an Affirmative Action/Equal Opportunity Employer which complies with Section 504 of the Rehabilitation Act of 1973.*

## POSITIONS OPEN

**POSTDOCTORAL POSITION** available immediately to study hormonal regulation of the reproductive cycle in subhuman primates and exotic mammals. Studies will involve hormone radioimmunoassays, column chromatography, and high performance liquid chromatography. Candidate will work with scientists at the Population Council's Center for Biomedical Research and the Bronx Zoo. A Ph.D., D.V.M., or equivalent degree is required. Send curriculum vitae and names of three references to: **Dr. Rosemarie Thau, The Population Council, 1230 York Avenue, New York, New York 10021.**

**POSTDOCTORAL POSITION** available in August 1984 to study sperm structure and motility or in vitro fertilization in exotic mammals. Studies will involve culture techniques, video equipment, and electron microscopy. Candidate will work with scientists at the Population Council's Center for Biomedical Research and the Bronx Zoo. A Ph.D., D.V.M., or equivalent degree is required. Send curriculum vitae and the names of three references to: **Dr. David M. Phillips, The Population Council, 1230 York Avenue, New York, New York 10021.**

**POSTDOCTORAL POSITIONS** available in July 1984 to study steroid regulation of gene expression. Applicants should have a strong background in recombinant DNA technology; experience in protein chemistry would be helpful. A Ph.D., M.D., or equivalent degree is required. Please send curriculum vitae and the names of three references to: **Olli A. Janne, The Population Council, 1230 York Avenue, New York, New York 10021.**

**POSTDOCTORAL RESEARCH POSITION** available to study the synthesis and biological effects of neuropeptide-toxin hybrid proteins on pituitary and central nervous system. The research project includes both cell culture work and small animal experimentation. Applicant must have a Ph.D. or M.D. degree with a strong background in protein chemistry and/or cell biology. Send curriculum vitae and names of three references to: **Patricia Bacha, Ph.D., or Seymour Reichlin, M.D., Ph.D., Endocrine Division, New England Medical Center, 171 Harrison Avenue, Boston, Mass. 02111.**

## CSIRO

RESEARCH FELLOW  
A\$24,344 to A\$35,806  
DIVISION OF ATMOSPHERIC RESEARCH  
ASPENDALE, VICTORIA  
AUSTRALIA

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

### FIELD: Atmospheric Clouds and Radiation.

**GENERAL:** The Division of Atmospheric Research maintains broadly based research programs in dynamical meteorology, boundary layer physics, climatology, radiation, cloud physics, and atmospheric chemistry. Total staff numbers approximately 130.

The Division's Clouds and Radiation Group is concerned with the meteorological and climatic consequences of the interaction of atmospheric radiation with clouds, aerosols and trace gases, the physics of cloud evolution, including the investigation of natural rainforming processes, the remote sensing of atmospheric and surface parameters by lidar, satellite, and airborne radiometric techniques. Recently the group has acquired a comprehensive system for real-time acquisition and interactive handling of high resolution meteorological satellite data (CSIDA).

**DUTIES:** As a member of the Clouds and Radiation Group, the appointee will have considerable freedom to develop and undertake research within the general field. There is also a requirement to strengthen the theoretical background to the Group's present activities and, specifically, to collaborate in research concerned with interpretation of satellite radiances and with investigation of those radiative processes that are affected by the behaviour of clouds, aerosols and by changes in atmospheric trace gases.

**QUALIFICATIONS:** A Ph.D. degree or equivalent qualifications with emphasis on theoretical physics and some training in applied mathematics plus proven research ability. Experience in general meteorology and, in particular, the theory of radiative transfer would be an advantage.

**TENURE:** Indefinite with Australian Government superannuation benefits available.

**APPLICATIONS:** Stating full personal and professional details, the names of at least two referees, and quoting reference number A1824, should be directed to:

The Chief  
CSIRO Division of Atmospheric Research  
Private Bag Number 1  
Mordialloc, Victoria 3195  
Australia

By 8 June 1984.

CSIRO is an Equal Opportunity Employer.

## Staff Biochemist

Merck Sharp & Dohme Laboratories has an excellent career opportunity in its Biochemistry Fundamental & Exploratory Research Department. As a Staff Biochemist you will be involved in the study of ion fluxes across biological membranes.

The successful candidate must possess an M.S. or equivalent in Biochemistry. You should be familiar with techniques involved in the preparation of various types of membrane vesicles, receptor ligand binding assays, active transport filtration assays and tissue culture. Computer data calculation ability desirable.

Salary, benefits, and career growth are excellent. Send resume to: Ms. Susan Jenkins,



**MERCK & CO., INC.**  
P.O. Box 2000, Rahway, N.J. 07065

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## POSTDOCTORAL FELLOW — INSECT RESEARCH

The Insect Research Department of Zeecon Corporation is seeking a Postdoctoral Scientist for collaborative studies with an interdisciplinary research team to develop molecular approaches for studies of insect neuro-peptide gene expression and processing.

Requires experience in recombinant DNA techniques and insect developmental biology. Familiarity with immunological techniques is desirable.

Zeecon Corporation, a subsidiary of Sandoz, has been a leader in innovative biological research for over 15 years. This broadly based agricultural biotechnology firm has established research programs in molecular biology, plant tissue culture, plant pathology and insect physiology.

Our research laboratories are located in Palo Alto, California, in close proximity to Stanford University. We conduct our research in an open, academic-like environment which strongly encourages publication and interaction with other scientists throughout the world.

To apply for this position, please send CV, and three references to: Carole Hurd, Zeecon Corporation, 975 California Avenue, Palo Alto, CA 94304. We are an equal opportunity employer.

**ZOECON**  
Corporation

## REGULATORY AFFAIRS SPECIALIST

Betz Laboratories, a recognized leader in specialty chemicals for industrial wastewater treatment has an immediate opening for a Specialist in Regulatory Affairs.

This challenging position in the R & D department involves responsibility for the technical interpretation of the Clean Water Act, Safe Drinking Water Act and the Clean Air Act and their implementation regulations. The qualified person will act as technical liaison within several departments and Betz' subsidiaries, and will have a combination of experience in working with the Clean Water Act and at least a BS in chemistry or chemical engineering.

Salary commensurate with experience and advancement potential. Betz Laboratories, located in suburban northeast Philadelphia offers a full package of corporate benefits and a progressive corporate environment. To apply in confidence, send resume with salary requirements to: Employment Manager, **BETZ LABORATORIES INC.**, 4636 Somerton Road, Trevose, PA 19047. Equal Opportunity Employer, M/F/H/V.

**BETZ**

## POSTDOCTORAL ASSOCIATE POSITIONS

### UNIVERSITY OF IOWA

Please contact the appropriate department to express your specific interest:

**ANATOMY**—Dr. Rex Montgomery, Acting Head, Bowen Science Building.

**BIOCHEMISTRY**—Dr. Edward C. Heath, Bowen Science Building.

**DERMATOLOGY**—John S. Strauss, M.D., Professor and Head, or Kenzo Sato, M.D., Associate Professor, Boyd Tower, General Hospital. A postdoctoral research associate for the study of immunology, biochemistry, and cell biology of the skin.

**INTERNAL MEDICINE**—Openings available in all disciplines in the Internal Medicine Department, College of Medicine, University of Iowa. Contact: Francois M. Abboud, M.D., Professor and Head, or Darris Goerd, Administrator; telephone: 319-356-2850.

**MICROBIOLOGY**—Dr. Irving P. Crawford, Professor and Head, Bowen Science Building. Research in microbial genetics and physiology, industrial microbiology, as well as mammalian virology.

**PATHOLOGY**—Dr. Richard G. Lynch, Professor and Chairman, Medical Laboratories. Research activity in all areas of experimental pathology.

**PHARMACOLOGY**—Dr. P. Michael Conn, Chairman and Head, Bowen Science Building. Openings available in all areas of pharmacology and toxicology.

**PHYSIOLOGY AND BIOPHYSICS**—Dr. Robert E. Fellows, Professor and Head, Bowen Science Building. Research opportunities in molecular and cellular physiology and biophysics with emphasis in endocrinology, membrane biology, and neurophysiology.

The College of Medicine, University of Iowa, Iowa City, Iowa 52242, is an Equal Opportunity/Affirmative Action Employer.

## DEAN OF THE GRADUATE SCHOOL THE OHIO STATE UNIVERSITY

The Ohio State University invites nominations and applications for the position of dean of the Graduate School. The university is the principal graduate and research university in the state, with a graduate enrollment of approximately 10,000 students in 118 masters programs and 86 doctoral programs.

The graduate dean has responsibility for administration of the university's graduate programs, as well as for development of policies to build greater excellence in these programs. He or she serves as chair of the Graduate Council, the principal legislative body of the Graduate School. The dean is consulted on all appointments and promotions of faculty members acting as graduate advisers and on all other matters affecting graduate education at the university. He or she serves as a member of the Board of Directors of The Ohio State University Research Foundation and chairs the Board of the Ohio State University Press.

The graduate dean reports to the vice president for research and graduate studies, and also is responsible to the vice president for academic affairs and provost for those areas affecting the responsibilities of that office. The dean occupies a central position in the management and guidance of the university. He or she supervises approximately 30 staff members including two associate deans and two assistant deans. The annual budget for the activities of the Graduate School is approximately \$3 million.

The search committee seeks candidates with an earned doctorate degree who have attained the rank of full professor at a major university and have extensive experience in graduate education. They should have broad intellectual interests and a record of distinguished university teaching and research. The candidates should have successful administrative experience in a position of university-wide responsibility or one offering equivalent experience. A demonstrated knowledge of and sensitivity to the issues, problems, and objectives of graduate education are essential.

Nominations and applications should be sent to:

Search Committee for Dean of the Graduate School  
Office of Research and Graduate Studies  
The Ohio State University  
190 North Oval Mall  
Columbus, Ohio 43210

Closing date for nominations is 2 July 1984.

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## RESEARCH SCIENTIST — CLINICAL LABORATORIES

The Upjohn Company, a leader in the worldwide research, production, and marketing of pharmaceuticals, has a Research Scientist opening in its Clinical Research Laboratories. These laboratories determine the safety and efficacy of the pharmaceutical products being evaluated in Upjohn's worldwide clinical research programs. This Scientist will design, implement, and interpret clinical assay and clinical methodology research, and will evaluate laboratory instrumentation.

The position requires a Ph.D. in biological sciences, experimental pathology, or biochemistry with one or more years of experience in clinical laboratory operations and methodology research and development. Excellent verbal and written communication skills are required.

Upjohn offers a stimulating research environment, competitive salary commensurate with experience, and an outstanding benefits package. **For confidential consideration, please send a current c.v. and resume, list of publications, names and addresses of references, and graduate transcripts (if appropriate) to: Gerald L. Potratz, Department 16002G, The Upjohn Company, 7000 Portage Road, Kalamazoo, MI 49001.**

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## POSITIONS OPEN

**POSTDOCTORAL RESEARCH ASSOCIATE** position available immediately at the Primate Field Station, Medical Lake, Washington, to assist in study of biomarkers of aging in nonhuman primates. Experience with automated behavioral test apparatus, telemetry of physiological functions, statistical analyses, and programming desirable. Send curriculum vitae and names of four references within 2 weeks to: **Douglas M. Bowden, M.D., Primate Center SJ-50, University of Washington, Seattle, Wash. 98195.** *Affirmative Action/Equal Opportunity Employer.*

**POSTDOCTORAL RESEARCH ASSOCIATE.** The Biochemistry Department of the Boston University School of Medicine is seeking a postdoctoral associate to collaborate in multi-faceted studies of human granulocytes and macrophages. Current projects include enzymology of oxidative metabolism, receptor function/isolation, protein isolation/monoclonal antibody generation, chemistry of reactive oxygen species, and cation exchange mechanisms. Salary is commensurate with experience and beginning date is flexible. Send curriculum vitae and the names of three references to: **Dr. Alfred Tauber, Boston City Hospital, Boston, Mass. 02118.** *An Equal Opportunity Employer, M/F.*

**POSTDOCTORAL RESEARCH ASSOCIATE POSITION** available immediately to study the **BIOCHEMISTRY OF EXOCYTOSIS IN THE CHROMAFFIN CELL.** Protein phosphorylation, calcium-binding proteins, and membrane interactions. See *JCB* 91, 247 and *JBC* 258, 14664. Send curriculum vitae and names of references to: **Dr. Carl E. Creutz, Department of Pharmacology, University of Virginia, Charlottesville, Virginia 22908.** *An Equal Opportunity/Affirmative Action Employer.*

### SAMUEL MILTON NABRIT MARCH OF DIMES PROFESSOR

Applications and/or nominations are invited for the Samuel Milton Nabrit March of Dimes Professorship. Candidates with substantial experience in techniques and concepts of molecular genetics and immunogenetics are preferred; although highly qualified investigators in other areas of molecular and cell biology will be considered. It is anticipated that the successful candidates will establish a biotechnology focused research program with emphasis on studies relevant to birth defects in collaboration with faculty colleagues of Atlanta University and Morehouse College. Salary will be commensurate with qualifications and experience. Submit curriculum vitae, three letters of reference, and a statement of current research interests by 1 June 1984 to:

**Dr. Judith Rae Lumb  
Department of Biology  
Atlanta University  
Atlanta, Georgia 30314**

*The University is an Equal Opportunity/  
Affirmative Action Employer*

**RESEARCH ASSOCIATES/TEXAS A&M UNIVERSITY.** The Geochemical and Environmental Research Group in the Department of Oceanography has positions available in organic and isotope geochemistry. Ph.D. level personnel are primarily needed to conduct petroleum-related research. However, applicants with backgrounds in chemical oceanography or environmental chemistry will also be considered. One position involves management and maintenance of our stable isotope laboratory which handles a variety of oil, gas, source rock, sediment, and biological samples for both research and service projects. Other research positions are available in organic geochemistry including projects with diverse funding such as a large multi-year oil company supported consortium research effort and NSF, ONR, DOE, and NOAA grants. Experience in either GC/MS/DS (that is, biomarker analysis), pyrolysis (Py/GC/MS, Rock-Eval), stable isotope, and/or GC instrumentation techniques (FID, FPD detection) are preferred. Self-motivated individuals with supervisory skills, an interest in organic geochemical research, and the ability to direct and propose original research ideas are invited to apply for these positions. These positions may be filled either as permanent research staff or postdoctoral positions. Positions are available immediately at competitive salaries based on experience and background.

Application should include a letter of application, résumé, three references, and selected publications if available. Apply to either: **Dr. James M. Brooks or Dr. Mahlon C. Kennicutt, II, Department of Oceanography, Texas A&M University, College Station, Texas 77843.**

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

## POSITIONS OPEN

### PROTEIN CHEMISTRY FACULTY POSITION

The Department of Biochemistry, Vanderbilt University School of Medicine, is seeking a protein chemist at the level of assistant professor (tenure-track) or possibly, at a senior (tenured) rank. The primary requirement is promise of excellence in research and teaching; and preference will be given to applicants with demonstrated competence, including relevant postdoctoral experience and publications, in protein chemistry. The area of particular interest is that of the relationship of spatial organization to function. Specific areas of interest include, but are not limited to, protein-protein and protein-nucleic acid interactions, molecular endocrinology, and catalytic mechanisms. Methodological approaches to such problems might include computer-aided molecular modeling, protein sequence analysis, immunochemistry, peptide synthesis, spectroscopy, and chemical or genetic protein modifications. The position can be filled on or after 1 January 1985. Applications must be received by 1 July 1984, and should include curriculum vitae and statement of proposed research. Please have one letter of recommendation sent directly and send the names and addresses of two additional references together with the other application materials to: **Dr. James V. Staros, Vanderbilt University, Department of Biochemistry, School of Medicine, Nashville, Tenn. 37232.**

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

**RESEARCH ASSISTANT/ASSOCIATE** position open immediately with a developmental biology group investigating gene expression and its regulation in the early mammalian trophoblast cell. In depth experience in recombinant DNA methodology is required. Salary negotiable; excellent fringe benefits. Send curriculum vitae and references to: **Dr. Cole Manes, Center for Neurologic Study, 11211 Sorrento Valley Road, Suite H, San Diego, Calif. 92121.**

### RESEARCH ASSOCIATESHIP IN YEAST TAXONOMY

A research associateship is available to study the evolutionary affinities of the ascomycetous yeasts. Taxa will be compared through extent of divergence of ribosomal RNA and other highly conserved molecular sequences. The position is available for 1 year with probability of renewal for a second year. Salary is \$25,365 per year. Assistance is provided with relocation expenses. Ph.D. or equivalent training and U.S. citizenship are required. For further information, contact: **Dr. Cletus P. Kurtzman, Northern Regional Research Center, 1815 North University Street, Peoria, Ill. 61604. Telephone: 309-685-4011.** *The U.S. Department of Agriculture is an Equal Opportunity/Affirmative Action Employer.*

### RESEARCH ASSOCIATE

To work with an interdisciplinary group interested in the biochemistry and molecular biology of hormone action. A Ph.D. in the area of biochemistry/cellular or molecular biology is required. Candidates with an interest in recombinant DNA and cell culture will be given preference. Salary competitive. Send curriculum vitae and names of three references to: **Dr. Arun K. Roy, Professor of Biological Sciences, Oakland University, Rochester, Mich. 48063.** *Affirmative Action/Equal Opportunity Employer.*

**Two RESEARCH ASSOCIATE positions** available immediately for recent Ph.D.'s in biochemistry or molecular biology with training and experience in modern techniques of protein purifications and recombinant DNA technology to study the antigenic structure and gene regulation in *Toxoplasma gondii* and *Trypanosoma cruzi*. Send curriculum vitae and letters of recommendation to: **Chairman, Department of Immunology and Infectious Diseases, Research Institute, Palo Alto Medical Foundation, Palo Alto, Calif. 94301.**

### SCIENCE EXHIBIT RESEARCHER/WRITER

Will gather and distill technical information, do photo research, and write explanatory copy for interactive exhibits on contemporary science, technology, and health. Requirements: science degree and demonstrated writing ability. Experience in communicating science to the public desired. Send letter of application, résumé, and names of three references to: **David A. Ucko, Science Director, Museum of Science and Industry, 57th Street and Lake Shore Drive, Chicago, Illinois 60637.** *Equal Opportunity Employer.*

## POSITIONS OPEN

**RESEARCH ASSOCIATE** needed for studies on the regulation of proliferation of tumors of the male reproductive tract and the analysis of human sperm function. Must have Ph.D. in biological sciences with 6 months of postdoctoral training. Must be adept at the cultivation of cells from human benign prostatic hyperplasia and animal urogenital tract tissues, histological and immunocytochemical techniques, steroid receptor analysis, protein biochemistry, and human sperm physiology. Salary: \$17,000 per year; 40 hours per week. Apply at the Texas Employment Commission, Houston, Texas, or send résumé to: **The Texas Employment Commission, TEC Building, Austin, Texas 78778, Job Order Number 3474854.** *Ad paid by Equal Opportunity Employer.*

**SENIOR BIOCHEMISTRY/MEDICINAL CHEMISTRY POSITION**—Applications are sought from established researchers supported by extramural funding who qualify for associate or full professor rank. Preference will be given to persons with academic experience and research expertise in biochemical studies related to drug systems. The successful candidate will be expected to continue a vigorous research program and collaborate with investigators in pharmaceutical science disciplines within the College. Send detailed résumé, description of research program, and names of three references by 1 July 1984 to: **Dr. J. T. Stewart, Department of Medicinal Chemistry/Pharmacognosy, College of Pharmacy, University of Georgia, Athens, Ga. 30602.** *An Equal Opportunity/Affirmative Action Employer.*

**SENIOR FACULTY POSITION.** Mental Retardation Research Center, University of California, Los Angeles (UCLA). A hard-money opening exists for Coordinator of the Developmental Biology Group of the UCLA Mental Retardation Research Center. Candidates with very strong backgrounds in developmental biology of the central nervous system, including genetics, molecular biology, immunology, or pharmacology, are invited to apply. Appointment will be made at the senior professor level. Very competitive compensation dependent upon clinical qualification, if any. Excellent laboratory facilities. Write: **N. A. Buchwald, Director, Mental Retardation Research Center, 760 Westwood Plaza, Los Angeles, Calif. 90024.** *UCLA is an Equal Opportunity/Affirmative Action Employer.*

### SENIOR PROGRAMMER ANALYST

Three years of experience in programming microcomputers in micromedical systems or equivalent education and experience required. Networking skills, Basic, Pascal, Fortran required. Bachelor's degree in computer science preferred. Manages a system of micros used for human genetic data analysis, RNA and DNA sequencing, and word processing. Designs networking system for IBM PC's and trains input operators. Develops programs for analysis of genetic data base. Full-time, \$19,205. Please contact: **UTAH JOB SERVICE, 1234 South Main, P.O. Box 11750, Salt Lake City, Utah 84147. Telephone: 801-533-2400. Refer to job number 23536.** *Equal Opportunity Employer.*

### VETERINARY ANATOMY

Applicants are solicited for a tenure-track faculty position to teach gross anatomy to veterinary and graduate students. The applicant would be expected to develop a strong research program in their area of expertise. Research interest in cell biology (biotechnology) preferred. Excellent research and teaching facilities. Send curriculum vitae, names of three references, and brief statement of research interests to: **R. W. Henry D.V.M., Ph.D., College of Veterinary Medicine, University of Tennessee, P.O. Box 1071, Knoxville, Tenn. 37901-1071.** *An Equal Opportunity/Affirmative Action Employer*

**VIROLOGY SPECIALIST:** Seek individual with license in medical technology, master's degree in a health-related field, and 10 years of experience in a virology teaching and/or research laboratory to teach and administer beginning and advanced laboratory courses in medical virology, microbiology, and mycology. Send curriculum vitae with a statement of research and teaching experience, publications, and three confidential letters of reference to: **Dr. James L. Hardy, Chairman, Department of Biomedical and Environmental Health Sciences, School of Public Health, University of California, Berkeley, Calif. 94720.** Application deadline is 1 June 1984 and appointment date is 1 July 1984. *The University is an Equal Opportunity/Affirmative Action Employer.*

# SCIENCE

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## PHARMACOLOGIST

The American Medical Association is currently seeking a pharmacologist for a Sr. Scientist position in our Division of Drugs and Technology. Responsibilities will be to review and evaluate current literature and write drug evaluations for **AMA-Drug Evaluations** and other AMA media such as our on-line drug information data base. The Sr. Scientist will also function as a resource person for topical and legislative issues involving drugs.

This position requires an MD and/or PhD in pharmacology or a graduate degree in clinical pharmacy. Demonstrated medical writing skill is essential.

We offer an excellent salary/benefits package and a professional work environment. For consideration, please send resume with salary requirements to:

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## POSITIONS OPEN

**RESEARCH ASSISTANT PROFESSOR, BIO-CHEMISTRY.** An opening is available immediately for an individual to assume responsibility for operating a protein-sequencing laboratory, containing a Beckman 890 liquid-phase sequencer, an amino acid analyzer, and HPLC systems. Qualified candidates should have a Ph.D. with experience in protein chemistry and a demonstrated aptitude for operating and maintaining complex laboratory equipment. A portion of the candidate's time would be available for developing an independent research program. Salary is commensurate with qualifications and experience. Applications containing full curriculum vitae and the names and addresses of three references should be sent to:

Dr. Carole J. Coffee, Associate Professor  
Department of Biochemistry  
University of Pittsburgh School of Medicine  
Pittsburgh, Pa. 15261

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

## REQUEST FOR PROPOSALS

The EPA/NCSU Acid Deposition Program, a cooperative research program between the U.S. Environmental Protection Agency (EPA) and North Carolina State University (NCSU), is seeking proposals for research on the effects of acid deposition on aquatic and terrestrial ecosystems—specifically, projects related to experimental acidification of a whole-lake ecosystem in northern New England and a feasibility study for watershed acidification experiment(s). For submission details, send a self-addressed envelope to: EPA/NCSU Acid Deposition Program, 1509 Varsity Drive, Raleigh, N.C. 27606. Deadline for requesting information is 5 June 1984. Please specify research area of interest.

## SYMPOSIUM

**THIRD INTERNATIONAL SYMPOSIUM ON IMMUNOBIOLOGY OF PROTEINS AND PEPTIDES—VIRAL AND BACTERIAL ANTIGENS,** 24 to 28 June 1984, Tahoe City, California. Purpose to consolidate research on viral and bacterial antigens and focus on findings in context of contemporary immunology. Integrate current knowledge of elucidation and synthesis of protein antigenic sites by cloning, expression, and sequencing of gene potential for vaccines. Contact: Dr. N. J. Calvanico, Research Service/151, VA Medical Center, Wood, Wisc. 53193.

## CONFERENCES

### A LOS CIENTIFICOS Y TECNICOS ARGENTINOS RESIDENTES EN LOS ESTADOS UNIDOS DE NORTEAMERICA

La Secretaría de Ciencia y Técnica de la República Argentina, invita a la comunidad científica y técnica Argentina residente en los Estados Unidos de Norteamérica, a la reunión que se realizará el 27 de mayo de 1984 en el New York Hilton Hotel, 1335 Avenue of the Americas, New York, N.Y. 10019, sala Gramercy A, de 18 a 20 hrs., con la participación del Subsecretario de Promoción Científica, Dr. Carlos R. Abeledo, Director a cargo de la Presidencia del CONICET (Consejo Nacional de Investigaciones Científicas y Técnicas).

Se expondrá la política científica y tecnológica del gobierno democrático y se intercambiarán ideas sobre: (i) las posibilidades de colaboración entre los científicos y técnicos radicados en el exterior y la Secretaría de Ciencia y Técnica, (ii) el establecimiento de canales de comunicación adecuados.

Para más información dirigirse a:

Monica Peralta Ramos  
Embajada Argentina  
1600 New Hampshire Avenue, NW  
Washington, D.C. 20009  
Telephone: 202-939-6421

## CONFERENCES

### FOURTH ANNUAL CONFERENCE 7 and 8 JUNE 1984, Raddison Plaza Raleigh RALEIGH, NORTH CAROLINA CROSS SPECIES EXTRAPOLATION IN NEUROTOXICOLOGY

Sponsored by: The Environmental Protection Agency, Neurotoxicology Division, and The Johns Hopkins University, Neurotoxicology Program.

A conference devoted to the review of current knowledge in the neurotoxicology of drugs and environmental chemicals in animal models and humans. A distinguished panel of experts from a variety of fields will present recent research results and examine the feasibility of extrapolating across species. Abstracts for posters are invited.

For further information, contact: Dr. Zoltan Annau, Neurotoxicology Program, The Johns Hopkins University, 615 North Wolfe Street, Baltimore, Md. 21205; telephone 301-955-3045.

## SEMINAR

**International Seminar on the Immunological System as Target for Toxic Damage.** Luxembourg, 6 to 9 November 1984. Organized jointly by CEC and IPCS (WHO, ILO, UNEP) with the participation of U.S. EPA and NIEHS. The program will consist of invited speakers, panel discussion, and poster sessions. Deadline for poster abstracts is 1 June 1984. For further information: F. Spreafico, M.D., Istituto "Mario Negri," Via Eritrea 62, 20157 Milano, Italy.

## SUMMER INSTITUTE

**Summer Institute in Risk Management in Environmental Health and Protection,** 19 to 21 June 1984. Managerial and decision-making skills to identify and develop solutions for risk problems of hazardous materials. Bachelor's degree or equivalent required. Faculty drawn from the medical and natural sciences, law, economics, psychology, and management. Call or write: Professor Rae Zimmerman, Graduate School of Public Administration, New York University, 4 Washington Square North, New York, N.Y. 10003. Telephone: 212-598-3725.

## PROGRAMS

### CAREER CHANGE OPPORTUNITY

This unique program offers the candidate with an earned doctorate in the sciences the opportunity to obtain a doctor of optometry (O.D.) degree in two calendar years. Employment opportunities exist in private practice, industry, education, and research. Contact: The Dean of Admissions, The New England College of Optometry, Room 501, 424 Beacon Street, Boston, Mass. 02115.

**PRE- AND POSTDOCTORAL TRAINING PROGRAM IN TOXICOLOGY:** The graduate program in toxicology at the University of Mississippi Medical Center offers pre- and postdoctoral training in these areas of toxicology: pulmonary, liver, CNS, neuromuscular and synaptic transmission, endocrine, and cardiovascular system. Requires U.S. citizenship or permanent residence visa in the United States. Candidates should write: Program Director, Toxicology Training Program, Department of Pharmacology and Toxicology, the University of Mississippi Medical Center, Jackson, Miss. 39216-4505. *Equal Opportunity Employer, M/F/H/V.*

### POSTDOCTORAL TRAINING PROGRAM IN IMMUNOLOGY

Comprehensive postdoctoral level training in immunology and immunogenetics is available through the Division of Immunology at Duke University Medical Center. Opportunities are provided for interactions with both basic and clinical science faculties within the broad disciplines of molecular immunology, human and murine immunogenetics, cellular immunology, transplantation and tumor immunology, immunopathology, and allergy and autoimmune disease. Fellowships are open to American citizens and foreign nationals with permanent resident visas holding the Ph.D., M.D., or equivalent degrees who have had fewer than 3 years of postdoctoral experience. Send letters of inquiry to: Dr. Frances E. Ward, Box 3010, Duke University Medical Center, Durham, North Carolina 27710. *An Equal Opportunity/Affirmative Action Employer.*

## ANNOUNCEMENT

A bank of serum specimens from women at varying risks of breast cancer has been established in the Diagnosis Branch, Division of Cancer Biology and Diagnosis, National Cancer Institute (NCI). Panels of test specimens can be secured to evaluate newly discovered biological markers for breast cancer, to verify preliminary data, and to study multiple markers for early detection of breast cancer. Sera are maintained at  $-70^{\circ}\text{C}$  in 1-milliliter sealed glass vials.

Requestors for test panels must document the discriminatory power of their assays. The Bank cannot support feasibility studies based on theoretical considerations nor can it handle large population based epidemiological studies. The assays must not require more than 1 milliliter of serum for accurate determination. Requestors must agree to accept specimens under a blind code number and report the results to NCI. Some duplicates will be included in each test panel. To request a test panel, it is sufficient to write a letter addressing above points to:

Dr. I. J. Masnyk  
Division of Cancer Biology and Diagnosis  
National Cancer Institute  
Building 31, Room 3A04  
Bethesda, Md. 20205

## FELLOWSHIPS

**POSTDOCTORAL FELLOWSHIP.** A postdoctoral position is available for candidates interested in immunology and with experience in molecular genetics, especially in gene transfer techniques, to work in a laboratory specializing in molecular analysis of cellular interactions in the immune response. Send résumé and letters of reference to: Drs. Charles A. Janeway, Jr., and Donal B. Murphy, Department of Pathology, Yale University School of Medicine, New Haven, Conn. 06510.

### INSTITUTE OF ECOSYSTEMS STUDIES POSTDOCTORAL FELLOWSHIPS IN ECOLOGY (TWO)

The Institute of Ecosystem Studies of the New York Botanical Garden announces two 2-year postdoctoral positions to study the effects of acid deposition on soils of the northeastern United States.

Applicants should have a Ph.D. in soil ecology or microbial ecology and have a working knowledge of soil fungi, or a Ph.D. in soil chemistry, geochemistry, or environmental chemistry. These positions involve collaborative, multidisciplinary research related to the effects of acid deposition on soils. Salary is \$18,000 per year.

Send curriculum vitae, statement of research interests, and names of three references by 15 June 1984 to: Gene E. Likens, Director, Institute of Ecosystems Studies, Mary Flagler Cary Arboretum, Box AB, Millbrook, New York 12545. *An Equal Opportunity Employer.*

**POSTDOCTORAL FELLOWSHIP:** Immediate position available for research in gastrointestinal endocrinology. Applicant should have a Ph.D. and experience in the field of membrane hormone receptors, cell culture, and animal hormone receptors, cell culture, and animal experimentation. Send curriculum vitae and telephone numbers of references to: Dr. P. Singh, Director, Receptor Laboratory, Department of Surgery, University of Texas Medical Branch, Galveston, Texas 77550; telephone: 409-761-4842. *An Affirmative Action/Equal Opportunity Employer.*

### FELLOWSHIPS IN REPRODUCTIVE BIOLOGY NORTHWESTERN UNIVERSITY

Postdoctoral and predoctoral fellowships are available for outstanding students in reproductive biology. A diverse but cohesive program offers research in the biochemical, cellular, physiological, and behavioral aspects of reproduction. Participating faculty include: Erwin Goldberg (immunochimistry and reproductive biochemistry), Mary Hunzicker-Dunn (ovarian biochemistry), William Klein (receptors; CNS differentiation), Andrew LaBarbera (mechanism of gonadotropin action), Jon Levine (neuroendocrinology), Neena Schwartz (gonadal-pituitary endocrinology), Joseph Takahashi (circadian rhythms and photoreception), and Fred Turek (photoperiodism and biological rhythms). Support is available through an NIH training grant. Send curriculum vitae and names of three references to: Dr. Neena Schwartz, Department of Neurobiology and Physiology, Northwestern University, Evanston, Illinois 60201.

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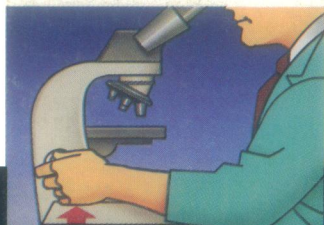
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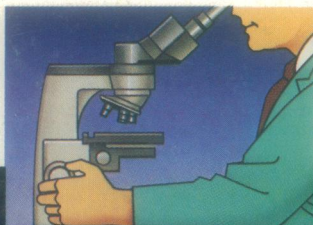


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