

The Nova Phenomenon

Classical Novae. M. F. BODE and A. EVANS, Eds. Wiley, New York, 1989. xvi, 341 pp., illus. \$163.

It has been only in the last 30 years that we have come to understand the fundamentals of the nova phenomenon, starting with the pioneering studies of Walker and Kraft, which revealed that novae are close binary systems containing white dwarfs. In the ensuing three decades, novae have proved to be among the more fascinating objects in galaxies. Their outbursts involve surface nuclear reactions in degenerate matter. They are surrounded by accretion disks that themselves are disrupted by 10^7 gauss magnetic fields. Some fraction of nova systems become supernovae through accretion-induced gravitational collapse of the white dwarf to a neutron star. The ejecta contain unusual enhancements of certain elements that enrich the interstellar medium. Dust grains form in the inhospitable environment of the ejecta only months after the outburst, in some instances from within highly ionized, hot gas. The fact that these phenomena occur over a time-scale of months rather than millions of years means that one can follow their evolution in real time, which is unusual in astronomy. For these characteristics novae have attracted considerable attention in recent years.

For some time the standard monograph on novae has been Payne-Gaposchkin's *The Galactic Novae*, published in the 1950s and now very outdated. Bode and Evans attempt to provide a new general reference for the field, which has enjoyed such vitality recently that its many aspects cannot be adequately covered in a journal review article. Although *Classical Novae* is a compendium of 13 chapters by different authors, the editors have done a creditable job of maintaining continuity and balance among the subjects. The selection of topics is appropriate, although I believe the book would have benefited from the inclusion of a chapter on the dynamical evolution of nova systems.

The book contains chapters on the theoretical aspects of the outburst, including mass transfer and thermonuclear reactions, as well as separate chapters on the observations of novae in the x-ray, ultraviolet, optical, and radio regions. Additional chapters discuss the general properties of novae, and a very useful bibliography lists all known research papers on each classical nova studied to date. Such a bibliography was one of the most important aspects of Payne-Gaposchkin's classic monograph.

The book does not try to break new ground but is primarily an overview of work

already reported. Most of the authors have published extensively on the topics on which they write, so there are few surprises. The closest to being an exception is Peter Martin's interesting analysis of the spectral evolution of Nova DQ Herculis.

Both because of the depth and breadth of its treatment and as a source of references the book is very useful and should serve active researchers in astrophysics well.

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Hearing

The Comparative Psychology of Audition. Perceiving Complex Sounds. ROBERT J. DOOLING and STEWART H. HULSE, Eds. Erlbaum, Hillsdale, NJ, 1989. xii, 482 pp., illus. \$74.95; paper, \$29.95.

The title and subtitle of this book confidently suggest that the current methodologies of psychology can reveal something substantive about how complex sounds are perceived by vertebrate animals (including humans). In general, the book convinces us that there are a variety of behavioral paradigms useful in probing the perceptual functions of the brains of animals (primarily birds, primates, and frogs) in relation to sounds more complex than single tones or noise. That is, the promises of behavior analysis technology to allow a "look" into the rather private domain of another species's experience are kept. This is important for both neuroscience and cognitive psychology. Those investigating the neurophysiological bases of sound perception using animal preparations need not be constrained to use data on human perception to generate questions and evaluate neural models. Those studying human awareness potentially have a general biological context against which uniquely human traits might be identified.

Several themes ("bottom-up" versus "top-down" processing, species-specific versus general processing mechanisms, and nonhuman versus human perception) recur in the book. The promise of a bottom-up orientation is that through following the serial transformations of the stimulus from the receptor to the brain sound perception might be understood, at least in part, in terms of peripheral biomechanical and neurophysiological processes (Ehret; Saunders and Henry; Gerhardt; Dooling). Ear structures and the hearing functions determined by them clearly vary across species (the mouse, anuran amphibians, and some birds are the examples discussed here) in ways that constrain perceptual abilities. But Espinoza-

Varas and Watson point out in their review of pattern perception by humans that important differences between humans and other animals are more likely to be found in tasks that demand attention, memory, and other general cognitive skills (that is, top-down processing). Hulse, in a crisp chapter on perception of pitch pattern in songbirds, reports having made some of these demands and easily rejects the hypothesis that birds and people perceive pitch relations similarly—birds rely more on absolute frequency (as do monkeys detecting patterns of frequency modulation, studied by Moody and Stebbins).

In a review of speech perception by animals and human infants, Kuhl discusses the questions of species-specific ("special") versus general mechanisms of perception and concludes that for many aspects of speech perception there is little reason to hypothesize unique speech "modules" for humans, particularly since chinchillas, nonhuman primates, and some birds show categorical perception for some aspects of human speech. In general, some attempts to demonstrate species-specific vocalization perception fail (for example, those reported by Beecher *et al.*), whereas others are at least suggestive (Marler and Peters; Sinnott). It also remains unclear what, if anything, is unique about human perception.

I recommend this book, and especially the informative chapters on complex sound, music, and speech perception in humans, to comparative psychologists. Anyone who may believe comparative psychology to be moribund in this time of anthropocentric cognitive psychology and reductionistic neuroscience will find it encouraging.

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Books Received

Absolute or Relative Motion? Vol. 1, The Discovery of Dynamics. Julian B. Barbour. Cambridge University Press, New York, 1989. xvi, 746 pp., illus. \$95.

Algorithms for Chemists. Jure Zupan. Wiley, New York, 1989. xvi, 290 pp., illus. \$87.95.

Animal Consciousness. Daisie Radner and Michael Radner. Prometheus, Buffalo, NY, 1989. 253 pp. \$39.95. *Frontiers of Philosophy*.

Animal Research and Ethical Conflict. An Analysis of the Scientific Literature, 1966–1986. Mary T. Phillips and Jeri A. Sechzer. Springer-Verlag, New York, 1989. xii, 251 pp. \$69.

Arachidonic Acid Metabolism in the Nervous System. Physiological and Pathological Significance. Amiram I. Barkai and Nicolas G. Bazan, Eds. New York Academy of Sciences, New York, 1989. xii, 504 pp., illus. \$126. *Annals of the New York Academy of Sciences*, vol. 559. From a conference, Bethesda, MD, April 1988.

Archimedes' Revenge. The Joys and Perils of Mathematics. Paul Hoffman. Fawcett Crest (Ballantine), New York, 1989. x, 274 pp., illus. Paper, \$4.95. Reprint, 1988 ed.

The Art of Electronics. Paul Horowitz and Winfield Hill. 3rd ed. Cambridge University Press, New York, 1989. xxiv, 1125 pp., illus. \$49.50.

Author's Guide to Journals in the Behavioral Sciences. Alvin Y. Wang. Erlbaum, Hillsdale, NJ, 1989. xiv, 481 pp. Paper, \$24.95.

Battling the Inland Sea. American Political Culture, Public Policy, and the Sacramento Valley, 1850-1986. Robert Kelley. University of California Press, Berkeley, 1989. xxii, 395 pp., illus. \$35.

Beyond the Breast-Bottle Controversy. Penny Van Esterik. Rutgers University Press, New Brunswick, NJ, 1989. xxii, 242 pp. \$30; paper, \$13.

Biocompatibility of Co-Cr-Ni Alloys. Hartmut F. Hildebrand and Maxime Champy, Eds. Plenum, New York, 1988. x, 380 pp., illus. \$82.50. NATO Advanced Science Institutes Series A, vol. 158. From a workshop, Bischoffenberg Oberbayern, France, Sept.-Oct. 1985.

Biodeterioration Research 2. General Biodeterioration, Degradation, Mycotoxins, Biotoxins, and Wood Decay. Charles E. O'Rear and Gerald C. Llewellyn, Eds. Plenum, New York, 1989. xx, 697 pp., illus. \$110. From a meeting, Washington, DC, July 1988.

Biophysics. An Introduction. Christiaan Sybesma. Kluwer, Norwell, MA, 1989. x, 320 pp., illus. \$110.

The Birds of South America. Vol. 1, The Oscine Passerines. Robert S. Ridgely and Guy Tudor, with William L. Brown. University of Texas Press, Austin, 1989. xvi, 516 pp., illus., + plates. \$65.

The Breakthrough. The Race for the Superconductor. Robert M. Hazen. Ballantine, New York, 1989. viii, 277 pp., illus. Paper, \$4.95. Reprint, 1988 ed.

Calcium Channels. Structure and Function. Dennis W. Wray, Robert I. Norman, and Peter Hess, Eds. New York Academy of Sciences, New York, 1989. xiv, 479 pp., illus. \$120. Annals of the New York Academy of Sciences, vol. 560. From a conference, London, U.K., July 1988.

The California Chaparral. Paradigms Reexamined. Sterling C. Keeley, Ed. Natural History Museum of Los Angeles County, Los Angeles, CA, 1989. viii, 171 pp., illus. \$45. Science Series, no. 34. From a symposium, Los Angeles, CA, Nov. 1986.

Cartesian Closed Categories of Domains. A. Jung. Centrum voor Wiskunde en Informatica, Amsterdam, The Netherlands, 1989. iv, 110 pp., illus. Paper, Dfl. 17.80. CWI Tract 66.

Cartographic Design and Production. J. S. Keates. 2nd ed. Longman Scientific, Harlow, U.K., and Wiley, New York, 1989. viii, 261 pp., illus. Paper, \$39.95.

Categorization and Naming in Children. Problems of Induction. Ellen M. Markman. MIT Press, Cambridge, MA, 1989. xiv, 250 pp. \$25. The MIT Press Series in Learning, Development, and Conceptual Change.

Cell Function and Disease. L. E. Cañedo *et al.*, Eds. Plenum, New York, 1988. x, 524 pp., illus. \$95. From a symposium, Monterrey, Mexico, April 1988.

Cell Shape. Determinants, Regulation, and Regulatory Role. Wilfred D. Stein and Felix Bronner, Eds. Academic Press, San Diego, CA, 1989. xiv, 433 pp., illus. \$89.

Challenges of Verification. Smaller States and Arms Control. Heinz Gaertner. Institute for East-West Security Studies, New York, 1989 (distributor, Westview, Boulder, CO). iv, 83 pp. Paper, \$7.95. Occasional Paper Series, vol. 12.

Chambers Concise Dictionary of Scientists. David Millar *et al.* Chambers, Edinburgh, and Cambridge University Press, New York, 1989. 461 pp., illus. \$29.95.

Clay Sedimentology. Hervé Chamley. Springer-Verlag, New York, 1989. xx, 623 pp., illus. \$73.

Coastal Oceanography of Washington and Oregon. Michael R. Landry and Barbara M. Hickey, Eds. Elsevier, New York, 1989. xviii, 607 pp., illus. \$163.25. Elsevier Oceanography Series, vol. 47.

Collision Theory for Atoms and Molecules. F. A. Gianturco, Ed. Plenum, New York, 1989. viii, 532 pp., illus. \$110. NATO Advanced Science Institutes Series B, vol. 196. From an institute, Cortona, Italy, Sept. 1987.

A Common Destiny. Blacks and American Society. Gerald David Jaynes and Robin M. Williams, Jr., Eds. National Academy Press, Washington, DC, 1989. xvi, 608 pp., illus. \$35.

Computerized Multiple Input Chromatography. M. Kaljurand and E. Kullik. W. A. J. Bryce and R. A. Chalmers, eds. Horwood, Chichester, U.K., and Halsted (Wiley), New York, 1989. 225 pp., illus. \$105. Ellis Horwood Series in Analytical Chemistry.

Concepts in Viral Pathogenesis III. Abner Louis Notkins and Michael B. A. Oldstone, Eds. Springer-Verlag, New York, 1989. xx, 389 pp., illus. \$69.

Conceptual Aspects of Human Factors. David Meister. Johns Hopkins University Press, Baltimore, 1989. xiv, 263 pp. \$35.

Condensed Matter Theories. Vol. 4. Jaime Keller, Ed. Plenum, New York, 1989. x, 429 pp., illus. \$95. From a workshop, Taxco, Mexico, Aug. 1988.

Conformal Invariance and String Theory. Petre Dita and Vladimir Georgescu, Eds. Academic Press, San Diego, CA, 1989. xiv, 557 pp. \$59.95. Perspectives in Physics. From a school, Poiana Brasov, Romania, Sept. 1987.

Conservation Biology and the Black-Footed Ferret. Ulysses S. Seal *et al.*, Eds. Yale University Press, New Haven, CT, 1989. xviii, 302 pp., illus. \$40.

The Construction Zone. Working for Cognitive Change in School. Denis Newman, Peg Griffin, and Michael Cole. Cambridge University Press, New York, 1989. xvi, 169 pp. \$39.50; paper, \$12.95. Learning in Doing.

Continuous Cell Lines as Substrates for Biologicals. L. Hayflick and W. Hennesen, Eds. Karger, Basel, 1989. x, 304 pp., illus. Paper, \$93.50. Developments in Biological Standardization, vol. 70. From a symposium, Arlington, VA, May 1988.

The Coppers of the Northwest Coast Indians. Their Origin, Development, and Possible Antecedents. Carol F. Jopling. American Philosophical Society, Philadelphia, 1989. xii, 164 pp., illus. Paper, \$25. *Transactions of the American Philosophical Society*, vol. 79, pt. 1.

Cosmic Coincidences. Dark Matter, Mankind, and Anthropic Cosmology. John Gribbin and Martin Rees. Bantam, New York, 1989. xvi, 302 pp., illus. \$19.95; paper, \$9.95.

Dangerous Diagnostics. The Social Power of Biological Information. Dorothy Nelkin and Laurence Tancredi. Basic Books, New York, 1989. x, 207 pp. \$18.95.

Data Analysis in Astronomy III. V. Di Gesù *et al.*, Eds. Plenum, New York, 1989. x, 417 pp., illus. \$95. Ettore Majorana International Sciences Series, vol. 40. From a workshop, Erice, Sicily, June 1989.

Deep Time. David Darling. Delacorte, New York, 1989. 192 pp. \$17.95.

The Deluge and the Ark. A Journey into Primate Worlds. Dale Peterson. Houghton Mifflin, Boston, 1989. xxii, 378 pp. + plates. \$24.95.

Developmental Biology. Vol. 6, Genomic Adaptability in Somatic Cell Specialization. Marie A. diBerardino and Laurence D. Erkin, Eds. Plenum, New York, 1989. xiv, 242 pp., illus. \$55.

Diet and Health. Implications for Reducing Chronic Disease Risk. National Research Council. National Academy Press, Washington, DC, 1989. xvi, 749 pp. \$49.95.

Digital Seismology and Fine Modeling of the Lithosphere. R. Cassinis, G. Nolet, and G. F. Panza, Eds. Plenum, New York, 1989. viii, 424 pp., illus. \$95. Ettore Majorana International Sciences Series, vol. 42. From a school, Erice, Italy, March 1987.

Dimensional Adjectives. Grammatical Structure and Conceptual Interpretation. M. Bierwisch and E. Lang, Eds. Springer-Verlag, New York, 1989. x, 523 pp., illus. \$75. Springer Series in Language and Communication, vol. 26.

Drugs, Systemic Diseases, and the Kidney. Alberto Amerio *et al.*, Eds. Plenum, New York, 1989. xii, 405 pp., illus. \$89.50. Advances in Experimental Medicine and Biology, vol. 252. From a seminar, Bari, Italy, April 1988.

Dynamics of Disordered Materials. D. Richter *et al.*, Eds. Springer-Verlag, New York, 1989. x, 323 pp., illus. \$50.60. Springer Proceedings in Physics, vol. 37. From a workshop, Grenoble, France, Sept. 1988.

Earthquake Hazards and the Design of Constructed Facilities in the Eastern United States. Klaus H. Jacob and Carl J. Turkstra, Eds. New York Academy of Sciences, New York, 1989. xiv, 455 pp., illus. \$114. Annals of the New York Academy of Sciences, vol. 558. From a conference, New York, Feb. 1988.

Ecology and Evolution of Livebearing Fishes (Poeciliidae). Gary K. Meffe and Franklin F. Snelson, Jr., Eds. Prentice Hall, Englewood Cliffs, NJ, 1989. xxvi, 453 pp., illus. \$54. Prentice Hall Advanced Reference Series.

Environmental Analysis Using Chromatography Interfaced with Atomic Spectroscopy. Roy M. Harrison and Spyridon Rapsomanikis, Eds. Horwood, Chichester, U.K., and Halsted (Wiley), New York, 1989. 370 pp., illus. \$133. Ellis Horwood Series in Analytical Chemistry.

Evolution and Ethics. T. H. Huxley's *Evolution and Ethics* with New Essays on Its Victorian and Sociobiological Context. James Paradis and George C. Williams.

Princeton University Press, Princeton, NJ, 1989. viii, 242 pp. \$40; paper, \$14.95.

Evolution of Peculiar Red Giant Stars. Hollis R. Johnson and Ben Zuckerman, Eds. Cambridge University Press, New York, 1989. xviii, 440 pp., illus. \$54.50. From a colloquium, Bloomington, IN, July 1988.

The Evolution of the Pacific Ocean Margins. Zvi Ben-Avraham, Ed. Oxford University Press, New York, 1989. xii, 234 pp., illus., + plates. \$85. Oxford Monographs on Geology and Geophysics, no. 8.

A Field Guide to Birds of the USSR. Including Eastern Europe and Central Asia. V. E. Flint *et al.* Princeton University Press, Princeton, NJ, 1989. xxxvi, 353 pp., illus., + plates. Paper, \$27.50. Reprint, 1984 ed.

The Fifth Essence. The Search for Dark Matter in the Universe. Lawrence M. Krauss. Basic Books, New York, 1989. xvi, 300 pp. \$19.95.

The Fractal Approach to Heterogeneous Chemistry. Surfaces, Colloids, Polymers. D. Avnir, Ed. Wiley, New York, 1989. xviii, 441 pp., illus. \$109.

From Quarks to the Cosmos. Tools of Discovery. Leon M. Lederman and David N. Schramm. Scientific American Library, New York, 1989 (distributor, Freeman, New York). xii, 242 pp., illus. \$32.95.

Frontiers in Numerical Relativity. Charles R. Evans, Lee S. Finn, and David W. Hobill, Eds. Cambridge University Press, New York, 1989. xiv, 435 pp., illus. \$54.50. From a workshop, Urbana-Champaign, IL, May 1988.

Genetic Analysis of Tumour Suppression. Greg Bock and Joan Marsh, Eds. Wiley, New York, 1989. x, 258 pp., illus. \$57.95. From a Symposium, London, U.K., July 1988.

Genetics. A Molecular Approach. T. A. Brown. Van Nostrand Reinhold, London, 1989 (distributor, Routledge, Chapman and Hall, Andover, U.K.). Paper £16.95.

Group Representation Theory for Physicists. Jin-Quan Chen. World Scientific, Teaneck, NJ, 1989. xxii, 540 pp., illus. \$74; paper, \$34.

Guanidines 2. Further Explorations of the Biological and Clinical Significance of Guanidino Compounds. Akitane Mori, Burton D. Cohen, and Hikaru Koide, Eds. Plenum, New York, 1989. xiv, 365 pp., illus. \$85. From a symposium, Shizuoka, Japan, May-June 1987.

Handbook of Environmental Fate and Exposure Data for Organic Chemicals. Vol. 1, Large Production and Priority Pollutants. Philip H. Howard. Lewis, Chelsea, MI, 1989. xxvi, 574 pp. \$72.

Healing Processes in the Cornea. Roger W. Beuerman, Craig E. Crosson, and Herbert E. Kaufman, Eds. Gulf, Houston, 1989. x, 237 pp., illus., + plates. \$65. Advances in Applied Biotechnology, vol. 1.

Health and the Rise of Civilization. Mark Nathan Cohen. Yale University Press, New Haven, CT, 1989. x, 285 pp. \$29.95.

House Mouse Aggression. A Model for Understanding the Evolution of Social Behaviour. Paul F. Brain, Danilo Mainardi, and Stefano Parmigiani, Eds. Harwood, New York, 1989. x, 339 pp., illus. \$98. Ettore Majorana International Life Sciences Series, vol. 6. From a course, Erice, Italy, Sept. 1987.

Injection Lasers in Optical Communication and Information Processing Systems. Yu. M. Popov, Ed. Nova Science, Commack, NY, 1989. x, 325 pp., illus. \$89. Proceedings of the Lebedev Physics Institute, vol. 185. Translated from the Russian edition (Moscow, 1987) by S. A. Stewart.

Integrated Pest Management Systems and Cotton Production. Raymond E. Frisbie, Kamal M. El-Zik, and L. Ted Wilson, Eds. Wiley-Interscience, New York, 1989. xviii, 437 pp., illus. \$54.95. Environmental Science and Technology.

Integration of Visual Modules. An Extension of the Marr Paradigm. John (Yiannis) Aloimonos and David Shulman. Academic Press, San Diego, CA, 1989. xviii, 322 pp., illus. \$39.95.

Introduction aux Accélérateurs de Particules. Pierre Germain. D. Dekkers, Ed. CERN, Geneva, 1989. Various pages, illus.

An Introduction to Ray Tracing. Andrew S. Glassner, Ed. Academic Press, San Diego, CA, 1989. xiv, 327 pp., illus. \$49.95. Based on a course, Anaheim, CA, 1987.

Introduction to the Mathematics of Quasicrystals. Marko V. Jarić, Ed. Academic Press, San Diego, CA, 1989. x, 226 pp., illus. \$59.50. Aperiodicity and Order, vol. 2.

An Introduction to the Physiology of Crop Yield. Robert K. M. Hay and Andrew J. Walker. Longman Scientific, Harlow, U.K., and Wiley, New York, 1989. xvi, 292 pp., illus. Paper, \$44.95.

Lignin. Properties and Materials. Wolfgang G. Glasser and Simo Sarkanen, Eds. American Chemical Society, Washington, DC, 1989. xiv, 545 pp., illus. \$119.95. ACS Symposium Series, vol. 397. From a symposium, Toronto, Ontario, June 1988.

A Longitudinal Study of Dyslexia. Bergen's Multivariate Study of Children's Learning Disabilities. Hans-Jörgen Gessing and Bjørn Karlsen. Springer-Verlag, New York, 1989. viii, 349 pp. \$79.

The Material of Invention. Ezio Manzini. MIT Press, Cambridge, MA, 1989. Reprint, 1986 ed.

The Meaning of the Nuclear Revolution. Statecraft and the Prospect of Armageddon. Robert Jervis. Cornell University Press, Ithaca, NY, 1989. xii, 266 pp. \$21.95. Cornell Studies in Security Affairs.

Measurements for Terrestrial Vegetation. Charles D. Bonham. Wiley-Interscience, New York, 1989. x, 338 pp., illus. \$49.95.

Minorities and Cancer. Lovell A. Jones, Ed. Springer-Verlag, New York, 1989. xviii, 334 pp., illus. \$59. From a symposium, Houston, TX, April 1987.

Modified Branching Programs and Their Computational Power. Christoph Meinel. Springer-Verlag, New York, 1989. vi, 132 pp. Paper, \$15.10. Lecture Notes in Computer Sciences, vol. 370.

Monte Verde. A Late Pleistocene Settlement in Chile. Vol. 1, Palaeoenvironment and Site Context. Tom D. Dillehay. Smithsonian Institution Press, Washington, DC, 1989. xxiv, 306 pp., illus. \$49.95. Smithsonian Series in Archaeological Inquiry.

Multiple Problem Youth. Delinquency, Substance Use, and Mental Health Problems. Delbert S. Elliott, David Huizinga, and Scott Menard. Springer-Verlag, New York, 1989. vi, 266 pp. Paper, \$49. Research in Criminology.

Muscle Energetics. Richard J. Paul, Gijs Elzinga, and Kazuhiro Yamada, Eds. Liss, New York, 1989. xxviii, 627 pp., illus. \$130. Progress in Clinical and Biological Research, vol. 315. From a conference, Yufuin, Japan, July-Aug. 1988.

Nearshore Sediment Transport. Richard J. Seymour, Ed. Plenum, New York, 1989. x, 418 pp., illus. \$85.

Nephrotoxicity. In Vitro to in Vivo, Animals to Man. P. H. Bach and E. A. Lock, Eds. Plenum, New York, 1989. xx, 765 pp., illus. \$125. From a symposium, Guildford, U.K., Aug. 1987.

Nerve Growth Factors. Robert A. Rush, Ed. Wiley-Interscience, New York, 1989. xviii, 351 pp., illus. \$109. IBRO Handbook Series, vol. 12.

Neural Dynamics of Adaptive Sensory-Motor Control. Stephen Grossberg and Michael Kuperstein. 2nd ed. Pergamon, Elmsford, NY, 1989. xx, 443 pp., illus. \$50; paper, \$35. Neural Networks.

Neurobiology of Glycoconjugates. Richard U. Margolis and Renée K. Margolis, Eds. Plenum, New York, 1989. xviii, 453 pp., illus. \$79.50.

Neuronal Acetylcholine Receptors. V. I. Skok, A. A. Selyanko, and V. A. Derkach. Consultants Bureau (Plenum), New York, 1989. xii, 319 pp., illus. \$89.50. Translated from the Russian.

New Biotechnology in Oral Research. Howard M. Myers, Ed. Karger, Basel, 1989. x, 170 pp., illus. \$98.

New Seeds and Poor People. Michael Lipton with Richard Longhurst. Johns Hopkins University Press, Baltimore, 1989. xvi, 473 pp. \$35. Johns Hopkins Studies in Development.

New York City AIDS Task Force Report. New York City Department of Health, New York, 1989. iv, 315 pp., illus.

The Next Book. Bruce F. Webster. Addison-Wesley, Reading, MA, 1989. xxvi, 387 pp., illus. Paper, \$22.95.

Nonlinear Waves 1. Dynamics and Evolution. A. V. Gaponov-Grekhov, M. I. Rabinovich, and J. Engelbrecht, Eds. Springer-Verlag, New York, 1989. xii, 238 pp., illus. Paper, \$49. Research Reports in Physics. Based on a school, Gorky, U.S.S.R., March 1987.

Nutrition and the Chemical Senses in Aging. Recent Advances and Current Research Needs. Claire Murphy, William S. Cain, and D. Mark Hegsted, Eds. New York Academy of Sciences, New York, 1989. viii, 339 pp., illus. Paper, \$85. Annals of the New York Academy of Sciences, vol. 561. From a conference, Sarasota, FL, April 1988.

On Biomineralization. Heinz A. Lowenstam and Stephen Weiner. Oxford University Press, New York, 1989. x, 324 pp., illus. \$57.

On the Glassy Sea. An Astronomer's Journey. Tom Gehrels. American Institute of Physics, New York, 1988. x, 340 pp., illus. \$35.

Orders of Magnitude. A History of the NACA and NASA, 1915-1990. Roger E. Bilstein. 3rd ed. National Aeronautics and Space Administration, Washington,

DC, 1989 (available from the Superintendent of Documents, Washington, DC). x, 167 pp., illus. Paper, \$6.

The Prehistory of Wadi Kubbaniya. Fred Wendorf and Romuald Schild, compilers. Angela E. Close, ed. Southern Methodist University Press, Dallas, TX, 1989. 2 vols. Vol. 2, Stratigraphy, Paleoeconomy, and Environment. x pp. + pp. 1-291, illus., + plates in pocket. Vol. 3, Late Paleolithic Archaeology. viii pp. + pp. 293-863, illus. The set, \$65.

Prenatal Abuse of Licit and Illicit Drugs. Donald E. Hutchings, Ed. New York Academy of Sciences, New York, 1989. xii, 388 pp., illus. Paper, \$97. Annals of the New York Academy of Sciences, vol. 562. From a conference, Bethesda, MD, Sept. 1988.

Primate Visions. Gender, Race, and Nature in the World of Modern Science. Donna Haraway. Routledge, New York, 1989. x, 486 pp., illus. \$35.

Principles of Biomedical Ethics. Tom L. Beauchamp and James F. Childress. 3rd ed. Oxford University Press, New York, 1989. x, 470 pp. \$39.95; paper, \$19.95.

Problems and Concepts in Developmental Neuropsychology. Peter Kellaway and Jeffrey L. Noebels, Eds. Johns Hopkins University Press, Baltimore, 1989. xii, 297 pp., illus. \$50. Johns Hopkins Series in Contemporary Medicine and Public Health. From a symposium, Houston, TX, 1984.

Problems in Neolithic Archaeology. Alasdair Whittle. Cambridge University Press, New York, 1989. xiv, 232 pp., illus. \$49.50. New Studies in Archaeology.

Proceedings of the Third Symposium on Pan-American Collaboration in Experimental Physics. (Rio de Janeiro, Brazil, Oct. 1987.) Roy Rubinstein and Alberto F. S. Santoro, Eds. World Scientific, Teaneck, NJ, 1989. x, 290 pp., illus. \$64.

Process Chromatography. A Practical Guide. G. K. Sofer and L.-E. Nystrom, Eds. Academic Press, San Diego, CA, 1989. x, 145 pp., illus. \$39.95.

Progress in Electromagnetics Research. Jin Au Kong, Ed. Elsevier, New York, 1989. xiv, 430 pp., illus. \$58. Progress in Electromagnetics Research, vol. 1.

Progress in Microemulsions. S. Martellucci and A. N. Chester, Eds. Plenum, New York, 1989. x, 290 pp., illus. \$75. Ettore Majorana International Science Series, vol. 41. From a school, Erice, Italy, Oct.-Nov. 1985.

Prospects and Problems in Risk Communication. William Leiss, Ed. University of Waterloo Press, Waterloo, Ontario, 1989. vi, 216 pp., illus. Paper, \$35. From a symposium, Ottawa, Ontario, Dec. 1987.

Protein Targeting. K. F. Chater *et al.*, Eds. The Company of Biologists, Cambridge, U.K., 1989 (distributor, Biochemical Society Book Depot, Colchester, U.K.). viii, 253 pp., illus. \$65. *Journal of Cell Science* supplement 11. From a symposium, Norwich, U.K., Sept. 1988.

Reactions in Compartmentalized Liquids. W. Knoche and R. Schomacker, Eds. Springer-Verlag, New York, 1989. x, 233 pp., illus. Paper, \$46.50. From a symposium, Bielefeld, F.R.G., Sept. 1988.

Reading in America. Literature and Social History. Cathy N. Davidson, Ed. Johns Hopkins University Press, Baltimore, 1989. x, 307 pp. \$35; paper, \$11.95.

Reality's Mirror. Exploring the Mathematics of Symmetry. Bryan Bunch. Wiley, New York, 1989. xii, 286 pp., illus. \$19.95. Wiley Science Editions.

Reducing Benzodiazepine Consumption. Psychological Contributions to General Practice. Margaret A. Cormack, R. Glynn Owens, and Michael E. Dewey. Springer-Verlag, New York, 1989. xii, 96 pp. Paper, \$29. Recent Research in Psychology.

Regulation of the Acute Phase and Immune Responses. Interleukin-6. Pravinkumar B. Sehgal, Gerd Grieninger, and Giovanna Tosato, Eds. New York Academy of Sciences, New York, 1989. xvi, 583 pp., illus. Paper, \$146. Annals of the New York Academy of Sciences, vol. 557. From a conference, New York, Dec. 1988.

Relational Models of the Lexicon. Representing Knowledge in Semantic Networks. Martha Walton Evans, Ed. Cambridge University Press, New York, 1989. x, 390 pp., illus. \$34.50. Studies in Natural Language Processing. Based on a workshop, Stanford, CA, 1984.

The Release of Genetically-Engineered Micro-Organisms. M. Sussman *et al.*, Eds. Academic Press, San Diego, CA, 1988. xvi, 306 pp., illus. \$59.50. From a conference, Cardiff, Wales, April 1988.

Role of Nutrition in Health and Disease. W. E. Cornatzer. Thomas, Springfield, IL, 1989. xiv, 423 pp. \$62.75.

Rush to Burn. Solving America's Garbage Crisis? Island Press, Washington, DC, 1989. xii, 269 pp., illus. \$22.95; paper, \$14.95. Reprinted from *Newsday*.

Speech Input and Output Assessment. Multilingual Methods and Standards. A. Fourcin *et al.*, Eds. Horwood, Chichester, U.K., and Halsted (Wiley), New York, 1989. iv, 290 pp., illus. \$67.95. Ellis Horwood Books in Information Technology.

Spin Labeling. Theory and Applications. Lawrence J. Berliner and Jacques Reuben, Eds. Plenum, New York, 1989. xx, 650 pp., illus., + floppy disk in pocket. \$95. Biological Magnetic Resonance, vol. 8.

Spin Observables of Nuclear Probes. Charles J. Horowitz, Charles D. Goodman, and George E. Walker, Eds. Plenum, New York, 1988. x, 462 pp., illus. \$95. From a conference, Telluride, CO, March 1988.

Spin Systems. W. J. Caspers. World Scientific, Teaneck, NJ, 1989. x, 219 pp. \$32.

The Starflight Handbook. A Pioneer's Guide to Interstellar Travel. Eugene F. Mallove and Gregory L. Matloff. Wiley, New York, 1989. xiv, 274 pp., illus. \$19.95. Wiley Science Editions.

The State and the Labor Market. Samuel Rosenberg, Ed. Plenum, New York, 1989. xviii, 258 pp. \$34.50. Plenum Studies in Work and Industry.

Statistical Mechanics of Membranes and Surfaces. Vol. 5. D. Nelson, T. Piran, and S. Weinberg, Eds. World Scientific, Teaneck, NJ, 1989. xii, 261 pp., illus. \$42. From a school, Jerusalem, Israel, Dec. 1987-Jan. 1988.

Statistics for Biologists. R. C. Campbell. 3rd ed. Cambridge University Press, New York, 1989. xviii, 446 pp., illus. \$59.50.

Stress and the Blood System. P. D. Gorizontov, O. I. Belousova, and M. I. Fedotova. International Universities Press, Madison, CT, 1989. xii, 235 pp., illus. \$30. Translated from the Russian by Victor Bespalov.

Studies in Language Origins. Vol. 1. Jan Wind *et al.*, Eds. Benjamins, Philadelphia, 1989. xxii, 331 pp., illus. \$71; paper, \$22.95.

The Sugar Cane Industry. An Historical Geography from Its Origins to 1914. J. H. Galloway. Cambridge University Press, New York, 1989. xiv, 266 pp., illus. \$44.50. Cambridge Studies in Historical Geography, vol. 12.

Sulfur-Containing Drugs and Related Organic Compounds. Vol. 1, part A, Metabolism of Sulfur Functional Groups. L. A. Damani, Ed. Horwood, Chichester, U.K., and Halsted (Wiley), New York, 1989. 167 pp., illus. \$89.95. Ellis Horwood Series in Biochemical Pharmacology.

Symbiogenesis. A Macro-Mechanism of Evolution. Werner Schwemmler. De Gruyter, Hawthorne, NY, 1989. x, 225 pp., illus. Paper, \$42.50.

Symmetries and Differential Equations. George W. Bluman and Sukeyuki Kumai. Springer-Verlag, New York, 1989. xiv, 412 pp. \$54. Applied Mathematical Sciences, vol. 81.

Theories of Rape. Inquiries Into the Causes of Sexual Aggression. Lee Ellis. Hemisphere, New York, 1989. xiv, 185 pp. \$27.50.

Theory of Shell Structures. C. R. Calladine. Cambridge University Press, New York, 1989. xxiv, 763 pp., illus. Paper, \$39.50. Reprint, 1983 ed.

Unintended Thought. James S. Uleman and John A. Bargh, Eds. Guilford, New York, 1989. xxvi, 481 pp. \$45.

Vascular Endothelium. Receptors and Transduction Mechanisms. John D. Catravas, C. Norman Gillis, and Una S. Ryan, Eds. Plenum, New York, 1989. xii, 308 pp., illus. \$75. NATO Advanced Science Institutes Series A, vol. 175. From an institute, Porto Carras, Greece, June 1988.

Vibration Diagnostics in Precision Instruments. S. Korabev, V. Shapin, and Yu. Filatov. E. Rivin, trans. ed. Hemisphere, New York, 1989. viii, 91 pp., illus. \$49.50. Applications of Vibration Series.

Viral Oncogenesis and Cell Differentiation. The Contributions of Charlotte Friend. Leila Diamond and Sandra R. Wolman, Eds. New York Academy of Sciences, New York, NY, 1989. x, 356 pp., illus. \$90. Annals of the New York Academy of Sciences, vol. 576. From a conference, New York, Sept.-Oct. 1988.

Virally Infected Cells. J. R. Harris, Ed. Plenum, New York, 1989. xxii, 450 pp., illus. \$89.50. Subcellular Biochemistry, vol. 15.

Wavelets. Time-Frequency Methods and Phase Space. J. M. Combes, A. Grossmann, and Ph. Tchamitchian, Eds. Springer-Verlag, New York, 1989. x, 315 pp., illus. \$88.10. Inverse Problems and Theoretical Imaging. From a conference, Marseille, France, Dec. 1987.

Wildlife of the Florida Keys. A Natural History. James D. Lazell, Jr. Island Press, Washington, DC, 1989. xviii, 253 pp., illus. \$31.95; paper, \$19.95.

Products & Materials

DNA Sequence Analysis Software

IBM Sequence Analysis Software allows researchers involved in DNA and protein studies to perform sequence analysis on an IBM PC or compatible with the speed and power of a mainframe. The menu-driven software supports more than 100 applications, including restriction analysis, homology matrices, and protein structure studies. The software interacts with and converts to every major sequence format, including GENBANK, BIONET, STADEN, LINE, and UWGCG. International Biotechnologies Inc. Circle 549.

DNA Blots for Genetic Research

DNA blots are available from BIOS Corp. in three formats—Chromosome Blots, Population Blots, and Family Blots. Chromosome Blots contain DNA from human/hamster somatic cell hybrids. Population Blots contain DNA samples derived from unrelated individuals. Family Blots have sample DNA from complete, three-generation families, with four grandparents, two parents, and at least seven children. DNA from the parents within the Family Blot samples are also included in the Population Blot panels to allow identification of informative families. BIOS Blots shortcut the tedious, costly, and time-consuming process of locating, culturing, and cryopreserving cells from particular human populations and preparing them for hybridization. BIOS Corp. Circle 563.

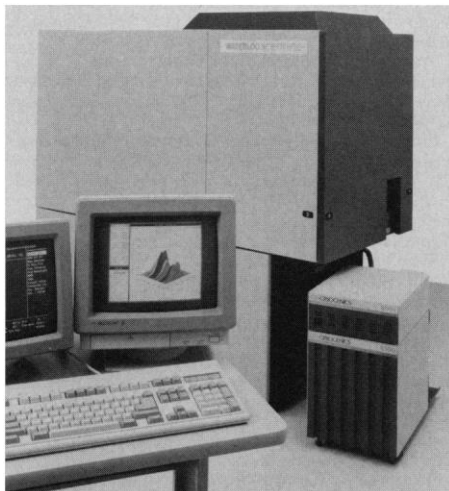
Vest Keeps Wearers Cool

Air-Vest is a personal cooling system for workers in hot environments. The vest, made of medical quality vinyl, distributes air from a Coldstream Tube over the body, with air cooled by as much as 45°F. Racal Health & Safety. Circle 565.

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

Scanning Photoluminescence Systems

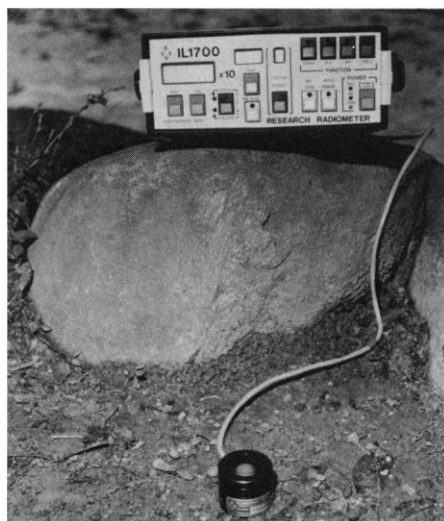
The SPM-200 is a new instrument for spatially and spectrally resolved photoluminescence measurement and mapping. The system, based on technology developed for research scanning laser microscopy, is designed for high-resolution mapping of pho-



toluminescence in semiconductor materials and devices. Photoluminescence can be used to judge the quality of the material, degree of crystallinity, or uniformity of a particular material or epitaxial layer. Waterloo Scientific. Circle 544.

Research Radiometer for Environmental Studies

A research radiometer equipped with an underwater detector and a 100-foot cable can perform a wide range of short- and long-term measurements outdoors or in the ocean. The IL1700/SUD038/F/W/PIR Research Radiometer/Detector combination



was developed specifically for environmental studies. Capable of making visible and near-infrared irradiance measurements, the waterproof detector has an easy to clean quartz window that is unaffected by dirt and temperature variations from 0° to 110°F. International Light. Circle 541.

Custom Antisera

Serotec offers custom polyclonal antisera and monoclonal ascites at competitive prices. Serotec's animal facility, staffed by its own technicians, produces antisera in a range of species to suit researchers' individual specifications. Products include monoclonal ascites production in both rats and mice, sheep antisera production with both 1-year-old and older ewes, depending on the length of the project, and rabbit antisera production. Serotec Ltd. Circle 552.

Literature

Bulletin 56120 presents comprehensive specifications for high-temperature, energy-efficient laboratory crucible furnaces. The bulletin gives dimensional and operating specifications in table form for 1200°, 1500°, and 1700°C furnaces, along with charts of heat-up and cool-down rates. Lindberg/Blue M, a unit of General Signal. Circle 575.

Volume 21 of the *Handbook of Computer Based Interfaces for Data Acquisition, Industrial Control and Communications* includes comprehensive data on a line of data acquisition, video imaging, signal conditioning, personal instrumentation, and communication products for IBM PC/XT/AT, PS/2, and Apple Macintosh II microcomputers. Metrabyte. Circle 576.

Fungi on Plants and Plant Products in the United States is a reference work with information specific to each fungus, including brief notes on the diseases caused, sections on taxonomy and nomenclature, geographic distribution, and host range. APS Press. Circle 435.

Spectroscopy World is the recently launched official journal of the Association of British Spectroscopists. The bimonthly magazine is free in the United Kingdom and available through subscription to other readers. Spectroscopy World. Circle 436.

Microscope Technology and News is a monthly newsletter written by experts in microscopy, microbeam analysis, and photography. The newsletter covers news, applications, advances in technology, and industry trends. The Cambrex Group. Circle 437.

Personnel Placement

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

LINE CLASSIFIED ADVERTISING DEADLINES:

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

POSITIONS WANTED: 40¢ per word, plus \$4 for use of box number, per week. \$10 minimum, per week. Prepayment required. This rate is available only to individuals seeking jobs. After 1 January 1990, the rate will be 50¢ per word, \$5 for use of box number, \$15 minimum, per week.

LINE CLASSIFIED (POSITIONS OPEN, COURSES, FELLOWSHIPS, MARKETPLACE, and so forth):

\$40.00 per line; \$400 minimum, per week, until 31 December 1989; for ads to appear after 1 January 1990, \$41 per line, \$410 minimum. Minimum charge covers one inch on a single column; one inch equals 10 lines of 52 characters and spaces per line. No charge for use of box number. No agency commission for ads less than 4 inches. No cash discount. Prepayment required for all foreign ads. Purchase orders required for all other advertising.

To ESTIMATE ad cost:

Structure ad copy on a separate page, on lines of 52 characters and spaces. Include any desired heading. Each line of heading, and/or extra line spaces, and all partial lines (including centered reply information) are counted as full lines. Ad titles located within the text are printed in boldface caps and are only 32 characters per line. In ESTIMATING the cost, multiply total lines \times \$40 = approximate cost of ad. For ads to appear after 1 January 1990, multiply total lines \times \$41. (This is an approximate cost ONLY: Allow for variation between estimated lines and actual typeset lines and the resulting final cost. Purchase orders must allow for some degree of flexibility and/or adjustment.)

CANCELLATION POLICY:

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

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

SCIENCE Classified Advertising
1333 H Street, NW, Room 940
Washington, DC 20005
Telephone: 202-326-6555
FAX: 202-682-0816

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

Scherago Associates, Inc.
1515 Broadway
New York, NY 10036
Telephone: 212-730-1050
FAX: 212-382-3725

Blind ad replies should be addressed as follows:

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

POSITIONS WANTED

Biochemist/Molecular Biologist, Ph.D. (1982) with extensive research experience in neuroendocrinology and metabolism interested in making a "career adjustment," possibly to area of patent law. Box 228, **SCIENCE**.

Cell Biologist/Histologist, D.Sc. Twelve years in medical education (full professor), seeks academic/research affiliation. Extensive chromosome research: light microscopy, TEM, SEM videomicroscopy, cytospectrophotometry, cell/tissue culturing, fractionation, chromosome ultrastructure, karyotyping. Eastern states favored. Excellent references. Available 1 January 1990. Box 250, **SCIENCE**.

POSITIONS WANTED

Chemical Patent Attorney, experienced, desires full-time or part-time position. Relocation to small city preferred. Telephone Don Favre (pronounced favor) at 703-742-3840.

Computer Scientist seeks research position with biomedical imaging, biotechnology, or molecular genetics research organization. Ph.D. plus 8 years of academic and industry experience in artificial intelligence, digital image processing, heuristic search, symbolic programming and databases. Skilled in statistics, grant writing, project management, graduate-level teaching and publishing. Box 239, **SCIENCE**.

Crystal Grower and Thin Films Preparationist. Considerable experience in the growth of inorganic crystals. Single crystals were grown to study their optical, magnetic, and superconducting properties. Thin films were prepared for superconducting studies and ion implantation. Thin-film devices have been fabricated by photolithography. Considerable experience in high vacuum and ultrahigh vacuum. Also experienced in cryogenic techniques. L. H. Peirce, 914 Abbiegail Drive, Tallahassee, FL 32303.

Food Scientist, Cereal and Dairy Chemistry, Ph.D. Entry level. Resourceful, friendly, persistent. Ronald B. Malouf, 2131 Prairie Field, Manhattan, KS 66502. Telephone: 913-539-0852.

Immunologist, Ph.D. Experienced senior level scientist with broad-based experience in industry and academia seeking responsible position in established or start-up biotechnology company. In-depth experience in tumor immunology, hybridomas, and large-scale cell culture. Significant project management experience. Box 229, **SCIENCE**.

Pharmacologist, Ph.D. Looking for finance-oriented (management/marketing) industry position while obtaining M.B.A. Box 235, **SCIENCE**.

Reproductive Physiologist/Endocrinologist, Ph.D. Seeks position in academia or industry. Research training in reproductive physiology and reproductive endocrinology. Postdoctoral training in reproductive physiology/animal science. Research interest in ovarian physiology. Laboratory experience in radioimmunoassays, receptor assays, tissue and embryo cultures, human in vitro fertilization, and andrology. Excellent teacher and researcher. Box 218, **SCIENCE**.

POSITIONS OPEN

ASSISTANT PROFESSOR. Applications are invited for a position at the level of assistant professor (tenure track) in the Department of Chemistry at Stanford University, with primary research and teaching interests in the general area of inorganic chemistry. Applicants must be strongly motivated toward creative research and have a commitment to teaching at the undergraduate and graduate levels. In applying, please send curriculum vitae, list of publications, a brief statement of research interests (three pages or less), and, in addition, have three letters of recommendation sent to: **Professor Harden M. McConnell, Chairman, Department of Chemistry, Stanford University, Stanford, CA 94305.** *Stanford is committed to Equal Opportunity through Affirmative Action in employment, and we are especially eager to identify minority persons and women with appropriate qualifications.* Applications should be received by 19 January 1990.

A tenure-track appointment at the **ASSISTANT PROFESSOR** level is available as of September 1990. Qualifications include a Ph.D. and postdoctoral experience. The successful candidate will be expected to teach undergraduate courses in cell biology, developmental biology or genetics, and general biology, and graduate courses in his/her area of expertise and participate in our genetic engineering option. Training of graduate students at the M.S. level and the ability to develop a fundable research program are expected. Please send your curriculum vitae, reprints, statement of career goals and research plans, and the names and addresses of three references to: **Southern Illinois University at Edwardsville, Biology Department, Box 1651, Edwardsville, IL 62026-1651, Attention: Search Committee,** by 1 January 1990. *An Affirmative Action Employer.*

POSITIONS OPEN

ANATOMY/CELL BIOLOGY

The Department of Anatomy at Indiana University School of Medicine (Indianapolis) has a tenure-track faculty position (**ASSISTANT, ASSOCIATE, OR FULL PROFESSOR** level) with a minimum of 2 years of postdoctoral experience to be filled by 1 July 1990. An active and ongoing research program is required, which should complement an interdisciplinary epithelial cell biology group and be in one of the following areas: cell-extracellular matrix interactions, ultrastructural immunocytochemistry, membrane trafficking, cytoskeleton, and/or molecular basis of cell growth. Teaching duties will be in either gross anatomy or histology. Applicants must submit curriculum vitae, personal statement detailing research interests/direction/funding and teaching experience, and the names of three referees to: **Chairman, Search Committee (Cell Biology Group), Department of Anatomy, Indiana University School of Medicine, 635 Barnhill Drive, MS 258, Indianapolis, IN 46202-5120.** Please use **Position Number 2005** in correspondence. Application deadline is 15 January 1990. *Indiana University is an Affirmative Action/Equal Opportunity Employer, M/F.*

ANATOMY/NEUROBIOLOGY

The Department of Anatomy at Indiana University School of Medicine (Indianapolis) has a tenure-track faculty position (**ASSISTANT, ASSOCIATE, OR FULL PROFESSOR** level) with a minimum of 2 years of postdoctoral experience to be filled by 1 July 1990. An active and ongoing research program is required which should complement an interdisciplinary neurobiology group and be in one of the following areas: cellular/molecular neurobiology, neural plasticity, and/or neural development. Teaching duties will be in either gross anatomy or histology to medical students and/or graduate neurobiology students. Applicants must submit curriculum vitae, personal statement detailing research interests/direction/funding and teaching experience, and the names of three referees to: **Chairman, Search Committee (Neurobiology), Department of Anatomy, Indiana University School of Medicine, 635 Barnhill Drive, MS 258, Indianapolis, IN 46202-5120.** Please use **Position Number 2003** in correspondence. Application deadline is 15 January 1990. *Indiana University is an Affirmative Action/Equal Opportunity Employer, M/F.*

ASSISTANT PROFESSOR OF ANATOMY. The Department of Anatomy is seeking applications for a tenure-track **ASSISTANT PROFESSOR** with at least 3 years of postdoctoral research experience. Candidates should have a funded research program in skeletal biology with expertise in bone and cartilage histomorphometry, image analysis, and/or immunohistochemical techniques. Experience with bioengineering approaches desirable. Must be willing to collaborate with existing programs in skeletal biology. Broad teaching experience/ability in gross anatomy or histology required. Submit curriculum vitae and names of three referees to: **Chairman, Search Committee (Skeletal Biology), Department of Anatomy, Indiana University School of Medicine, Indianapolis, IN 46202-5120.** Please use **Position Number 2013** in correspondence. Application deadline is 15 January 1990. *Affirmative Action/Equal Opportunity Employer, M/F.*

ASSISTANT/ASSOCIATE PROFESSOR. Tenure-track position to join the tumor biology group in the Department of Pathology and Laboratory Medicine at the University of Florida, Gainesville. Individual must have an M.D. and/or Ph.D. degree and established research productivity in an area of tumor biology or tumor immunology. Excellent research environment for fundamental studies, unique opportunities for close collaboration with faculties of the pathology, surgery, and medical oncology services, and an ongoing cancer biology training program for doctoral candidates and postdoctoral fellows. Salary is competitive and related to qualifications and experience. Application deadline is 31 December 1989 with an anticipated start date of 31 January 1990. Send curriculum vitae, bibliography, and two recent reprints of your work in refereed journals to:

Richard T. Smith, M.D.
University of Florida
Department of Pathology and Laboratory Medicine
Box J 275, JHMHC
Gainesville, FL 32610

Affirmative Action/Equal Opportunity Employer.

NATIONAL INSTITUTE
OF ENVIRONMENTAL HEALTH SCIENCES
NATIONAL INSTITUTES OF HEALTH
PUBLIC HEALTH SERVICE
DEPARTMENT OF HEALTH AND HUMAN
SERVICES

**SUPERVISORY VETERINARY
MEDICAL OFFICER
COMPARATIVE MEDICINE
BRANCH**

The Division of Intramural Research, NIEHS, is seeking applicants for the position of Chief of the Comparative Medicine Branch. The successful applicant will have responsibility for planning, directing, coordinating and evaluating all aspects of CMB activities in order to meet all requirements of NIEHS programs for quality laboratory animals, laboratory support services, media and glassware, and targeted research appropriate to the functional needs of the animal support activities. This includes working with the Animal Care and Use Committee and Division Directors to assure that scheduling of resources corresponds to research program priorities.

The Chief advises the Scientific Director and Institute Director on Animal Care, Use and Welfare issues which might affect the Institute. Guides Institute through compliance with federal and local regulatory controls, and maintains AAALAC accreditation for the research animal facility.

This is a Civil Service career-conditional appointment under the Merit Pay System at the GM-701-15 level with a salary range of from \$57,158 to \$74,303 per annum, depending upon qualifications. Applicants may be eligible for appointment in the Commissioned Corps of the U.S. Public Health Service.

Minimum qualification requirements are Doctor of Veterinary Medicine or equivalent from an accredited AVMA School or Veterinary Medicine, and progressively responsible experience as a manager of a research animal facility. U.S. citizenship is required.

For additional information, contact Dr. John A. McLachlan, Scientific Director, at 919-541-3205 or Dara Trupe, Personnel Management Specialist, 919-541-3317. To apply, submit curriculum vitae and the names of three references by January 2, 1990 to:

**Dara Trupe
NIEHS Personnel Office (HNV14)
P.O. Box 12233
Research Triangle Park, NC 27709**



NIH IS AN EQUAL OPPORTUNITY EMPLOYER

POSITIONS OPEN

ASSISTANT ENTOMOLOGIST/ASSISTANT EXTENSION ENTOMOLOGIST. Urban entomologist, Department of Entomology, University of California, Riverside. Ph.D. required; 11 months; 60% research, 40% extension. Research and extension responsibilities of arthropod pests of structural, industrial, and other urban environments. The research and extension focus will be one or more of major pests: ants, cockroaches, fleas, termites, and stored product insects. Applicants send curriculum vitae, transcripts, bibliography, reprints and manuscripts in press, Ph.D. dissertation abstract, names of five references, and research interests by 15 January 1990 to: **M. K. Rust, Department of Entomology, University of California, Riverside, CA 92521.** The University of California is an Equal Opportunity/Affirmative Action Employer and encourages applications from women and minorities.

ASSISTANT PROFESSOR. Tenure-track position available for outstanding candidates with training in cell physiology, biophysics, or regulatory biology. Candidates who plan to establish an independent research program involving growth and development are encouraged to apply, but outstanding candidates in other fields will be considered. The abilities of the applicants are more important than specific research areas. Candidates should submit curriculum vitae, description of future research program, and have three letters of reference sent to: **James T. Stull, Ph.D., Chairman, Department of Physiology, The University of Texas Southwestern Medical Center at Dallas, 5323 Harry Hines Boulevard, Dallas, TX 75235-9040.** An Affirmative Action/Equal Opportunity Employer.

**TENURE-TRACK
ASSISTANT PROFESSOR**

Applications are invited for a tenure-track position in chemistry at the rank of **ASSISTANT PROFESSOR.** Ph.D. is required. Salary commensurate with experience. Excellent teaching is essential. Active research is required. Applicant must be willing and qualified to teach organic chemistry and use an interdisciplinary approach to teaching nonscience majors. Initial appointment begins 1 September 1990.

We are a small, liberal arts college located in midtown Manhattan, near many scientific, cultural, and business institutions.

Deadline for applications is 1 February 1990. Send curriculum vitae and three letters of reference to:

**Dr. Leonard Nissim, Chairperson
Division of Science and Mathematics
Fordham University
College at Lincoln Center
113 West 60th Street
New York, NY 10023**

Fordham University is an Equal Opportunity/Affirmative Action Employer.

**BROWN UNIVERSITY
ASSISTANT PROFESSOR
OF MEDICAL SCIENCE
ARTIFICIAL ORGANS AND BIOMATERIALS**

For a full-time regular position as assistant professor of medical sciences we are seeking a broadly trained chemical engineer/polymer scientist whose research interests are in the area of biomaterials with emphasis on surface modification and tissue-material interaction. A Ph.D. or equivalent degree is required. Some biology background and postdoctoral research experience are preferred. The position is linked to the artificial organ/biomaterials program, a multidisciplinary group of faculty and graduate students, with current emphasis on tissue-material interactions, bioresorbable polymers, and the development of membrane-protected tissue transplants. Candidates should demonstrate outstanding potential to develop an independent, externally funded research program. The position requires teaching survey courses in the field of polymer science and biomaterials and guidance of Ph.D. and M.D./Ph.D. students. The appointment can begin between 1 July and 31 December 1990.

To ensure full consideration, applications should be received by 16 February 1990. Applicants should submit curriculum vitae, a set of representative reprints, and a concise description of research interests and goals, and should arrange for three letters of reference to be sent to: **Professor E. H. Leduc, Division of Biology and Medicine, Box G, Brown University, Providence, RI 02912.** We encourage applications from women and minority candidates. Brown University is an Equal Opportunity/Affirmative Action Employer.

POSITIONS OPEN

California State University, San Bernardino, invites applicants for a tenure-track position in the Department of Biology, available September 1990. Appointment is at the rank of **ASSISTANT PROFESSOR** (\$28,884 to \$39,924 based on experience). We offer B.A., B.S., and M.S. degrees in biology. Qualifications: Ph.D. in immunology with teaching experience in virology and general biology. Deadline: 15 January 1990 or until filled. Submit letter of application, curriculum vitae, and three letters of recommendation to: **Dr. Alexander Sokoloff, Acting Chair, Department of Biology, California State University, 5500 University Parkway, San Bernardino, CA 92407.**

*An Equal Opportunity/Affirmative Action/
Section 504/Title IX Employer.*

Florida International University (FIU), the State University of Florida at Miami, is recruiting tenure-track faculty at the **ASSISTANT OR ASSOCIATE PROFESSOR** level in the following areas: (i) physical chemistry, (ii) organic chemistry, and (iii) a joint appointment between the Department of Chemistry and the Drinking Water Research Center for a chemist with research interests in environmental chemistry. Ph.D. required; postdoctoral experience desirable. Active research program expected. Teaching responsibilities at the graduate and undergraduate levels in candidates' areas of expertise. Closing date: 18 January 1990. Send curriculum vitae, transcripts, research plans, and three letters of reference to: **L. Keller, Department of Chemistry, Florida International University, Miami, FL 33199.** FIU is rapidly growing with over 19,000 students. A new chemistry/physics building will open in 1990. FIU is an Affirmative Action/Equal Opportunity Employer.

**UNIVERSITY OF CALIFORNIA
AT LOS ANGELES
MOLECULAR BIOLOGY INSTITUTE
ASSISTANT PROFESSOR**

The Molecular Biology Institute of the University of California at Los Angeles has an opening for a tenure-track assistant professor. The institute comprises 70 faculty members from six departments who use structural, biochemical, genetic, and molecular approaches to study fundamental problems in biology. Outstanding candidates with research interests in any area of molecular, cellular, or developmental biology are encouraged to apply. Completed applications consisting of curriculum vitae, a one-page summary of research plans, and three letters of reference should be received before 1 February 1990 by:

**The MBI Search Committee
Molecular Biology Institute
University of California
Los Angeles, CA 90024-1570
FAX: 213-206-7286**

The University of California is an Equal Opportunity Employer. Applications from women and members of minority groups are encouraged.

**ASSOCIATE/ASSISTANT PROFESSOR
BIOCHEMISTRY
LOUISIANA STATE UNIVERSITY**

Anticipated assistant or associate professor of biochemistry position (tenure track). Candidates should have a Ph.D. and postdoctoral research experience in biochemistry or molecular biology and will be expected to establish a vigorous, independent research program and participate in teaching at the graduate and advanced undergraduate level. The department is seeking the best available candidate. Facilities available within the department or College of Basic Sciences include: DNA synthesizer and sequencer, peptide sequencers and synthesizer, amino acid analyzer, macromolecular (VAX) computer facility with an Evans and Sutherland graphics workstation, TOF and FAB mass spectrometers, and 500-MHz high-resolution NMR. Salary and title will be commensurate with qualifications and experience. Send curriculum vitae, description of current and proposed research programs, and names and addresses of three references to:

**Search Committee Chairman
Department of Biochemistry
Louisiana State University
Baton Rouge, LA 70803**

Application deadline is 15 January 1990, or until a suitable candidate is identified.

An Affirmative Action/Equal Opportunity Employer.

**LOYOLA MARYMOUNT UNIVERSITY
OF LOS ANGELES**
DEAN
COLLEGE OF SCIENCE AND ENGINEERING

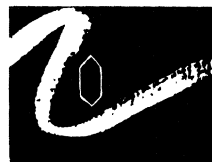
Loyola Marymount University, a private Catholic university, invites applications and nominations for the position of Dean of the College of Science and Engineering. LMU is located in Los Angeles, overlooking Marina del Rey and near Los Angeles International Airport, and has a total enrollment of 6400 students. The College of Science and Engineering has an enrollment of approximately 800 students, a faculty and staff of 60, and is organized into the departments of biology, chemistry and biochemistry, mathematics, physics, civil engineering and environmental science, electrical engineering and computer science, and mechanical engineering. The primary emphasis is on undergraduate programs with M.S. degrees offered by the engineering departments. The undergraduate engineering and chemistry programs are ABET accredited and ACS approved.

LMU is seeking a person who will provide dynamic leadership for the College's programs of teaching, research, and professional service. Candidates should possess an earned doctorate in one of the disciplines included in the College and be eligible for appointment to the rank of professor. A broad range of relevant teaching, administrative, research, and fund raising experience is desired along with an interest in furthering the goals of the University.

The position is available July 1, 1990. The salary will be competitive depending upon qualifications and experience. Applications are requested by January 15, 1990, but the search will remain open until the position is filled. Candidates must submit a letter of application, a curriculum vitae, and the names, addresses and telephone numbers of three professional references. Correspondence should be addressed to:

Albert P. Koppes, O. Carm.
Academic Vice President
Chair, Search Committee
Loyola Marymount University
Loyola Boulevard at West 80th Street
Los Angeles, CA 90045

Loyola Marymount University is an Equal Opportunity,
Affirmative Action Employer.



SCIENTISTS/ CHEMISTS

Beckman's Diagnostic Systems Group, located in Southern California, is a world leader in laboratory and hospital instrument systems. Our products play a vital role in improving the quality of life worldwide. You can be a part of our exciting efforts.

You will be involved in the development and performance evaluation of clinical chemistry reagents, calibrators, controls and analytical systems. You will provide technical assistance toward chemistry/system production support to manufacturing and quality assurance.

Various positions are available at all levels requiring at least 2 years relevant industrial experience plus BS/MS/PhD in Chemistry or Biochemistry. Positions interface with several disciplines and require excellent written and verbal communication skills. Computer skills highly desirable.

We also have positions available for **MEDICAL TECHNOLOGISTS**.

We offer excellent compensation and benefits packages. Send resume and salary history to: **Beckman Instruments, Inc., Attn: Professional Staffing-DC/SM, 200 S. Kraemer Blvd., Brea, CA 92621.** An affirmative action employer.

BECKMAN

Faculty Position **Molecular Biology of Aging Skin**

The University of Michigan Medical Center has a faculty position available at the research investigator level to study the molecular basis of aging and the effects of retinoids (vitamin A-like molecules) on aging of human skin. The successful candidate will have a Ph.D. and/or M.D. degree in cellular/molecular biological techniques, including DNA sequencing, nucleic acid hybridization, RNA isolation, molecular cloning, and transfection of eukaryotic cells. Fully equipped laboratory and support facilities are available. Position includes funding for supplies and a research assistant. The University of Michigan is an equal opportunity employer.

John J. Voorhees, M.D.
Professor and Chairman
Department of Dermatology
Room 1910 Taubman Center
The University of Michigan Medical Center
1500 East Medical Center Drive
Ann Arbor, Michigan 48109-0314

VICE PRESIDENT, UNIVERSITY AND INDUSTRY PROGRAMS

Oak Ridge Associated Universities is recruiting for a **Vice President, University and Industry Programs**. ORAU, a non-profit corporation and a medium-sized multi-program Department of Energy laboratory of nearly 600 employees, is operated by a consortium of 55 universities. ORAU conducts diverse education, research, and training programs principally for the U.S. Department of Energy.

The individual appointed will be responsible for developing and managing corporate-sponsored communication, collaborative, and consortial activities in service to our membership. Current consortial programs include University Isotope Separator at Oak Ridge (UNISOR); Marmoset Research Center at Oak Ridge (MARCOR); and Southern Association for High Energy Physics (SAHEP). Among other activities, the incumbent will be responsible for program planning; assisting in the ORAU strategic planning process; seeking opportunities for research cooperation through collaborative alliances among member universities, private industry, and government; informing the membership about faculty and student educational opportunities; developing, coordinating, and conducting workshops and conferences for member universities; and serving as an advocate of university programs at ORAU.

REQUIREMENTS: Ph.D. in science, engineering, or field relevant to ORAU interests, with at least ten years progressively responsible experience in research administration, program development, or academic administration. Must be knowledgeable of university, industry and government research, skilled in long range planning, and possess excellent oral and written communication and interpersonal skills. Budgeting and managerial experience required.

Applications should include a letter of application, a vita, and names and addresses of at least three references. Nominations and applications will be accepted until the position is filled. Initial reviews of applications will begin on December 15, 1989.

Address correspondence to:



Jon M. Veigel, President
Oak Ridge Associated Universities
P.O. Box 117
Oak Ridge, Tennessee 37831-0117

EOE/AA

PARASITOLOGIST

MERCK SHARP & DOHME LABORATORIES, a division of Merck & Co., Inc., a world leader in veterinary parasitology and parasitological research, is seeking a parasitologist for the position of Senior Research Parasitologist.

The successful candidate will become a member of an experimental team with the goal of discovering and evaluating anthelmintics for food and companion animals. The primary responsibility will be to design and conduct trials to evaluate new drug candidates in target animals. The ability to analyze the results from both a biological and statistical perspective will be necessary. The scientist will be expected to contribute significantly to studies on anthelmintic resistance, new models of drug evaluation and propagation and storage of parasites.

Applicants should have a Ph.D. in parasitology and a strong research background substantiated by publications. Evidence of experimental design and analysis is highly desirable.

ENTOMOLOGIST

We also seek an Entomologist to participate in research projects aimed at finding new agents for the control of arthropod parasites and pests. Our intent is to adopt both traditional and new approaches to the discovery of new insecticides and acaricides.

Applicants should have a Ph.D. degree in Entomology, or equivalent, and should have demonstrated an ability to conduct laboratory research of high quality. We are particularly looking for an individual in the early phase of a professional career. Knowledge of chemistry and biochemistry should be strong enough to allow close collaboration with other departments.

Merck Sharp & Dohme Research Laboratories are located in Rahway, NJ, approximately 25 miles from New York City. Our salaries, benefits and growth potential are excellent. Interested candidates should submit their curriculum vitae, three letters of reference, and salary requirements to **Ms. Dolores Barefield, Merck Sharp & Dohme Research Laboratories, P.O. Box 2000, WBD-362, Rahway, NJ 07065.** An Equal Opportunity Employer.



Merck & Co., Inc.

POSITIONS OPEN

ASSISTANT PROFESSOR IN BEHAVIORAL NEUROSCIENCE. Search reopened. The Neuroscience Program and the Psychology Department at Princeton University anticipate a position for the fall of 1990. The position involves teaching and research and is open to any area of neuroscience with an emphasis on behavior or function. Send curriculum vitae and three letters of recommendation to: **Chair, Neuroscience Search Committee, Code B, Department of Psychology, Princeton University, Princeton, NJ 08544-1010.** Deadline: 28 February 1990. *Princeton University is an Equal Opportunity/Affirmative Action Employer.*

ASSISTANT OR ASSOCIATE PROFESSOR level positions to develop research programs investigating central neurotransmitter and peptidergic systems of relevance to drug abuse and mental illness. Among the expertises being sought are:

PEPTIDE BIOCHEMIST: Sound experience in the analysis and regulation of endogenous peptidergic transmitter systems and knowledge of the application of immunological and molecular biological techniques to peptide chemistry.

NEUROPHARMACOLOGIST: Sound experience in monoamine and neuropeptide transmitter regulation and release mechanisms, with a particular emphasis on in vivo release methodology.

ANALYTICAL NEUROCHEMIST: Interest and sound experience in biogenic amine as well as neuropeptide systems, with an ability to identify and characterize known and unknown materials using current state-of-the-art technologies.

Persons appointed would be expected to be able to establish independent programs. Proven abilities in interacting collaboratively and working successfully with trainees, as well as securing external funds, are essential. Salary and level of appointment would be commensurate with experience and qualifications. Apply to: **Marvin Karno, M.D., Department of Psychiatry, NPI-UCLA, 760 Westwood Plaza, Los Angeles, CA 90024-1759.** *UCLA is an Equal Opportunity/Affirmative Action Employer, and specifically encourages applications from women and minorities.*

ASSISTANT PROFESSOR FOOD TOXICOLOGY

The Food Research Institute (Department of Food Microbiology and Toxicology), University of Wisconsin-Madison (UW-M), invites applications from qualified individuals for a tenure-track faculty position at the assistant professor level. Applicants should have a Ph.D. or equivalent in an appropriate scientific discipline and demonstrated expertise in the toxicological aspects of food safety. The primary duty of the incumbent is to establish a high-quality toxicology research program that is directly applicable to food safety. The incumbent will also be expected to deliver several lectures each semester in area of specialty to undergraduate and graduate students, perform university-related public service, and participate in activities contributing to the support of the department and the Food Research Institute. This is an exceptional annual (12-month) appointment offering excellent facilities, research support, and a competitive salary in a challenging intellectual environment. Applicants should submit curriculum vitae and the names of three to five references by 1 February 1990 to: **Dr. M. W. Pariza, Director, Food Research Institute, University of Wisconsin, 1925 Willow Drive, Madison, WI 53706.** *UW-M is an Equal Opportunity Employer and especially encourages women and minorities to apply.*

ASSISTANT PROFESSOR, URBAN HORTICULTURE. A tenure-track position in the Department of Botany, Arizona State University, is available. The successful candidate must have a strong background in plant materials and develop an externally funded research program in drought tolerance selection, water use, nutrition, effluent use, or other related areas. Responsibilities include teaching a one-semester course in plant materials and two additional courses per year. A Ph.D. in horticulture or related fields is required; postdoctoral experience is preferred. Application deadline is 1 February 1990 or the first of each month until the position is filled. Applicants must submit curriculum vitae and statement of professional goals and interests, and have three letters of reference sent to: **J. C. Stutz, Search Committee, Department of Botany, Arizona State University, Tempe, AZ 85287.** *Affirmative Action/Equal Opportunity Employer.*

POSITIONS OPEN

ASSISTANT EXTENSION ENTOMOLOGIST/ ASSISTANT ENTOMOLOGIST. Ornamentals entomologist, Department of Entomology, University of California, Riverside. Ph.D. required; 11 months; 60% extension, 40% research. Extension and research program on integrated management of arthropod pests in nursery, floriculture, landscape, and turf. Applicants send curriculum vitae, transcripts, bibliography, reprints and manuscripts in press, Ph.D. dissertation abstract, names of five references, and research interests by 15 January 1990 to: **T. D. Paine, Department of Entomology, University of California, Riverside, CA 92521.** *The University of California is an Equal Opportunity/Affirmative Action Employer and encourages applications from women and minorities.*

UNIVERSITY OF WYOMING ASSISTANT PROFESSOR MOLECULAR BIOLOGY

The Department of Molecular Biology at the University of Wyoming has a tenure-track assistant professor position available 1 July 1990. Candidates should have at least 2 years of postdoctoral experience, will be expected to establish and maintain an active research program, and be involved in teaching at both the undergraduate and graduate levels. Applicants in all areas of molecular biology/biochemistry will be considered, although preference will be given to candidates with a biophysical orientation. The department has 15 faculty with active research programs funded by NIH, NSF, DOD, USDA, and EPA. Salary is competitive. Applications will be reviewed starting 1 January 1990 and continuing until position is filled. Applicants should send curriculum vitae and summary of research plans, and arrange to have three letters of reference sent to: **Ivan I. Kaiser, Search Committee Chair, Department of Molecular Biology, Box 3944, University Station, Laramie, WY 82071-3944.** *An Affirmative Action/Equal Opportunity Institution.*

AUDITORY/NEUROSCIENCE RESEARCH ASSOCIATE TO FULL PROFESSOR

A tenure-track, senior level position is available about 1 July 1990. Preference will be given to persons with a background in morphology, physiology, or chemistry of the auditory periphery/CNS. Previous experience with the auditory system is preferred, but highly promising applicants with expertise in current research techniques of the CNS will be considered seriously. Applicants must be willing to collaborate with others in the department and have a history of external support. Ongoing research projects are wide-ranging and include single-cell physiology, morphology of the cochlea including immunohistochemistry and cytochemistry, neuroimmunology, cytology of the brainstem, psychophysics, speech perception, and evoked potentials with animals and humans. Interested persons should submit curriculum vitae including the names of three references to: **John H. Mills, Department of Otolaryngology and Communicative Sciences, Medical University of South Carolina, 171 Ashley Avenue, Charleston, SC 29425.** *The Medical University of South Carolina is an Equal Opportunity/Affirmative Action Employer.*

CONSERVATION BIOLOGIST

The Center for Biodiversity of the Illinois Natural History Survey invites applications from Ph.D.-level scientists for a full-time, state-supported research position at the **ASSISTANT PROFESSIONAL SCIENTIST** level. The successful candidate will be expected to develop a rigorous, extramurally funded research program focusing on basic and applied problems in the conservation of natural communities. Preference will be given to candidates who study plant ecology, but outstanding candidates working with other taxa will also be considered. Possible areas of research include: impacts of exotic species, habitat fragmentation, ecological and evolutionary consequences of small population sizes, and effects of management techniques (e.g., fire) on natural communities. Applications will be accepted until 15 January 1990, or until a suitable candidate is found. Qualified candidates should send a cover letter, résumé, copies of representative publications, and a brief statement of future research goals, and have three letters of reference sent directly to: **Dr. Scott K. Robinson, Illinois Natural History Survey, 607 East Peabody Drive, Champaign, IL 61820.** Telephone: 217-333-6857. *The Illinois Natural History Survey is an Equal Opportunity/Affirmative Action Employer.*

Give Your Career This Diagnostic Test.

Are you developing new diagnostic technologies? Are you contributing to products that will make a major impact on healthcare? Are you encouraged to break new ground?

If your response to these questions is "No", the answer is Becton Dickinson and Company. We're a \$1.7 billion leader in supplies and diagnostic systems for the healthcare industry. Our research facility in Research Triangle Park, North Carolina is exposing exciting new technologies that are changing the testing and treatment of disease. We're not just another overnight success—our people have been research leaders for years.

We are seeking creative, highly motivated scientists to join a multidisciplinary team in the development of novel diagnostic methodologies.

Recombinant Protein Purification

Apply protein chemistry expertise to help design, develop and implement a comprehensive DNA probe-based diagnostic system as well as recovery and characterization of recombinant derived proteins.

Protein Chemist

Responsible for characterizing sample components for their effect on both DNA probe-based and immunoassay-based diagnostic systems. In addition, the candidate will participate in establishing and qualifying procedures for purifying active proteins from recombinant fermentations. The successful candidate will have extensive experience in fractionation and analysis of proteins and glycoproteins; isolation of proteins from genetically engineered organisms; and renaturation of recombinant-derived proteins. A Ph.D. in Biochemistry with at least 2 years of post-doctoral experience in protein chemistry and a published record of accomplishment in this area is required. Experience with lipids and carbohydrates would be a plus as would any prior work with fractionation of complex body site sample matrices.

Amplification Technology

Participate in the development and optimization of proprietary amplification technologies suitable for use in DNA probe-based diagnostic assays.

Biophysical Chemist

Responsible for the characterization and optimization of amplification technologies through detailed kinetic and thermodynamic analysis of reaction parameters. The successful candidate will have extensive experience in the characterization of DNA structure and the dynamics of hybridization reactions. A Ph.D. in biophysical chemistry, chemistry or biochemistry with at least 2-3 years' postdoctoral training in the field of DNA structure is required.

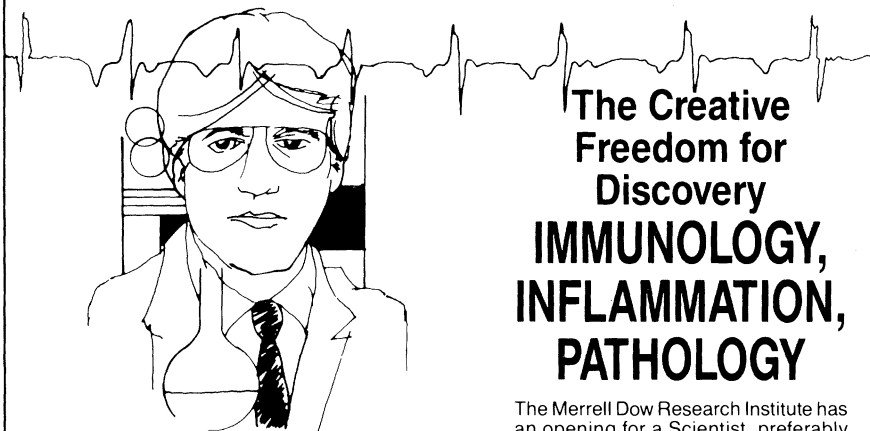
DNA Enzymologist

Responsible for the application of novel enzyme reactions to facilitate nucleic acid amplification. This includes the novel application of enzymes for amplification, characterization of enzyme-catalyzed reactions and the modification of reaction conditions to alter enzyme activity and specificity. The successful candidate will have extensive training and experience in the enzymology of DNA replication and RNA transcription. A Ph.D. in biochemistry or chemistry with at least 2-3 years' postdoctoral training in the field of DNA enzymology is required.

Becton Dickinson Research Center offers an outstanding research facility and scientific staff dedicated to advancing diagnostics through state-of-the-art science and technology. If you are looking for a stimulating environment in which to substantially contribute to this fast-moving area of diagnostics, then we invite your application for this position. To apply in confidence, send your resume with salary requirements to: Human Resources Department, Becton Dickinson and Company Research Center, P.O. Box 12016, Research Triangle Park, NC 27709. AA/EEO Employer.

**BECTON
DICKINSON**

PhD SCIENTIST T H I N K S P A C E



The Creative Freedom for Discovery **IMMUNOLOGY, INFLAMMATION, PATHOLOGY**

The Merrell Dow Research Institute has an opening for a Scientist, preferably with postdoctoral experience, to join a basic research team working on novel therapeutic approaches to autoimmunity and inflammatory tissue damage.

Working beside eminent scientists in a fertile environment of creative freedom and open interchange of ideas, you will discover the catalyst for new professional achievement. You will contribute to ongoing projects and initiate new ones to investigate the *in vivo* roles of proteases in connective tissue destruction and cell surface glycoproteins in leukocyte migration. Expertise in *in vivo* and a background in immunology, inflammation, pathology, or related areas are required.

MDRI. Because your expertise will earn us new distinction. We offer excellent compensation, comprehensive benefits, and professional recognition in our global organization. Please send your C.V. and names of three references to: **Manager, Human Resources (Refer to Job Code NSD).**

Merrell Dow

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2110 East Galbraith Road, Cincinnati, Ohio 45215
Equal Opportunity Employer M/F/H/V

CLINICAL PHARMACOLOGIST - PHYSIOLOGICAL PHARMACOKINETICIST

The Laboratory of Clinical Studies, National Institute on Alcohol Abuse and Alcoholism, Public Health Service, invites applications for one Clinical Pharmacologist - Physiological Pharmacokineticist. This position is offered depending on the experience of the applicants at the level of a senior staff fellow (salary range, \$28,000 - \$45,234). The Laboratory is involved in exciting studies on brain imaging and drug metabolism. The individual appointed will have an important role in this multidisciplinary team effort. A research ward, excellent analytical chemistry, brain imaging and computer resources are available in the Laboratory on the NIH campus. Position information and qualification requirements may be obtained by contacting Dr. Linnoila. Submit Curriculum Vitae and names of three references to:

Markku Linnoila, M.D., Ph.D.
Clinical Director
National Institutes of Health
Building 10, Room 3B-19
9000 Rockville Pike
Bethesda, MD 20892
(301) 496-9705

This position is now available.

NIH IS AN EQUAL OPPORTUNITY EMPLOYER

COLD SPRING HARBOR LABORATORY FACULTY POSITION X-RAY CRYSTALLOGRAPHY

We seek applicants for a newly-created faculty position in the field of protein structure and function, particularly X-ray crystallography, which will expand an on-going effort at Cold Spring Harbor. Current faculty members in this area include Dr. Jim Pflugrath, Dr. John Anderson and Dr. Jeff Kuret. The X-ray crystallography group will move into the new W.M. Keck Foundation Structural Biology Laboratory in 1991. Both senior and junior faculty positions will be considered.

Curriculum vitae and names of references should be submitted to:

Dr. Bruce Stillman
Cold Spring Harbor Laboratory
P.O. Box 100
Cold Spring Harbor, NY 11724



Cold Spring Harbor Laboratory

An equal opportunity employer

Faculty Position

Molecular Biology of Human Skin Cancer

The University of Michigan Medical Center has a faculty position available at the research investigator level to study the molecular genetics of human skin cancer. The successful candidate will have a Ph.D. degree, M.D. degree or M.D., Ph.D. in cellular/molecular biology or related fields with two or more years postdoctoral experience in molecular biological techniques, including DNA sequencing, nucleic acid hybridization, RNA isolation, molecular cloning, and transfection of eukaryotic cells. The candidate will work closely with a dermatologic surgeon providing excellent access to tumor specimens. Newly-equipped laboratory and support facilities are available in an established molecular biology laboratory in The Cancer Center of The University of Michigan Medical Center. Bridge funding for supplies and a research assistant are available. The University of Michigan is an equal opportunity employer.

John J. Voorhees, M.D.
Professor and Chairman
Department of Dermatology
Room 1910 Taubman Center
The University of Michigan Medical Center
1500 East Medical Center Drive
Ann Arbor, Michigan 48109-0314

CLINICAL RESEARCH PHYSICIANS

Norwich Eaton Pharmaceuticals, a Procter & Gamble Company, located in central New York State and outside London, U.K., has positions available immediately for physicians interested in clinical research in cardiovascular and bone metabolism research. As a member of a multi-disciplinary team committed to cardiac or bone research and development, the physician will be responsible for advancing candidate bone therapeutics from preclinical research through all phases of clinical research.

As a group leader, the physician will be primarily responsible for the design and execution of clinical studies, the selection of investigators, and the interpretation/presentation of clinical data to the scientific and regulatory community worldwide. The physician will interact frequently with the company's North American, European and Japanese affiliates, and as an in-house thought leader and medical consultant, will influence preclinical research and product development programs. In this role, the physician will be encouraged to stay abreast of innovations and needs in the cardiac or bone field through professional contacts with researchers and practicing physicians.

Applicants must be degreed physicians (M.D.). Experience in preclinical and/or clinical cardiomyascular research, phosphocalcic research, and/or rheumatology is desirable. Ability to communicate well in English (additional language skills, a plus) and work with a team structure is important.

For further information, contact:

Nicholas W. Andrews

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17 Eaton Avenue

Norwich, NY 13815, USA

Telephone: 607-335-2205

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TW20 9NW ENGLAND

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An Equal Opportunity Employer M/F

BS/MS Opportunities in Immunology, Molecular Biology, Histology, and Enzymology

The Miles Research Center, located in West Haven, CT is comprised of four advanced research institutes. The newly-constructed center functions as a major research resource of Bayer AG of West Germany and its subsidiary, Miles Inc. Among the major topics of research are biotechnology and the discovery of new targets for the therapy of rheumatoid and osteoarthritis.

The Center is engaged in a major expansion of its staff and offers outstanding opportunities to BS/MS candidates with appropriate credentials, as described below:

■ Enzymology-Protein Chemistry

Research will involve the characterization of novel proteases of therapeutic importance. Applicants should possess research experience in: protein/peptide chemistry, protein separation, protein conformation, or enzymology. Prior industrial research experience is highly desirable but not essential.

■ Histology

Two positions are available. A BS is sought with some experience to assist in carrying out histologic follow-up for multiple scientific research projects within a core facility. Individual will perform all aspects for tissue specimen preparation.

Secondly, within the osteoarthritis group, applicants should possess 1-3 years of experience in: processing of hard tissues for histology, histochemistry, immunohistochemistry, or ultrastructure. Additional experience in computer based data analysis is desirable.

■ Molecular Biology

As part of a group studying metalloproteases with special regard to osteoarthritis, a research background of 1-3 years is required in: screening cDNA libraries, DNA sequencing, northern, southern and western blotting, transfection, PCR technology, protein purification, and/or enzyme assays. Tissue culture experience is desirable.

■ Autoimmunity Group

Three positions are available to study autoimmune disease. Applicants should possess some laboratory experience in either tissue culture and immunological assays or biochemical/molecular techniques including protein purification, radiolabeling, and electrophoretic procedures, ELISA, and immunohistochemistry.

The positions offer attractive compensation commensurate with qualifications, generous benefits, and an excellent opportunity for personal growth and professional satisfaction. Please send resume (specify position of interest) in confidence to: Director-IAA, Miles Research Center, 400 Morgan Lane, West Haven, CT 06516.



An Equal Opportunity Employer M/F/H/V

**Research
Center**

POSITIONS OPEN

ASSISTANT RESEARCH BIOCHEMIST—Professional Research Series. Available to study tumor cell-extracellular matrix interactions which influence metastasis. Candidates must have a Ph.D. and a minimum of 3 years of postdoctoral experience in extracellular matrix protein chemistry and protein purification. Additional familiarity with molecular techniques an advantage. Please send curriculum vitae and names of three references to: **Sanford H. Barsky, M.D., Department of Pathology, UCLA School of Medicine, Los Angeles, CA 90024.** An Equal Opportunity/Affirmative Action Employer.

CELL BIOLOGIST

California State University (CSU) at San Marcos, a newly forming campus 30 miles north of San Diego, invites applications for a tenure-track **ASSISTANT PROFESSOR/ASSOCIATE PROFESSOR** appointment in the Department of Biology. The campus expects to teach at least 10,000 students in a liberal arts-based program within 10 years.

Postdoctoral experience is required. Although the CSU system emphasizes undergraduate and graduate level teaching, the San Marcos campus will make every effort to encourage and enable active research.

Send letter of application, résumé, statement of research and teaching interests and accomplishments, and names, addresses, and phone numbers of three references postmarked by 1 January 1990 to: **Dr. Larry W. Cohen, Founding Faculty of Biology, California State University, San Marcos, 820 West Los Vallecitos, San Marcos, CA 92069. Telephone: 619-471-4174.**

An Affirmative Action/Equal Opportunity Employer. Women and ethnic minorities are encouraged to apply.

CELL BIOLOGY DEVELOPMENTAL NEUROBIOLOGY TWO SENIOR LEVEL FACULTY POSITIONS DEPARTMENT OF BIOLOGY UNIVERSITY OF CALIFORNIA RIVERSIDE

The Department of Biology, University of California, Riverside, invites applications for two openings at the senior level. One is in cell biology, at the **ASSOCIATE OR FULL PROFESSOR** level; the other is in developmental neurobiology at the **FULL PROFESSOR** level. The appointments will be effective 1 July 1990. Applicants should have an active research program and an established reputation with a proven record of competing successfully for extramural funding. Demonstrated interest and ability in teaching is sought. Salary will be competitive and will depend on qualifications and experience. Modern research space and access to major equipment such as TEM, SEM, and staffed biotechnology and analytical chemistry instrumentation facilities are available.

CELL BIOLOGY. We are interested in all areas of research in cell biology. Preference will be given to scientists applying modern molecular approaches to the study of the cell and with interests in: cell/cell interactions, protein sorting and assembly, cytoskeletal structure and function, or extracellular matrix. Applications should be received by 15 January 1990. Please send curriculum vitae, summary of research and teaching interests, and arrange to have three to five referees send letters to: **Cell and Molecular Biology Search Committee, Department of Biology, University of California, Riverside, CA 92521.**

DEVELOPMENTAL NEUROBIOLOGY. Acceptable areas of research include, but are not limited to, gene regulation and expression during neural development, neural differentiation and the development of integrative mechanisms, synaptogenesis, regeneration, mechanisms of learning and memory, and analysis of neural connectivity in response to environmental conditions, hormones, or other factors. The successful candidate will be expected to assume a leadership role in the interdepartmental neurobiology program. Applications should be received by 15 January 1990. Please send curriculum vitae, summary of research and teaching interests, and arrange to have three to five referees send letters to: **Developmental Neurobiology Search Committee, Department of Biology, University of California, Riverside, CA 92521.**

The University of California is an Equal Opportunity/Affirmative Action Employer and minority and female candidates are encouraged to apply.

POSITIONS OPEN

CELL/MOLECULAR BIOLOGY. Biology Department seeks candidates for a 1- to 2-year non-tenure-track appointment September 1990, to teach cell/molecular biology and an additional course (such as immunology or plant or animal physiology), as well as participate in a team-taught introductory biology course. Send curriculum vitae, statement of research activity, and three letters of recommendation to: **Patsy Dickinson, Department of Biology, Bowdoin College, Brunswick, ME 04011** by 10 January 1990.

Bowdoin College is committed to Equal Opportunity through Affirmative Action.

CELL BIOLOGY SENIOR LEVEL FACULTY POSITION DEPARTMENT OF BIOLOGY UNIVERSITY OF CALIFORNIA RIVERSIDE

Applications are invited for a tenured senior level (**ASSOCIATE/FULL PROFESSOR**) faculty position in the Department of Biology. Preference will be given to scientists applying modern molecular approaches to the study of the cell. All areas of cell biology will be considered; however, we are particularly interested in individuals concerned with cell-cell interactions, protein sorting and assembly, cytoskeletal structure and function, or the extracellular matrix.

Applicants should have an active research program and an established reputation with a proven record of competing successfully for extramural funding. Demonstrated interest and ability in teaching is sought. Salary will be competitive and will depend on qualifications and experience.

Modern research space and access to major equipment such as TEM, SEM, and staffed biotechnology and analytical chemistry instrumentation facilities are available.

Applications must be received by 15 January 1990. Please send curriculum vitae and summary of research interests, and arrange to have letters sent by three to five referees to: **Chair, Cell and Molecular Biology Search Committee, Department of Biology, University of California, Riverside, CA 92521.**

The University of California is an Equal Opportunity/Affirmative Action Employer and minority and female candidates are encouraged to apply.

CHAIRPERSON DEPARTMENT OF ANATOMY MARSHALL UNIVERSITY SCHOOL OF MEDICINE

The Marshall University School of Medicine is inviting applications or nominations for the position of chairperson, Department of Anatomy, available on or before 1 July 1990. Candidates must possess a Ph.D. and/or M.D. degree and have demonstrated experience in administration, teaching of medical/graduate students, and research. Applications or nominations should be received by 1 February 1990, and should include curriculum vitae and names with addresses of three references to:

**Dr. Howard Aulick
Anatomy Chairperson Search Committee
Marshall University School of Medicine
Huntington, WV 25755-9340**

An Equal Opportunity/Affirmative Action Employer.

CHAIR, DEPARTMENT OF NUTRITION

Nominations and applications are being accepted for chair, Department of Nutrition, College of Human and Community Sciences, University of Nevada, Reno. Qualifications include an earned doctorate, successful record of research, extramural funding and teaching, knowledge of plan IV/V dietetics programs, and evidence of strong leadership qualities and administrative abilities. Responsibilities include fostering the growth and development of the department, managing of departmental resources to achieve excellence in teaching and research, cultivating and maintaining agency and professional contacts, and participating in professional organizations.

Send letter of application, curriculum vitae, official transcripts, brief statement of research interests, and three letters of reference to: **Chair, Nutrition Department, Chair Search Committee, College of Human and Community Sciences, University of Nevada, Reno, NV 89557-0038. Telephone: 702-784-6611.** Application deadline is 2 January 1990. Affirmative Action/Equal Opportunity Employer. The University of Nevada, Reno, employs only U.S. citizens and aliens authorized to work in the United States.

POSITIONS OPEN

CORNELL UNIVERSITY DEAN OF THE GRADUATE SCHOOL OF MEDICAL SCIENCES AND ASSOCIATE DEAN OF MEDICAL COLLEGE FOR RESEARCH

Cornell University invites applications from qualified candidates for the combined position of dean of the Graduate School of Medical Sciences and associate dean of the Medical College for Research. The dean is the chief academic and administrative officer of the graduate school and is responsible for graduate education and the appointment, promotion, and review of the graduate faculty at the medical center in New York City. The associate dean of the medical college has leadership responsibility for the development and oversight of research activities.

This is a senior administrative position which requires a Ph.D. or M.D. degree with extensive experience in graduate research training and a distinguished record in biomedical research. Demonstrated leadership qualities and familiarity with sources of extramural research support will be preferred. Salary is commensurate with a senior administrative position at a medical center.

Applicants should submit current curriculum vitae which includes a list of publications to: **Joanne Blauer, Secretary of the Medical College, Cornell University Medical College, 1300 York Avenue, Room F-100, New York, NY 10021.** An Equal Opportunity Employer.

AMERICAN CANCER SOCIETY BASIC CANCER RESEARCH EMINENT SCHOLAR CHAIR UNIVERSITY OF FLORIDA (EDWARD R. KOGER PROFESSORSHIP)

Applications are invited for candidates to fill a faculty professorship in basic cancer research, funded through an eminent scholar chair sponsored by the American Cancer Society. The candidate should have demonstrated a strong commitment to academic medicine. Candidates must hold a Ph.D., M.D., or both, and have an accomplished research record in the investigation of fundamental processes of neoplasia. A highly interactive individual would be desirable to take advantage of the research collegiality available at the University of Florida. The scholar could be appointed in a basic science department or jointly with a clinical department. Salary is negotiable and will be based on credentials. Deadline for receipt of applications is 15 January 1990.

Candidates for this position should be nominated or they should submit a letter of application, stating teaching and research goals and including curriculum vitae and at least three names of references, to: **Edward M. Copeland III, M.D., Chairman of Professorship Search Committee, Department of Surgery, Box J-286, JHMC, Gainesville, FL 32610.**

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

HEAD, FOOD SCIENCE AND HUMAN NUTRITION DEPARTMENT, Colorado State University. Candidate will have the opportunity to provide leadership and vision to a multidisciplinary group in a major research-oriented and land-grant university. Responsibilities include department's mission in teaching, research, and outreach programs in nutritional sciences, food sciences, and food service management; a food research and development center; and a consortium for human nutrition, jointly with the University of Colorado Health Sciences Center. Degrees are offered at the B.S., M.S., and Ph.D. levels. Qualifications will include an outstanding professional record and demonstrated administrative and leadership ability; an earned doctorate in food science/human nutrition or related discipline; evidence of significant accomplishments in research, teaching, and/or extension; and effective oral and written skills. Ability to work effectively with external and community groups, experience or interest in fund raising and development activities, and ability to work with diverse ethnic and cultural groups are also highly desired qualifications. Colorado State University is located along the Front Range of the Rocky Mountains. Apply by 1 February 1990 to: **Dr. Ralph Smith, Chair, Search Committee for Head of Department of Food Sciences and Human Nutrition, College of Applied Human Sciences, Colorado State University, Fort Collins, CO 80523. Telephone: 303-491-7194.** Colorado State University is an Equal Opportunity/Affirmative Action Employer. Office of Equal Opportunity: 314 Student Services Building.

POSITIONS OPEN

DIRECTOR OF TOXICOLOGY AND CHEMISTRY

CBC is a dynamic, growth-oriented medical laboratory with a home base located along the bountiful shoreline of western Michigan. We are committed to the "pursuit of excellence" not only in our business endeavors, but in our employees as well. We are currently searching for a director of toxicology and chemistry to fill a critically vital position in our Grand Rapids laboratory. Candidates must be NIDA-qualified Ph.D.'s. Excellent compensation, fully paid benefit package.

This is an exciting opportunity to live and work in beautiful western Michigan. Join our team of professionals and watch us as we grow and achieve our pursuit of excellence.

CBC Laboratory Service, Inc.
2740 28th Street SW
Grand Rapids, MI 49509
Attention: Personnel Department

DIRECTOR HIGH ALTITUDE OBSERVATORY

The National Center for Atmospheric Research (NCAR) in Boulder, Colorado, is accepting applications for director of the High Altitude Observatory. The director provides leadership to a broad research program in solar physics and related areas, with a balanced emphasis on observation, data interpretation, and theory. Primary responsibilities include the formulation and implementation of scientific plans and priorities; selecting, developing, and managing the observatory's staff in ways consistent with NCAR's Equal Employment Opportunity policy; and planning and managing budgets and the allocation of resources.

The candidate must meet the qualifications of an NCAR senior scientist, which include possession of a Ph.D. in an appropriate physical science or an equivalent combination of education and experience, and, in this particular case, international recognition as a scientific leader in solar physics, solar-terrestrial physics, and/or related areas based on published research works. Also essential are demonstrated abilities and skills in the development of scientific programs, the persuasive promotion of scientific goals and strategies, and the effective management and advancement of the observatory's work with NCAR, UCAR, funding agencies, and the general scientific community. Salary range is \$5720 to \$8580 per month.

Send curriculum vitae and a list of publications by 31 January 1990 to: Job # 1149, Searl G. Brier, NCAR, P.O. Box 3000, Boulder, CO 80307. NCAR is an Affirmative Action/Equal Opportunity Employer. Applications from women, minorities, the disabled, and Vietnam era and special disabled veterans are encouraged.

NATIONAL SCIENCE FOUNDATION (NSF)

NSF's Division of Biotic Systems and Resources is seeking qualified applicants for the following positions: PROGRAM DIRECTOR, population biology and physiological ecology; PROGRAM DIRECTOR, systematic biology program; and ASSOCIATE PROGRAM DIRECTORS, systematic biology program. The incumbents to these positions will administer a program for basic research grant support, including advising applicants, reviewing proposals, and other administrative duties. The positions will be filled on visiting scientist/temporary basis and are excepted from the competitive civil service. The salary range:

Program director: \$48,592 to \$75,473.

Associate program director: \$41,121 to \$64,778.

The visiting scientist candidate receives a leave of absence from his/her employer and salary is set in accordance with NSF's visiting scientist program.

Applicants should have a Ph.D. and/or equivalent research experience. In addition, for the program director positions, six or more years of successful research experience is required. For the associate program director, four or more years of successful research experience is required. Administrative experience is also required. Applicants should submit a Standard Form 171, Application for Federal Employment, or résumé to: National Science Foundation, Room 208, 1800 G Street, N.W., Washington, DC 20550. Attention: Catherine Handle.

Call 202-357-9681 for further information about the NSF application process, or 202-357-7332 for details on these specific positions. Hearing impaired individuals should call 202-357-7529. NSF is an Equal Opportunity Employer.

Research Professionals in Biotechnology

ImmunoGen is a rapidly growing biotechnology company dedicated to the development of immunotoxins and other cancer therapeutics. We are seeking talented scientists to join us in exploring new approaches to human disease. Research positions are available at Ph.D., M.S. and B.S. levels in our expanding research programs. Candidates should enjoy taking the initiative in solving scientific problems to achieve near-term and long-term goals.

STAFF SCIENTISTS IN BIOCHEMISTRY

Candidates should have a Ph.D. in Biochemistry or related disciplines, with a strong research background in biochemistry. People with a proven record of realizing ideas through developing independent research projects, such as group leaders or junior faculty, would be strong candidates.

STAFF SCIENTISTS IN CELL BIOLOGY

Candidates should hold a Ph.D. in cell biology, immunology or related disciplines and have a strong research background and publication record in mammalian cell biology.

STAFF SCIENTIST IN MOLECULAR BIOLOGY

Our newly established molecular biology laboratory is developing a research program to include among other projects cloning, characterization and expression of cell surface antigens, construction, mutagenesis and expression of chimeric proteins. Qualified candidates should possess a Ph.D. in molecular biology and have a strong background in molecular cloning methods, cDNA library construction and screening, and DNA sequencing.

RESEARCH ASSOCIATES

A number of opportunities exist for associate scientists at the B.S. and M.S. level in cell biology, molecular biology, biochemistry and organic chemistry. Research areas include characterization and study of human cell lines, *in vitro* evaluation of immunotherapies for cancer and other diseases, DNA cloning and sequencing, drug synthesis and immunoconjugate construction.

ImmunoGen offers an excellent salary and benefits package including 100% paid Health and Dental Insurance and Tuition Assistance. The company is located in a new, fully equipped, state-of-the-art laboratory in Cambridge, midway between the campuses of HARVARD and MIT.

Please send a detailed resume including three references and a statement describing your scientific interests and career goals. All responses will be acknowledged. Reply to: Jeanne Horgan, Personnel Department, ImmunoGen, Inc., 148 Sidney Street, Cambridge, MA 02139.

IMMUNOGEN, INC.

An Equal Opportunity Employer

**A LARGE PHARMACEUTICAL
RESEARCH CENTER
in suburban PARIS**

is recruiting a

SPECIALIST

in the pharmacology of rhumatic diseases

to be responsible for the development and supervision of experimental models of pathologies necessary for innovation in the fields of bone metabolism, inflammation and pain.

A Doctorat or Ph.D. (or equivalent) in pharmacology is required. Experience in an industrial setting will be an asset, but above all the successful candidate will demonstrate the desire to apply himself or herself to the fascinating and challenging problems in these fields.

Please send your C.V. accompanied by a statement of your professional aspirations to **PUBLIVAL/9150 - 27, Route des Gardes 92190 MEUDON (FRANCE).**

FACULTY POSITIONS IN MOLECULAR BIOLOGY SOUTHERN ILLINOIS UNIVERSITY AT CARBONDALE

Applications are invited for tenure track openings at the Assistant Professor level in the area of Molecular Biology/Genetics. These new 12 month appointments are part of the University's commitment to strengthen and expand its program in molecular biology in the College of Agriculture, College of Science, and School of Medicine. The initial openings are in the departments listed below. In addition to establishing a strong research program, teaching at the undergraduate and graduate levels is expected. All candidates must have an earned doctorate and postdoctoral experience. Salary, research facilities and start-up funds are very competitive. Applications will be accepted by the Departments as shown below until at least Jan. 15, 1990 or until the positions are filled. Separate applications should be forwarded if an applicant wishes to be considered by more than one unit.

Chemistry and Biochemistry. A position is available in the general area of eucaryotic molecular biology. All qualified candidates will be considered but preference will be given to persons working on problems associated with regulation of gene expression. Applicants should send their curriculum vitae, a statement of research plans and have at least three letters of reference sent to Dr. J. Tyrrell, Chairman; Chemistry and Biochemistry; Southern Illinois University; Carbondale, IL 62901.

Microbiology. A position is available in the general area of molecular biology. All qualified applicants will be considered but preference will be given to those whose primary area of research interest is in some aspect of the molecular genetics of eucaryotic cells, the immune system, or host-parasite interactions. Interested applicants should send their curriculum vitae, a statement of research plans, and the names of at least three references to Dr. John Martinko; Search Committee; Department of Microbiology; Southern Illinois University; Carbondale, IL 62901.

Plant and Soil Science. A position is available in the general area of molecular/cell agronomy. All qualified candidates will be considered but preference will be given to individuals whose primary interest is in genetic engineering of agronomic crops for increasing yield potential, e.g. to increase resistance to insects, diseases, or herbicides. To apply, send a letter of application, curriculum vitae, a statement of research plans, and have at least three letters of reference sent to: Dr. Donald Stucky, Chairman; Department of Plant and Soil Science; Southern Illinois University; Carbondale, IL 62901.

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

TENURE-TRACK ASSISTANT PROFESSORSHIPS DEPARTMENT OF BIOLOGY

The Department of Biology at Tufts University invites applications for three new tenure track positions at the assistant professor level, to start Sept., 1990. This is an expansion made possible in part by a grant under the Howard Hughes Medical Institute Undergraduate Initiative; two additional faculty positions will be opened to start Sept., 1991.

The Department presently has 17 full-time faculty members committed to offering a broadly-based biology curriculum. We seek candidates with training in specialties that will complement our existing research and teaching programs at the undergraduate and graduate levels. Successful applicants will be expected to pursue independent extramurally-funded research programs, and to sponsor doctoral-level graduate research. PhD required; postdoctoral experience preferred. In addition to the specialized teaching listed for each position, duties will include participation on a rotating basis in team-taught introductory and intermediate level biology courses. Applicants will be sought for the following specific positions; although research specialties are suggested, we will consider any outstanding candidate in each area.

MOLECULAR BIOLOGIST, preferably with research interests in the molecular biology of higher or lower eukaryotes, including plants. Instructional duties will include an intermediate level course in molecular biology and an advanced seminar course.

NEUROBIOLOGIST, preferably with research interests in developmental neurobiology, receptors or channels, integrative neuroscience, or neuroethology. Instructional duties will include a course in neurobiology and a specialty course.

POPULATION BIOLOGIST, preferably with research interests in population dynamics, population genetics, or evolutionary mechanisms. Instructional duties will include an introductory course in biostatistics and a course in an area of population biology.

Women and minorities are encouraged to apply. Applications will consist of a curriculum vitae, a concise statement of research interests and goals, and letters sent from three references who can comment on teaching ability and research potential.

Address to: **Chair, Search Committee for (state position desired), Department of Biology, Tufts University, Medford, MA 02155.**
Deadline for completed applications, including letters of reference, is Jan. 9, 1990.

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



TUFTS UNIVERSITY

Enzymology Postdoctoral Scientist

The Medicinal Chemistry Department of SmithKline Beecham Pharmaceuticals has an immediate opening for a Postdoctoral Scientist interested in investigating the mechanisms of enzyme action and inhibition. The research area will focus on targets related to protein folding and immunosuppression.

The successful candidate will have:

- Ph.D. in Bio-Organic Chemistry, Biochemistry, Chemistry or the equivalent.
- Experience in enzyme purification and characterization.
- Experience in the development of specific enzyme assays.
- Experience in the kinetic analysis of enzymic reactions using steady state or stop-flow techniques.
- Working knowledge of enzymatic reactions mechanisms.

Located in suburban Philadelphia, near Valley Forge, PA, our modern and superbly equipped Research and Development Center offers excellent opportunities for innovative, interdisciplinary research. Publication of research findings in leading journals and interactions with the scientific community are to be encouraged. Our postdoctoral positions are normally of two years in duration. We offer an attractive compensation and benefits package. For confidential consideration, we invite qualified candidates to submit their curriculum vitae to: Nancy Hasson, H0122, SmithKline Beecham Pharmaceuticals, P.O. Box 1539, King of Prussia, PA 19406-0939. We are an Equal Opportunity Employer M/F/H/V.



SmithKline Beecham
Pharmaceuticals

Biological Scientist

Monsanto Company's Central Research Laboratories has an immediate opening for an experienced Biophysicist to join their multidisciplinary New Technology Development Department.

The successful candidate will join a world class group in the science of membranes, bioseparations, controlled delivery and cell culture.

Candidates should possess a Ph.D. in one of the Biological Sciences (e.g., Cell Biology, Immunology, etc.) or equivalent. Experience in Biocompatibility, Immunology, and Therapeutic Cell Culture is desirable.

For consideration, please send your resume and letters of references to: **Dr. J.M.S. Henis, Sr. Fellow/Director, New Technology Development; Mail Zone U2E; MONSANTO COMPANY; 800 N. Lindbergh Blvd.; St. Louis, MO 63167.** Monsanto is an Equal Opportunity Employer M/F/H/V.

Careers for people with ideas

Monsanto

RESEARCH ASSOCIATE DNA SEQUENCING

Amgen is a recognized leader in the discovery and development of human pharmaceuticals through applied biotechnology. Our continued growth has created an immediate opportunity for a Research Associate in our core DNA Sequencing Group.

In addition to providing DNA sequencing support for a variety of on-going research projects within the company, the responsibilities for this position will include participation in research projects originating within the DNA Sequencing Group.

Candidates for this position must have a BS or MS in an appropriate discipline and a minimum of two years' experience in DNA sequencing. Experience in basic cloning techniques, the dideoxy sequencing method, and computer analysis of DNA sequences is essential. Experience in gene mapping and screening of phage and cosmid libraries is highly desirable.

Amgen offers an excellent compensation and benefits package, including relocation benefits, as well as a stimulating and challenging research environment. If you have the necessary skills and qualifications and would like to be a part of a company that places a high priority on its human resources, please send a resume, in confidence, to:

**AMGEN, INC.
Recruitment, Dept. #430
Amgen Center
Thousand Oaks
CA 91320-1789**

Equal
Opportunity
Employer

AMGEN

ASSISTANT AND ASSOCIATE PROFESSORSHIPS IN PATHOLOGY: CANCER RESEARCH

The Department of Pathology at the University of Tennessee Medical Center has recently made a new commitment to develop a strong academic program in cancer research. As part of this endeavor, several new positions are currently available. Applicants who have a strong interest and background in one or more of the following areas of investigation should apply:

1. Control of Cell Proliferation/Differentiation and Carcinogenesis
2. Mechanisms of Cancer Invasion and Metastasis
3. Molecular Virology and Molecular Genetics
4. Tumor Immunology

Individuals with MD, PhD, or MD/PhD degrees with a reputation for scientific productivity are encouraged to submit their curriculum vitae and bibliography with three letters of recommendation. Preference in the selection process will be given to those applicants with current extramural research support and those who are qualified to teach graduate courses in cell and molecular pathology especially relating to disease mechanisms.

Applications will be reviewed as of January 1, 1990 and thereafter until the positions are filled. Please send applications to:

**Dr. Robert E. Scott, Chairman
Pathology Search Committee
Department of Pathology
University of Tennessee
800 Madison Avenue, 576 BMH Main
Memphis, Tennessee 38163**

"The University of Tennessee is an equal employment opportunity/affirmative action/Title IX/Section 504 employer."

HEALTH SCIENTIST ADMINISTRATOR (Biological Sciences) GM-13/14

The National Institute of Allergy and Infectious Diseases (NIAID), National Institutes of Health (NIH), invites applications for scientists to serve as Executive Secretary of a review committee in the Program and Project Review Branch, NIAID. Applicants must have a Ph.D. or equivalent with research training and experience in conducting independent research in one or more of the following areas: microbiology, virology, immunology, epidemiology, or related fields. Experience in research program administration is desirable, as is familiarity with NIH extramural programs. A full position description is available upon request. This position is available immediately. Applicants should submit an Application for Federal Employment (SF-171) and curriculum vitae to:

**NIAID Personnel Office
Building 31, Room 7A-27
9000 Rockville Pike
Bethesda, MD 20892**



For additional information, call Ms. Diane Dorsch or Ms. Elizabeth Holmes on (301) 496-4634. Applications must be received or postmarked by January 10, 1990.

U.S. CITIZENSHIP REQUIRED
NIH IS AN EQUAL OPPORTUNITY EMPLOYER

POSITIONS OPEN

DEAN OF ARTS AND SCIENCES. Loyola University, Chicago, a Jesuit, Catholic institution, seeks applications for the position of dean of CAS, which has 4000 students in 23 disciplines and over 300 faculty. Excellence in administration, leadership, and commitment to the philosophy of Jesuit education. To start 1 July 1990. Send applications by 15 January 1990 to: **Professor James Rocks, English Department, Loyola, 6525 North Sheridan Road, Chicago, IL 60626.** *Equal Opportunity/Affirmative Action Employer.*

California State University, San Bernardino, invites applications for the position of **PROFESSOR AND CHAIR** of the Department of Biology, available September 1990. Appointment is at the rank of full professor (\$45,960 to \$55,452 per year based on experience, and additional half-time summer salary for 2 months). Qualifications: an earned Ph.D., excellent teaching record, research and extramural funding, demonstrated commitment to undergraduate and graduate education, evidence of outstanding leadership and administrative abilities, expertise in program development, and experience in laboratory planning and design. Deadline: 15 January 1990 or until filled. Submit a letter of application, curriculum vitae, statement of administrative philosophy, and three letters of recommendation to: **Dr. Alexander Sokoloff, Acting Chair, Department of Biology, California State University, 5500 University Parkway, San Bernardino, CA 92407.** *An Equal Opportunity/Affirmative Action/Section 504/Title IX Employer.*

TECHNICAL DIRECTOR OF ELECTRON MICROSCOPY AND IMMUNOCYTOCHEMISTRY. The new Division of Cellular and Molecular Medicine of the University of California, San Diego, is seeking a technical director of electron microscopy and immunocytochemistry. The candidate will be responsible for the set-up, planning, and operation of a core facility in this new division and must have extensive experience in the preparation and analysis of cells and tissues by electron microscopy and immunocytochemistry (immunofluorescence, immunoperoxidase, immunogold labeling, and frozen thin sectioning). The candidate will also be qualified to instruct technicians, students, and postdoctoral trainees in the principles and practice of tissue preparation, microtomy, ultracytomicrometry, and immunocytochemistry. The successful candidate will work closely with the planning and data collection. An M.T. degree or its equivalent and at least 5 years of experience are required. The applicant should qualify for appointment as a specialist in the Department of Pathology. Salary and level of appointment will be commensurate with the qualifications of the candidate. Application with curriculum vitae and names of three referees should be sent to: **Dr. Marilyn G. Farquhar, Division of Cellular and Molecular Medicine, c/o Department of Pathology, M-012, University of California, San Diego, La Jolla, CA 92093** by 15 December 1989.

ECOLOGY/EVOLUTIONARY BIOLOGY CONSERVATION BIOLOGY

The Department of Biology, University of Missouri—St. Louis, invites applications for two Ph.D. level positions. We seek applicants who will complement staff associated with our emphasis area in ecology, evolution, systematics, and tropical conservation biology. The graduate program in this area is offered in cooperation with the Missouri Botanical Garden. Successful applicants will be expected to develop vigorous, independent research programs and to participate in graduate and undergraduate training. The positions are:

ECOLOGY/EVOLUTIONARY BIOLOGY, rank open. We seek a candidate with a nationally recognized research program in any area of ecology or evolutionary biology. Preference will be given to those with tropical experience.

CONSERVATION BIOLOGY, rank open. We seek a candidate who is trained in conservation biology or is committed to developing a strong research program in that area. Duties will include leadership in development of an interdisciplinary graduate curriculum in conservation biology.

Send curriculum vitae, pertinent reprints, and names, addresses, and telephone numbers of three references by 31 January 1990 to: **Dr. James H. Hunt, Chairperson, Ecology Search Committee, Department of Biology, University of Missouri—St. Louis, 8001 Natural Bridge Road, St. Louis, MO 63121-4499. FAX: 314-553-6233.** *The University of Missouri—St. Louis is an Equal Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

CHIEF, LABORATORY OF ALLERGENIC PRODUCTS DIVISION OF BACTERIAL PRODUCTS CENTER FOR BIOLOGICS EVALUATION AND RESEARCH

The Food and Drug Administration (FDA), Center for Biologics Evaluation and Research, Division of Bacterial Products, invites applications for the position of chief, Laboratory of Allergic Products, located in Bethesda, Maryland. The laboratory is responsible for the research and regulatory programs related to allergenic products. This is a supervisory, interdisciplinary position appropriate for a chemist, microbiologist, or biologist with postgraduate training. Physicians may also apply for this position; if selected, additional responsibilities would include medical evaluation of selected clinical studies for the laboratory and the Division of Bacterial Products, and may include the performance of clinical studies. The laboratory chief is responsible for independently planning, organizing, and conducting research related to immunology, mechanisms of allergic disease, and procedures for laboratory and clinical analysis of allergenic products related to the regulatory mission. Knowledge of the study of allergic diseases, the use of allergens for diagnosis and immunotherapy, and the methods used for the standardization of allergens is required.

Salary range for chemist, microbiologist, or biologist is \$48,592 to \$63,172 at the GM-14 level and \$57,158 to \$74,303 at the GM-15 level. Salary range for physician is \$56,128 to \$70,420 at the GM-14 level and \$60,519 to \$77,331 at the GM-15 level. Physicians may also be eligible for a physician's comparability allowance up to \$20,000 per year. Salary is commensurate with education and experience. *U.S. citizenship is required.*

Position information and specific qualification requirements may be obtained by contacting: **Fara Guest, telephone: 301-443-4003.** Application for federal employment (SF-171) must be received at the following address no later than 12 January 1990:

**FDA Personnel Office
Attention: Fara Guest
Vacancy Announcement FDA-89-433-B
Room 4B-26, 5600 Fishers Lane
Rockville, MD 20857**

FDA is an Equal Opportunity Employer.

ESTUARINE/COASTAL BIOLOGIST

Tenure-track **ASSISTANT PROFESSORSHIP**, fall 1990. Must have Ph.D., take part in M.S. graduate program, establish courses in discipline, and establish research program. Application closing date: 31 January 1990. Send curriculum vitae, names and addresses of three references, and description of teaching and research interests to: **Biology Search Committee, P.O. Box 10037, Lamar University, Beaumont, TX 77710.** *An Equal Opportunity/Affirmative Action Employer.*

FACULTY POSITION IN NUMERICAL MODELING

The University of Miami invites applications for an academic-track faculty position in the Rosenstiel School of Marine and Atmospheric Science, Division of Meteorology and Physical Oceanography. Rank and salary will be negotiated according to qualifications: minimum requirements are a Ph.D. degree in physical oceanography or closely related discipline and demonstrated independent research capability. Graduate level teaching competence in fluid mechanics with emphasis on numerical models of meso- and/or basin-scale dynamics is desirable. The appointee in this position is expected to develop individual research activities which complement an active program of ocean dynamics research based on in situ field observations, satellite remote sensing, and research at NOAA's Atlantic Oceanographic and Meteorological Laboratories, which are located nearby. A central interest in applications of model results to the analysis and understanding of ocean circulation and coupled systems is particularly appropriate, as would be an interest in personal participation in field studies. Send curriculum vitae, publication list, and names of three references by 15 January 1990 to: **Chairman, Physical Oceanography Search, Division of Meteorology and Physical Oceanography, Rosenstiel School of Marine and Atmospheric Science, University of Miami, 4600 Rickenbacker Causeway, Miami, FL 33149-1098.** *UM is a private, independent, international university. Affirmative Action/Equal Opportunity Employer.*

PUBLIC HEALTH SERVICE
NATIONAL INSTITUTES OF HEALTH
NATIONAL INSTITUTE OF ENVIRONMENTAL HEALTH SCIENCES

POSTDOCTORAL POSITIONS

The Laboratory of Cellular and Molecular Pharmacology has postdoctoral opportunities in several areas of research related to cellular signalling and membrane function.

MEMBRANE TRANSPORT - DR. JOHN B. PRITCHARD

Candidates interested in mechanisms of transport and the role of altered transport in the toxicity of xenobiotics should apply. Experience in membrane biology is preferred.

INTRACELLULAR REGULATION - DR. DAVID S. MILLER

Control of cell function by internalized polypeptide hormones and growth factors is under investigation. Experience in cell biology is preferred.

INOSITOL PHOSPHATES - DR. STEPHEN B. SHEARS

Studies will concentrate on the regulation of enzymes associated with the metabolism of inositol phosphates. Experience in enzymology or protein chemistry is required.

DRUG METABOLIZING ENZYMES - DR. RICHARD M. PHILPOT

Several positions are available for those interested in the application of molecular biology to the study of the structure and function of drug metabolizing enzymes. Experience in molecular biology is recommended.

General Requirements: Applicants must possess a Ph.D. or equivalent degree in Biochemistry, Cell Biology, Molecular Biology, Physiology, Pharmacology or closely related field, and show evidence of ability to carry out independent research. Candidates with up to 7 years of postdoctoral research experience will be considered.

For further information regarding these positions, contact the above investigators by calling 919-541-3332. For prompt consideration, send cover letter indicating area of interest, curriculum vitae and three letters of reference by December 15, 1989, to:

**Ms. Dara Trupe
NIEHS Personnel Office (HN12)
P.O. Box 12233
Research Triangle Park, NC 27709
(Telephone 919-541-3032)**



U.S. Citizenship is not required.
NIEHS IS AN EQUAL OPPORTUNITY EMPLOYER

RESEARCH OPPORTUNITIES

In Agricultural Biotechnology

Dow Elanco and Company is a newly formed agricultural chemical company. Created as a joint venture between The Dow Chemical Company and Eli Lilly and Company, Dow Elanco is now the largest agricultural chemical company in the U.S.

Expansion of research efforts within the new company has created several new research positions to be filled by outstanding scientists interested in the challenges and rewarding career opportunities made possible by the formation of a company of this magnitude. Although these positions will be located initially at research facilities in Midland, Michigan, they will relocate to a major new research complex to be completed in 1992 in Indianapolis, Indiana.

Entry-level positions are currently available in the Agricultural Biotechnology Department in the following areas:

PLANT MOLECULAR BIOLOGY/GENE EXPRESSION

We are seeking a Ph.D. level scientist in plant molecular biology to join a highly focused plant transformation team. Postdoctoral experience is preferred, with an emphasis in gene expression analysis. Expertise in RNA analysis, such as S1 and primer extension mapping, is highly desirable. Familiarity with plant transformation systems would be beneficial. The successful candidate will provide expertise in analysis of foreign gene expression in plants.

INSECT CELL BIOLOGY

We are seeking a Ph.D. level scientist in insect cell biology to join a multidisciplinary group developing novel insect control strategies. Postdoctoral experience is preferred. The successful candidate should have a strong, broad-based background in one or more of the following areas related to insects: cell culture, physiology/biochemistry, viruses, membrane biology, gut physiology. The successful candidate will be responsible for developing and analyzing the effects of novel insect control agents *in vitro* and *in vivo*.

PLANT CELL BIOLOGY

This position requires a BS or MS level biologist with at least 1-3 years experience in plant cell biology and a strong background in biochemistry and molecular biology. Experience in enzyme assays, DNA analysis and familiarity with plant gene transfer systems is preferred. The successful candidate will address research problems involving protoplast mediated gene transfer.

ANIMAL CELL BIOLOGY

This position requires a BS or MS level biologist with at least 1-3 years experience in animal cell biology and a strong background in biochemistry and molecular biology. Training in entomology and insect cell biology is highly desirable. Experience in establishing novel insect and/or mouse hybridoma cell lines is preferred. The successful candidate will address research problems in the use of immunological probes in insect systems.

MOLECULAR BIOLOGY

This position requires a BS or MS level biochemist, molecular biologist or microbiologist with at least 1-3 years experience in recombinant DNA technology. A strong background in chemistry would be valuable. The successful candidate will address research problems in the isolation and characterization of plant regulatory DNA sequences.

BIOCHEMISTRY/IMMUNOLOGY

This position requires a BS or MS level biologist, biochemist, or chemist with at least 1-3 years experience in hybridoma technology and immunoassays. Additional experience in protein characterization and ligand binding assays is preferred. The successful candidate will be involved in the discovery of bioactive molecules.

All candidates should possess strong communication skills and an ability to perform in a multidisciplinary team setting. Dow Elanco offers a stimulating, interactive goal-oriented research environment. A competitive salary and benefits package will be provided. Interested applicants should send their resumes to: **Technical Recruiting, Department DE-1, Dow Elanco and Company, 1801 Building, Midland, MI 48674.** An Equal Opportunity Employer M/F/H/V.

DOW ELANCO AND COMPANY

POSITIONS OPEN

EVOLUTIONARY BIOLOGIST. The Department of Ecology and Evolutionary Biology at the University of Connecticut invites applications for an anticipated **ASSISTANT/ASSOCIATE OR FULL PROFESSORSHIP** in evolutionary biology. We will consider applicants who specialize in any aspect of evolutionary biology, including population biology, systematics, biogeography, and behavior. The successful candidate will be expected to develop a vigorous research program that employs molecular studies of the nuclear or mitochondrial genome of animals, protists, or fungi and to participate in the introductory biology program. Individual will also be expected to teach advanced courses appropriate to his or her specialty. Applicants should submit curriculum vitae, statement of research interests, reprints of published papers, and at least three letters of reference to: **Dr. Robert K. Colwell, Chairman, Evolutionary Biologist Search Committee, Department of Ecology and Evolutionary Biology, U-42, University of Connecticut, Storrs, CT 06269-3042.** Applications should be received no later than 15 January 1990. *The University of Connecticut is an Affirmative Action/Equal Opportunity Employer.* (Search #0A98.)

FACULTY POSITION UNIVERSITY OF WASHINGTON

The Department of Pharmacetics invites applications for a tenure-track position at the **ASSISTANT PROFESSOR** level. As part of an ongoing expansion of our department, we are seeking an individual with strong research training in cell physiology, biochemistry, biophysics, or biopharmaceutics, who is interested in developing a basic research program relevant to problems of drug delivery and disposition; in particular, for protein- or peptide-based drugs. The preferred areas of research include biomembrane transport, endocytotic processes, protein/peptide or liposome interactions with biomembranes, intracellular distribution, and metabolic mechanisms. The department currently has well-funded and interactive research programs in pharmacokinetics and drug metabolism. Advanced bioanalytical instrumentation, including FAB-tandem mass spectrometer and high-field NMR, is available within the School of Pharmacy. The position will involve teaching at both the graduate and undergraduate levels. *We are particularly interested in minority and women applicants.* Letters of application, including curriculum vitae, a statement of research interest, and three letters of reference, should be sent to: **Danny D. Shen, Ph.D., Chairman, Search Committee, Department of Pharmacetics, BG-20, University of Washington, Seattle, WA 98195.** Applications will be accepted until 15 February 1990. *The University of Washington is an Equal Opportunity/Affirmative Action Employer.*

FACULTY POSITIONS IN PHYSICAL OCEANOGRAPHY

The University of Miami invites applications for academic and research faculty positions (one each) in the Rosenstiel School of Marine and Atmospheric Science, Division of Meteorology and Physical Oceanography. Rank and salary will be negotiated according to qualifications. Minimum requirements are a Ph.D. in physical oceanography or a closely related discipline and demonstrated independent research capability. Graduate level teaching competence in fluid mechanics with emphasis on large-scale dynamics or on boundary layer processes is desirable for the academic position. The appointees in these positions are expected to develop individual research activities which complement an active program of ocean dynamics research based on in situ field observations, satellite remote sensing, and research in NOAA's Atlantic Oceanographic and Meteorological Laboratories, which are located nearby. A central interest in applications of space-based observing techniques to oceanic studies and dynamic analysis based on either, or a combination of, field experiments and model simulations, is particularly appropriate, as would be an interest in personal participation in field or numerical model studies.

Send curriculum vitae, publication list, and names of three references by 15 December 1989 for the research position and 15 January 1990 for the academic position to: **Chairman, Physical Oceanography Search, Division of Meteorology and Physical Oceanography, Rosenstiel School of Marine and Atmospheric Science, University of Miami, 4600 Rickenbacker Causeway, Miami, FL 33149-1098.**

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

POSITIONS OPEN

FACULTY POSITIONS MEMORIAL SLOAN-KETTERING CANCER CENTER CELL BIOLOGY AND GENETICS PROGRAM

The Memorial Sloan-Kettering Cancer Center invites applications for several tenure-track junior and senior faculty positions in the Cell Biology and Genetics Program. This research program is one of four in the institute, and is expanding in the areas of cell cycle control, differentiation, cell structure, intercellular recognition, and morphogenesis. The Cell Biology and Genetics Program is located in a new research building which also houses advanced facilities for protein and nucleic acid microchemistry, transgenic mice, and automated mammalian cell micromanipulation. The members of the Cell Biology and Genetics Program faculty are affiliated with the Cell Biology Graduate Program at Cornell University Medical College. The positions offered are highly competitive with regard to start-up funds, laboratory space, salary, and housing.

Eligible candidates should have a doctoral degree, postdoctoral experience, and demonstrate potential and ability to develop an independent, imaginative research program. Formal applications are invited from junior as well as established investigators. Applications should include curriculum vitae, a list of publications, a summary of research activities and research plan, and three letters of recommendation. Applications should be addressed to: **Dr. Joan Massague, c/o Christine Brohme, Box #135, Memorial Sloan-Kettering Cancer Center, 1275 York Avenue, New York, NY 10021.**

Equal Opportunity/Affirmative Action Employer.

EMORY UNIVERSITY FACULTY POSITIONS IN DEVELOPMENTAL BIOLOGY

As part of major expansion, the Department of Biology intends to make several tenure-track appointments in developmental biology. Presently available positions are at the **ASSISTANT PROFESSOR** level, although an appointment at a higher rank could be considered in exceptional circumstances. The area of research interest is broadly defined to encompass the study of molecular mechanisms relevant to the fundamental processes of differentiation and morphogenesis. Applicants should provide evidence that they will develop a strong, independent research program and that they possess a broad knowledge of developmental biology. Please send curriculum vitae, reprints of publications, a statement of present and future research plans, and four letters of recommendation to: **Developmental Biology Search Committee, Department of Biology, Emory University, Atlanta, GA 30322.** To ensure full consideration, applications should be received by 31 December 1989. *Emory is an Equal Opportunity/Affirmative Action Employer. Applications from minority and female candidates are strongly encouraged.*

FACULTY POSITIONS

The Department of Biology, College of St. Thomas, invites applications for two full-time faculty positions at the **ASSISTANT PROFESSOR** level to begin September 1990:

ANIMAL PHYSIOLOGIST, tenure-track. To teach animal physiology and either comparative vertebrate anatomy or animal diversity, and to establish a vigorous research program involving undergraduate students.

IMMUNOLOGIST/MICROBIOLOGIST, limited term (1 year). To teach one course each in immunology and microbiology.

Contribution to laboratory teaching in general biology (nonmajors) will be expected of both positions.

The College of St. Thomas is a coeducational, Catholic liberal arts college committed to the total development of the individual student. The successful candidates will have a Ph.D. (postdoctoral experience preferred for animal physiologist position) and a strong commitment to teaching at the undergraduate level and in a liberal arts context.

Send letter of application, brief statement of research plans (for animal physiologist position), and curriculum vitae, and have three letters of recommendation sent directly, to: **Ms. Penny M. Pease, Mail #4050, College of St. Thomas, 2115 Summit Avenue, St. Paul, MN 55105.** All materials must be received by 5 January 1990.

The College of St. Thomas is an Equal Opportunity/Affirmative Action Employer.

POSITIONS OPEN

FACULTY POSITION IN BIOLOGY

BEHAVIORAL ECOLOGIST, ASSISTANT PROFESSOR, tenure track, fall 1990. Ph.D. expected. Strong interest and training in field aspects of behavioral ecology preferred. To teach introductory organismal biology, animal behavior, and ecology; participate in college-wide programs; and develop a research program involving students. Send curriculum vitae, transcripts, and three letters of reference to: **Dr. David Jordan, Vice President for Academic Affairs, Austin College, Sherman, TX 75091-1177.** Review of folders begins 31 January 1990. *Equal Opportunity Employer.*

FACULTY POSITION—BIOLOGY. Tenure-track assistant professor, starting fall 1990. Possible areas include ecology, microbiology, vertebrate biology. Should be willing to teach a field course; participation in introductory biology course expected. Research involving undergraduates encouraged. Ph.D. required; teaching experience desirable. Submit résumé and three letters of reference by 15 December 1989 to: **Dr. Margaret Simpson, Chairman, Department of Biology, Sweet Briar College, Sweet Briar, VA 24595.** *Affirmative Action/Equal Opportunity Employer.*

GASTROINTESTINAL PHYSIOLOGIST

The Department of Physiology in the School of Basic Health Sciences of Virginia Commonwealth University invites applications for the tenure-track position of **ASSISTANT PROFESSOR** in the area of gastrointestinal physiology. We are particularly interested in candidates working in the area of neurotransmitter effects on intestinal motility. Candidates should have an M.D. or Ph.D. plus at least 2 years of postdoctoral experience, have published in the area of intestinal motility, and have established records of peer-reviewed federal funding for research in this area. The position will require participation in teaching both professional school students and graduate students. The candidate will be expected to work independently but also develop interactions with established programs in the department in various areas of neurophysiology. Candidates should send curriculum vitae, description of research activities, and the names of three references to: **Dr. Steven Price, Search Committee, Department of Physiology, Box 551 MCV Station, Virginia Commonwealth University, Richmond, VA 23298-0551.** *Virginia Commonwealth University is an Equal Opportunity/Affirmative Action Employer. Women and minorities are encouraged to apply.*

HERPETOLOGIST. Assistant/associate curator of reptiles and amphibians (Oklahoma Museum of Natural History) and assistant/associate professor (Department of Zoology, University of Oklahoma). Tenure-track position, with museum salary line, starting 1 July 1990. Ph.D. required. Duties include research, curation, teaching, and outreach. Successful applicant must show: (i) mastery of herpetology, research productivity, potential for funding; (ii) collection and interpretive skills; (iii) background to teach effectively herpetology and specialty course. Screening to begin 1 February 1990 and continue until filled. Send résumé, summary of position-related experience, reprints, and three recommendation letters to: **Gary D. Schnell, Search Committee Chair, Sutton Hall 303, Department of Zoology, University of Oklahoma, Norman, OK 73019.** Telephone: 405-325-4034. *Equal Opportunity/Affirmative Action Employer.*

MOLECULAR BIOLOGIST. Roger Williams General Hospital seeks a Ph.D. in molecular biology who has demonstrated skills in conducting gene regulation research in one of the following areas: growth factors, extracellular matrix, GI, or the liver. Candidates must qualify for appointment to the faculty of Brown University as **ASSISTANT PROFESSOR** of medicine (research). Requirements include expertise in areas such as gene cloning and sequencing, DNA-protein interactions, and PCR. Please send curriculum vitae and a one-page statement of research interests to: **Dr. Mark A. Zern, Chairman, Search Committee, Department of Medicine, Roger Williams General Hospital, 825 Chalkstone Avenue, Providence, RI 02908.** Applications are expected by 19 January 1990. Screening will begin on that date and continue until a successful candidate has been identified or the search has been closed. *Roger Williams General Hospital is an Equal Employment Opportunity/Affirmative Action Employer and actively solicits applications from minority and protected groups.*

LEHIGH UNIVERSITY



- 1: IMMUNOGENETICIST/MOLECULAR IMMUNOLOGIST
- 2: MICROBIAL ECOLOGIST/ ENVIRONMENTAL MICROBIOLOGIST

and
Director, Environmental Studies Center

The Department of Biology seeks individuals with established records of productive research and effective undergraduate and graduate teaching to fill tenure-track positions as early as September 1, 1990 at the rank of associate professor or higher. The immunologist will complement strengths in molecular genetics in the department and the Center for Molecular Bioscience and Biotechnology. Candidates for position 2 must have demonstrated administrative abilities. The Environmental Studies Center promotes interdisciplinary research involving faculty from 8 departments with initiatives in basic science, engineering, and policy studies. Applicants should submit a resume plus a letter indicating perspectives on research, teaching, and service to:

Search Committee (1 or 2)
Department of Biology
Lehigh University
Bethlehem, PA 18015-3189

Applications received after December 31, 1989 cannot be assured consideration.

Lehigh University is an equal opportunity/affirmative action employer.



Department of Neurobiology Duke University Medical Center

Applications are invited for 11 new tenure track positions at all ranks in the newly created Department of Neurobiology at Duke University Medical Center. Investigators will occupy research space in the Joseph and Kathleen Bryan Neurobiology Building scheduled for completion in February, 1990 and will be leaders in university-wide graduate and undergraduate programs in neuroscience. Applicants with strong research records are being solicited from the full range of sub-fields in neurobiology, including molecular, cellular, systems, and behavioral approaches. Minimal qualifications include an M.D. or Ph.D. degree and several years of research experience in neurobiology. The positions will be available from the fall of 1990.

Applicants should submit a curriculum vitae, a statement of research interests and objectives, and letters from at least 3 references to:

Dr. Dale Purves, Chairman, Department of Neurobiology, Box 3209, Duke University Medical Center, Durham, North Carolina 27710

Duke University offers highly competitive salaries and benefits. Eligible employees enjoy outstanding educational opportunities, including educational assistance and tuition grants for children.



Duke University
A Universe Of Opportunity

Duke University is an Equal Opportunity/Affirmative Action Employer.



STAFF TOXICOLOGIST

The Research and Environmental Affairs Department of Texaco, Inc. is inviting applications for a staff position in toxicology at the Corporate Research facility in Beacon, New York. The position offers a challenging opportunity to conduct health hazard evaluations for petroleum and chemical products, designing research studies and conducting environmental risk assessments. The successful candidate should have an MS or Ph.D. in Toxicology or related disciplines and demonstrated capabilities in conducting bioassays. Two to five years experience preferred. Please send your resume in confidence to:

Employee and Public Relations Department
Texaco Inc.
P.O. Box 509
Beacon, N.Y. 12508

An Equal Opportunity/Affirmative Action Employer. Applicants who are not legally authorized to work in the United States need not apply.

THE NEW YORK ACADEMY OF SCIENCES Conference on MOLECULAR AND CELLULAR MECHANISMS OF ALCOHOL AND ANESTHETICS

University of Calgary
Calgary, Alberta, Canada
June 25-28, 1990

Research into the mechanisms of action of alcohol and anesthetics, which share many features, has increasingly focused on studies at the molecular and cellular levels. This multidisciplinary conference will consider the biochemical, biophysical and pharmacologic effects of alcohol and anesthetics on cellular membranes, ion channels and membrane-associated functions. The similarities and differences between the effects of alcohol and other general anesthetics will be explored, as will be the implications of adaptive responses to chronic alcohol consumption.

Conference Chairmen:

Emanuel Rubin, M.D., Dept. of Pathology & Cell Biology,
Jefferson Medical College, Philadelphia, PA 19107, U.S.A.

Keith W. Miller, D. Phil., Dept. of Anaesthesia, Harvard Medical School,
Massachusetts General Hospital, Boston, MA 02114, U.S.A.

Sheldon H. Roth, Ph.D., Dept. of Pharmacology & Therapeutics, University of
Calgary, Faculty of Medicine, Calgary, Alberta, Canada T2N 4N1

There will be contributed poster sessions in conjunction with this conference. The deadline for submission of abstracts is **February 25, 1990**. The entire abstract including title, author(s) and affiliations, must be typed single-spaced and contained within a rectangle that measures 5" x 4 and 3/8" (W x L). Abstracts should be sent to one of the chairmen.

Accommodations will be available at The University of Calgary Campus Residences, nearby motels and downtown hotels.

For further information contact:

Conference Dept., New York Academy of Sciences, 2 East 63rd St., NYC 10021,
TEL: 212-838-0230, FAX: 212-888-2894.

POSTDOCTORAL POSITION

Available immediately to identify and characterize the transactivating factors that regulate expression of chondrocyte-specific genes and to study their changes during aging. Experience in molecular biology useful but not essential. Submit curriculum vitae to:

Dr. George R. Martin
Scientific Director
National Institute on Aging
Gerontology Research Center
4940 Eastern Avenue
Baltimore, MD 21224

U. S. Citizenship Not Required

NIH IS AN EQUAL OPPORTUNITY EMPLOYER



POSITIONS OPEN

MARINE INVERTEBRATE ZOOLOGIST. TENURE-TRACK ASSISTANT PROFESSOR beginning in August 1990. Teaching undergraduate/graduate courses in invertebrate and marine invertebrate zoology and planktonology, directing graduate students in M.S. (marine biology), maintaining active research, preferably in marine invertebrate physiology. Ph.D. with postdoctoral experience required. Send curriculum vitae, transcripts, and three letters of recommendation to: **Dr. David E. Padgett, Department of Biological Sciences, The University of North Carolina at Wilmington, Wilmington, NC 28403-3297**, by 12 January 1990. *Affirmative Action/Equal Opportunity Employer.*

MICROBIOLOGIST. A tenure-track position at the **ASSISTANT PROFESSOR** level jointly in the Department of Biology and Wildlife and the Institute of Arctic Biology at the University of Alaska, Fairbanks (UAF). Salary is negotiable based on experience. A Ph.D. in microbiology or closely allied field is required, and postdoctoral experience is preferred. The successful candidate will actively participate in undergraduate and graduate teaching (two courses per year). The area of research should interface with current strengths of the department and institute: possible areas include but are not limited to anaerobic systems, freshwater microbiology, molecular approaches to environmental microbiology, digestive microbiology, and physiology/evolution of interactions with animals or plants. Research may focus on either prokaryotic or eukaryotic microorganisms. Send curriculum vitae, statement of teaching and research interests, transcripts, and three letters of reference to: **Joshua Schimel, Chair, Microbiology Search Committee, Institute of Arctic Biology, University of Alaska, Fairbanks, AK 99775. Telephone: 907-474-7682.** Deadline 15 January 1990. *UAF is an Affirmative Action/Equal Opportunity Employer.*

MOLECULAR GENETICIST CARLETON COLLEGE

Applications are invited for a tenure-track molecular geneticist position at the level of **ASSISTANT PROFESSOR** in the Department of Biology, available September 1990. Teaching responsibilities include upper-level lecture/laboratory courses in genetics and in immunology, microbiology, or area of specialty, and participation in a team-taught introductory course in energetics/genetics. Candidate will be expected to maintain a research program which encourages participation by undergraduates and to actively seek external research support. Level of start-up funding is negotiable. The department is most interested in persons with a commitment to teaching and research in the context of a liberal arts college. Applicants must have a Ph.D.; postdoctoral experience is considered highly advantageous. Under extraordinary circumstances appointment may be made at a higher rank. *Women and minority candidates are strongly encouraged to apply.* Applications, including curriculum vitae, undergraduate and graduate transcripts, a statement of teaching philosophy, a summary of research goals, and three letters of recommendation, should be sent to: **Dr. G. J. C. Hill, Department of Biology, Carleton College, Northfield, MN 55057-4025** by 3 January 1990. *Carleton College is an Equal Opportunity/Affirmative Action Employer.*

MOLECULAR IMMUNOLOGIST. To work with a group of cellular immunologists in the identification of T cell receptor genes utilized in human clones responding to CNS autoantigens. Ph.D. in the area of molecular biology and expertise in cellular immunology, PCR, gene sequencing, and expression necessary. Possibility for permanent position. Contact: **Dr. Vandenbark, Neuroimmunology Research 151D, Veterans Administration Medical Center, Portland, OR 97201. Telephone: 503-220-8262, ext. 7156.**

MOLECULAR IMMUNOLOGIST BRANDEIS UNIVERSITY

The Rosenstiel Research Center and the Department of Biology seek a tenure-track **ASSISTANT PROFESSOR** in the area of the molecular biology of the immune system. Candidates should have a strong record of research accomplishments in this area. Please submit curriculum vitae, including a description of research goals, and three letters of recommendation to: **Dr. Ranjan Sen, Search Committee, Rosenstiel Center, Brandeis University, P.O. Box 9110, Waltham, MA 02254-9110** by 30 January 1990. *Brandeis University is an Equal Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

DEPARTMENT OF MOLECULAR BIOLOGY MASSACHUSETTS GENERAL HOSPITAL DEPARTMENT OF GENETICS HARVARD MEDICAL SCHOOL FACULTY POSITION

The Department of Molecular Biology at Massachusetts General Hospital and the Department of Genetics at Harvard Medical School invite applications for a joint appointment at the level of **ASSISTANT OR ASSOCIATE PROFESSOR**. The laboratory will be located in the Massachusetts General Hospital Department of Molecular Biology and the faculty appointment will be in the Harvard Medical School Department of Genetics. We are particularly interested in candidates with research interests in physical biochemistry or developmental biology, but will consider applicants from other fields as well. *We encourage applications from women and minority groups.* Applications should include curriculum vitae, reprints of publications, a statement of research plans, and three letters of recommendation. This material should be sent by 1 February 1990 to: **Fred Ausubel, Ph.D., Department of Molecular Biology, Wellman 10, Massachusetts General Hospital, Boston, MA 02114.** *Harvard University and the Massachusetts General Hospital are Equal Opportunity/Affirmative Action Employer.*

MOLECULAR IMMUNOLOGIST. A full-time tenure-track faculty position for an **ASSISTANT/ASSOCIATE PROFESSOR** is available beginning 20 August 1990 in the Biology Department at East Carolina University (ECU). Candidates must have a Ph.D. and minimum of 2 years of postdoctoral experience. Expertise in area of modern immunology such as immunological cloning, evidence of research productivity/independence, and teaching experience required.

Salary is nationally competitive. Applicants should provide a letter of application, complete curriculum vitae including a summary of research interests, relevant publications, and names, addresses, and telephone numbers of three references. Screening of applicants will begin 1 February 1990; however, applications will be accepted until the position is filled.

Address correspondence to: **Dr. Wendall E. Allen, Department of Biology, East Carolina University, Greenville, NC 27858-4353.** *As an Affirmative Action/Equal Opportunity Employer, ECU encourages applications from minorities and women. Proper documentation of identity and employability and official transcripts are required prior to employment.*

NEPHROLOGY FULL-TIME FACULTY. Veterans Administration Medical Center. **ASSISTANT PROFESSOR.** Board-eligible in nephrology. Demonstrated ability to conduct research with emphasis on applying molecular biological techniques to membrane transport. Contact: **Dr. Robert Alpern, Department of Internal Medicine, University of Texas Southwestern Medical Center, 5323 Harry Hines Boulevard, Dallas, TX 75235-8856.** *VA Medical Center is an Equal Opportunity Employer.*

MEMORIAL UNIVERSITY OF NEWFOUNDLAND OCEAN SCIENCES CENTRE PHYSICAL/BIOLOGICAL/FISHERIES OCEANOGRAPHER

An **ASSISTANT PROFESSOR** (research) position is available in the Ocean Sciences Centre, Memorial University of Newfoundland. This position is associated with the NSERC/Industry Research Chair in Fisheries Oceanography, a 5-year program to study the northern cod. Research to be performed includes field studies of cod migration, studies of annual recruitment of cod, and physical/biological modeling utilizing oceanographic data assimilation techniques to provide forecasts in support of fishing fleet operations. Interested persons should send curriculum vitae, summary of relevant research experience, and the names of three potential referees to:

**Professor J. S. Wroblewski
Ocean Sciences Centre
Memorial University of Newfoundland
St. John's, Newfoundland
Canada A1B 3X7
Telephone: 709-737-8833. FAX: 709-737-4569.
Telemail: J. Wroblewski.**

Memorial University encourages both men and women to apply for positions. In accordance with Canadian immigration requirements, this advertisement is directed to Canadian citizens and permanent residents of Canada. Application deadline: 31 December 1989.

POSITIONS OPEN

MOLECULAR BIOLOGIST. University of California, San Francisco (UCSF). Full-time faculty position at the Radiation Oncology Research Laboratory (RORL) of the Department of Radiation Oncology. Working with RORL investigators, the molecular biologist will develop research to complement and extend existing projects in cell biology, cell kinetics, biochemistry, and radiation biology. Our program is multidisciplinary in nature, emphasizing areas relating to radiation, hyperthermia, and chemotherapy. The position includes teaching duties, but no clinical responsibility. Salary (at the level of either **ASSISTANT OR ASSOCIATE PROFESSOR**) will be commensurate with education and experience. Send curriculum vitae to: **Gloria C. Li, RORL, CED-200, UCSF, San Francisco, CA 94143-0806.** *UCSF is an Equal Opportunity/Affirmative Action Employer. Women and minorities encouraged to apply.*

PEDIATRICIAN/IMMUNOGENETICIST/MOLECULAR BIOLOGIST. A position is available as **RESEARCH ASSISTANT PROFESSOR** in the Department of Microbiology, Southwestern Medical Center. The ideal candidate would have a background in pediatrics and have at least 3 years of postdoctoral experience in immunogenetics/molecular biology. Modest patient contact; 90% laboratory protected time to study the development of the human immune repertoire. Experience with EBV transformation, polymerase chain reaction, cloning and sequencing of DNA, idiotype analysis, etc. Send curriculum vitae and two letters of recommendation to: **Dr. J. Donald Capra, Department of Microbiology, The University of Texas Southwestern Medical Center, 5323 Harry Hines Boulevard, Dallas, TX 75235.** *The University of Texas Southwestern Medical Center is an Equal Opportunity Employer.*

PHYSIOLOGIST/ANATOMIST

We are seeking a broadly trained person with a commitment to undergraduate teaching which includes introductory courses with large enrollments. An active research program is essential for this tenure-track position. A Ph.D. is required; candidates with postdoctoral training are preferred. Area of research expertise is open. The department offers M.S. and Ph.D. degrees. Starting date for this position is 1 September 1990 and the appointment will be at the **ASSISTANT PROFESSOR** level. Salary is competitive; minimum salary is \$32,000. Send curriculum vitae and an outline of research plans/career goals, and have three letters of reference forwarded by 1 February 1990 to: **Jean Witkowski, Department of Zoological and Biomedical Sciences, Ohio University, Athens, OH 45701.** *An Equal Opportunity/Affirmative Action Employer.*

POPULATION BIOLOGIST

The Bodega Marine Laboratory, a research unit of the University of California, Davis, invites applications for a position in population biology. The position is open at the tenured level, **ASSOCIATE AND FULL PROFESSOR**. Applicants must have a Ph.D. (or equivalent) and demonstrated excellence in their fields. We particularly encourage scientists to apply whose research will take advantage of the diverse ecosystems of the northern California coast where the laboratory and its surrounding natural reserve are located. In addition to research, teaching, and advising responsibilities, the appointee will serve as the laboratory's coordinator for research and instruction in population biology, alongside counterparts from organismal biology and aquaculture and fisheries. The position is at the laboratory full time, although the appointee will also be a member of an appropriate department on the Davis campus. Applicants should provide a letter of research and teaching interests, curriculum vitae, two selected reprints, and the names, addresses, and phone numbers of three references to: **Dr. James S. Clegg, Bodega Marine Laboratory, P.O. Box 247, Bodega Bay, CA 94923.** The selection committee will begin review of applications on 15 January 1990; the position will remain open until filled. *An Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL POSITION. Available to study control of calcium signals, protein kinases, and gene expression in T lymphocyte subsets from normal and aging mice. Some background in related areas (cell signaling, molecular immunology, and/or growth control) is required. Send curriculum vitae, with names and telephone numbers of three referees, to: **Dr. Richard Miller, Boston University, 80 East Concord Street, Boston, MA 02118.**

MOLECULAR BIOLOGIST

The Immunobiology Division at **HYBRITECH**, has an opening for an experienced PhD level Molecular Biologist with a background in mammalian expression systems. The successful candidate will lead the molecular biology effort of a developing protein engineering function. This will require a creative, organized and team work-oriented scientist with good organization, motivational and leadership skills.

HYBRITECH, an equal opportunity employer, is located in the **SAN DIEGO AREA** of Southern California. The environment is rich in biotechnology, near the University of California at San Diego, The Salk Institute and Scripps Clinic and Research Foundation. This environment, along with the prospect of a developing division, will provide good opportunity for career advancement.

HYBRITECH offers stimulating work environment and competitive salaries and benefits package. Please send resume to: **HYBRITECH INCORPORATED**, HR Dept. SM-S-12/1-MB, P.O. Box 269006, San Diego, CA 92126-9006.



WILDLIFE BIOLOGISTS

EG&G is seeking wildlife biologists to participate in research investigating the effects of energy related development on the endangered San Joaquin kit fox, giant kangaroo rat, Tipton's kangaroo rat, and blunt-nosed leopard lizard at the Elk Hills Naval Petroleum Reserve, CA.

The minimum requirement for an entry level position in wildlife biology is a B.S. degree in biology, zoology, wildlife management or related field. Minimum requirements for senior level positions are a B.S. degree in one of the above disciplines plus 3-5 years experience. Senior applicants must also have demonstrated ability to design, implement and manage multidisciplinary research projects and have knowledge of environmental laws and regulations as they may apply to endangered species and environmental protection. Work location is near Bakersfield, CA.

Qualified candidates send resumes and example of written material to:

EG&G Energy Measurements, Inc.
Santa Barbara Operations
Attn: Technical Recruiting
130 Robin Hill Road
Goleta, CA 93117

A pre-employment physical which includes drug and alcohol screening and U.S. citizenship required. An equal opportunity employer.

BIOTECHNOLOGY

SCIENTIST ANALYTICAL DEVELOPMENT

Cetus Corporation, a leader in biotechnology, has an opening in the Analytical Development Group for a Scientist to lead a group of researchers in the development of immunoassays and DNA assays in support of the production of recombinant products.

Requirements include a PhD/MS or equivalent experience in immunology or allied field, with a minimum of 2-4 years' experience developing immunological and DNA assays. Demonstrated supervisory skills are also required; biotechnological/pharmaceutical experience is desirable.

Cetus offers an excellent benefits package along with an environment that encourages innovation and growth. For consideration, please send your resume to Cetus Corporation, Box MG, 1400 Fifty-Third Street, Emeryville, CA 94608. We are an Equal Opportunity Employer.



BIOCHEMISTS / BIOLOGISTS PHARMACOLOGISTS

Unilever Research U.S., Inc., has immediate openings for Biological Scientists. URUS, located in Edgewater, New Jersey, is the American research facility of Unilever, a leading worldwide consumer products company. These positions offer the opportunity to become a member of an exciting, multidisciplinary research effort and to interact with scientists associated with Unilever's European Research Laboratories.

DERMAL CLINICAL RESEARCH The selected candidate will lead a research program in the design of new clinical methods for evaluating dermal response to external stimuli. Familiarity with non-invasive techniques for assessing the biomechanical and biophysical properties of the skin would be beneficial. Candidates should have a M.S. or Ph.D. in Biochemistry, Pharmacology or a related field and have a working knowledge of the biology or biochemistry of skin.

SKIN BIOCHEMISTRY The successful candidate will lead studies into the biology and biochemistry of skin irritation, with particular focus on understanding the interaction of surfactants with the skin. A Ph.D. in a biochemical science is required. Relevant postdoctoral experience (academic or industrial) is preferred.

Unilever Research offers competitive salaries and an excellent benefits package. Interested candidates should send their resume to: Mr. Jim Conti, Manager, Employee Relations.



Unilever Research U.S., Inc.
45 River Road
Edgewater, New Jersey 07020
An Equal Opportunity Employer M/F

RESEARCH ASSOCIATE

Recent Ph.D. wanted for NMR spectroscopic studies of blood plasma in relation to human malignancies. A background in NMR spectroscopy and lipid or protein structure is required. This is a joint project between Allegheny General Hospital and the 600 MHz NMR Center for Biomedical Studies at Carnegie Mellon University.

Salary dependent on qualifications, with a minimum of \$24,000. Interested candidates should contact **Dr. Allan Wilkinson, Department of Medical Physics, ALLEGHENY SINGER RESEARCH INSTITUTE, Pittsburgh, PA 15212, (412)359-4533.**

E.O.E.

DREXEL UNIVERSITY ENDOWED CHAIR ECOLOGY, ENVIRONMENTAL SCIENCE

Nominations and applications are sought for an outstanding scientist to occupy an endowed chair in the College of Science named in honor of L. Drew Betz, Drexel alumnus and founder of Betz Laboratories, Inc. We seek an individual who will provide a focus of excellence for research, instruction, and interaction with students in areas related to ecology and the environment. The Bioscience Department has interests in ecology, environmental science, biochemistry and molecular biology and the University's Institute for Environmental Studies has interests in water and air quality, water supply, and solid waste management. Initial screening for the position will begin 15 December 1989 and continue until a suitable candidate is found, or until Aug. 31, 1990. Submit nominations, inquiries, curriculum vitae, statement of interests, and names of at least three references to:

**Dr. James R. Spotila, Chairman
Betz Chair Search Committee
Department of Bioscience
and Biotechnology
Drexel University
Philadelphia, PA 19104**

Drexel University is an Equal Opportunity/Affirmative Action Institution and invites applications from women and minorities.

FELLOWSHIP LABORATORY OF NEUROSCIENCES

The Laboratory of Neurosciences in the National Institute on Aging, National Institutes of Health, Public Health Service, invites applications for a Fellowship position to study the neurobiology of genes from human chromosome 21 and mouse chromosome 16 by the use of transgenic cultured neurons and the development of transgenic mice. Current laboratory projects include the effects of human trisomy 21 (Down Syndrome) and mouse trisomy 16 (a model of trisomy 21) or ionic currents, gene expression, lipid metabolism and receptor-second messenger signalling. Candidates should have experience in molecular biology and interest in the isolation of genes and chromosomal segments with the aim of determining the role of specific genes in aneuploid-related neurophysiological abnormalities. Available from late 1989 - early 1990. Position is located in Bethesda, Maryland and salary is commensurate with qualifications. Send resume and the names of three references to:

**Stanley I. Rapoport, M.D.
Chief, Laboratory of Neurosciences
National Institute on Aging
Bldg. 10, Room 6C-103
9000 Rockville Pike
Bethesda, Maryland 20892
U.S.A.**



NIH IS AN EQUAL OPPORTUNITY EMPLOYER

Genetics of Mental Illness

**Assistant/Associate Research Scientist
in the Mental Health Research Institute
and Assistant/Associate Professor
of Human Genetics**

Applications are invited for a joint tenure-track appointment in the Mental Health Research Institute in collaboration with the Departments of Psychiatry and of Human Genetics at the University of Michigan Medical Center. Applicants should have a Ph. D. or M.D. and research interest in the genetics of mental illness/behavioral disorders. The candidate selected will be expected to establish a vigorous, independent, externally funded research program in the genetics of human nervous system function and mental illness. As an active member of the Departments of Human Genetics and Psychiatry and the Institute, the appointee may participate in several outstanding graduate and medical programs. Applicants should submit their curriculum vitae, a description of their research plans and the names of three references to: **Dr. S. J. Watson, Mental Health Research Institute, 205 Washtenaw Place, University of Michigan, Ann Arbor, MI 48109.** The University of Michigan is an Equal Opportunity Employer. Please reply by January 30, 1990.



The University of Michigan

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**Federal Senior Executive
(Salary Range: \$68,700 – \$80,700)
(Location: Greenbelt, MD)**

The Goddard Space Flight Center is seeking qualified candidates for the position of Chief, Laboratory for High Energy Astrophysics. This involves developing and conducting a broad program of theoretical and experimental research in the areas of X-Ray Astronomy, Gamma-Ray Astronomy, and Cosmic Ray Physics. Also included are activities in cosmology and solar physics, and studies of the interplanetary medium and planetary magnetospheres.

Applicants must have demonstrated ability to provide scientific program leadership, ability to understand the requirements and techniques for making space observations, experience in the use of space data in high energy astrophysics, and be a recognized authority in at least one of the scientific areas being pursued by the Laboratory.

Candidates should submit a resume and/or Application for Federal Employment (SF-171), and a record of publications to the NASA Goddard Space Flight Center, Office of Human Resources, Code 111.3A, Greenbelt, MD 20771 by January 5, 1990. For additional information and statement of required qualifications, contact Ms. Dianne Haggerty at (301) 286-8319. Equal Opportunity Employer. United States Citizenship Required.

**ASSISTANT OR
ASSOCIATE PROFESSORSHIPS
IN
PATHOLOGY: MOLECULAR DIAGNOSTICS**

The *Department of Pathology at the University of Tennessee Medical Center* is currently developing a strong experimental program in cell and molecular pathology. As part of this endeavor, an emphasis in the area of Molecular Diagnostics is being made for the purpose of integrating knowledge of basic molecular disease characteristics and clinical medicine. Applicants who have M.D., PhD or MD/PhD degrees and an interest in molecular diagnostics are encouraged to apply by submitting their curriculum vitae, bibliography and three letters of recommendation. Preference in the selection process will be given to those applicants with a reputation for scientific productivity and an interest in teaching and interacting with clinicians. Applications will be reviewed as of January 1, 1990 and thereafter until the position is filled. Please send applications to:

**Dr. Robert E. Scott, Chairman
Pathology Search Committee
Department of Pathology
University of Tennessee
800 Madison Avenue, 576 BMH Main
Memphis, Tennessee 38163**

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**Research
Support Grants**

Immunex Corporation, a leading biotechnology company, is pleased to announce the continuation of its Research Support Grant Program for studies in Immunology and related fields.

This year we are particularly interested in supporting research in the following areas:

- Lymphopoiesis-including novel factors affecting lymphocyte growth and differentiation
- Hematopoietic stem cell biology
- Animal models of autoimmune diseases
- Studies on gamma/delta cells

Please send a brief (1-2 page) description of your on-going research activities, a description of similar length on the work you propose and a copy of your curriculum vitae to C.S. Henney or S. Gillis at: **Immunex Corporation, 51 University Street, Seattle, WA 98101.** Equal Opportunity Employer.

IMMUNEX

BASIC BIOMEDICAL FACULTY POSITIONS

Three faculty positions at the Assistant or Associate Professor level are available effective Feb. 1, 1990 in several departments associated with the newly organized Division of Cellular and Molecular Medicine at the University of California School of Medicine at San Diego.

Areas of research interest include - but are not restricted to: 1) processing, packaging and transport of primary gene transcripts, 2) control of protein and membrane traffic in eukaryotic cells, and 3) eukaryotic cell response to tissue growth factors. Other promising fields of research will also be considered.

Each applicant is expected to establish an active individual research program but interactions and collaborations with other faculty members of the Division or School will be welcome. Each applicant is also expected to participate actively in teaching and research training of medical and graduate students.

For candidates for an Assistant Professor position, an M.D., Ph.D. or M.D.-Ph.D. degree, at least two years of postdoctoral training, and a strong record in well-organized research are expected. Candidates for an Associate Professor position are expected to have already achieved an outstanding record in their field of research. Rank and salary determined by qualifications and UC pay scales.

Applications supported by a curriculum vitae, a list of publications, a summary of research planned for the immediate future and a list of 5 to 6 potential referees should be sent by February 1, 1990 to:

**George E. Palade, M.D.
Dean Designate for Scientific Affairs
UCSD School of Medicine (M-002)
La Jolla, CA 92093-0602**

UCSD is an equal opportunity-Affirmative Action employer.

POSITIONS OPEN

POPULATION GENETICS. The Department of Systematics and Ecology at The University of Kansas invites applications for a tenure-track position in population genetics at the **ASSISTANT PROFESSOR** level. Applicants must have a strong theoretical background in population genetics and a broad research interest in the development of theory and the application of theory to studies of natural populations. Preference will be given to individuals with postdoctoral experience and outside funding. Successful applicants will be expected to develop a vigorous research program, to teach graduate and undergraduate courses in population genetics and interdepartmental genetics program. The salary range is \$32,000 to \$34,000. Please send curriculum vitae, copies of selected publications, at least three letters of reference, a statement of research interest and goals, and a description of teaching experience and interests by 17 January 1990, to: **Dr. Robert D. Holt, Chair, Population Genetics Search Committee, Department of Systematics and Ecology, Haworth Hall, University of Kansas, Lawrence, KS 66045-2106.** An Equal Opportunity/Affirmative Action Employer.

POSTDOCTORAL POSITION available, beginning spring 1990, to study regulation of expression of damage inducible genes in *Saccharomyces cerevisiae*. Prior experience in recombinant DNA techniques and the Ph.D. required. Salary \$18,000 to \$22,000 per year depending upon experience. Send curriculum vitae, names, and telephone numbers of three references to: **Dr. Gwendolyn Sancar, Department of Biochemistry, CB# 7260, School of Medicine, University of North Carolina, Chapel Hill, NC 27599-7260.** Equal Opportunity/Affirmative Action Employer.

POSTDOCTORAL OR RESEARCH ASSOCIATE/ASSISTANT PROFESSOR. To study the molecular/biochemical basis of intestinal epithelial electrolyte/nutrient transport function and of growth and differentiation in health and disease (e.g., cystic fibrosis, diabetes). Experience in cell and molecular biology essential. Salary negotiable and commensurate with experience. Send curriculum vitae and two letters of reference to: **Eugene Chang, M.D., The University of Chicago, Box 400, 5841 South Maryland, Chicago, IL 60637.** An Affirmative Action/Equal Opportunity Employer.

POSTDOCTORAL RESEARCH ASSOCIATE. Study effects of biological response modifiers on synapse formation, neuronal function, expression of oncogenes, and growth factors. Ph.D. in biochemistry, molecular biology, or neuroscience. Position provides a good background for academia and/or biomedical industrial environment. Contact: **Dr. S. Berman, Department of Neuro-oncology, M. D. Anderson Cancer Center, 1515 Holcombe Boulevard, Houston, TX 77030. Telephone: 713-792-2573 or 713-798-5991.** Equal Opportunity/Affirmative Action Employer.

POSTDOCTORAL POSITION available to study the neurophysiological and morphological characteristics of brainstem neurons processing sensory information in the nucleus of the solitary tract. A strong background in neurophysiology is required. The techniques to be used in these studies include the in vitro brainstem slice preparation and intracellular labeling of identified neuronal populations. Opportunities exist for interactions with other investigators studying the solitary nucleus using a variety of techniques. Starting date negotiable. Salary will be commensurate with experience. Send curriculum vitae and names of three referees to: **Robert M. Bradley, Department of Biologic and Materials Sciences, University of Michigan, School of Dentistry, Ann Arbor, MI 48104-1078.** The University of Michigan is an Equal Opportunity/Affirmative Action Employer.

POSTDOCTORAL PHOTOSYNTHESIS available January 1990 for studies of water oxidation reaction centers, and properties of membrane surfaces. Approaches include structural biochemical, biophysical and molecular biological. The position is for 1 year with the possibility of extension. Salary is highly competitive. Additional postdoctoral, sabbatical, and graduate student opportunities are available to U.S. citizens under NRC and AWU competitive programs. Send curriculum vitae, short statement of research interests, and names of three references, with telephone numbers, to: **Dr. Michael Seibert, Solar Energy Research Institute, 1617 Cole Boulevard, Golden, CO 80401.** We are an Equal Opportunity/Affirmative Action Employer. Woman and minorities are encouraged to apply.

POSITIONS OPEN

BIOCHEMIST POSTDOCTORAL POSITION

Study bacterial glycoproteins and the *Bacillus thuringiensis* insecticidal toxin. Experience in HPLC and oligosaccharide characterization highly desirable. Requires Ph.D. in biochemistry or related area. Salary: \$24,000. Two years expected duration. Submit curriculum vitae and three references by 2 January 1990 to: **Dr. Kenneth W. Nickerson, Biological Sciences, University of Nebraska-Lincoln, Lincoln, NE 68588-0118.** Affirmative Action/Equal Opportunity Employer.

UNIVERSITY OF ROCHESTER POSTDOCTORAL POSITION

The successful applicant will work on a project forming part of a multidisciplinary program focusing on the regulation and structure-function relationship of anion transport pathways in exocrine glands. Experience in the physiology of ion transport pathways and a willingness to learn to apply molecular biological techniques to the study of these pathways is preferred. Please submit curriculum vitae and two references to:

**Dr. James E. Melvin
School of Medicine and Dentistry
University of Rochester
601 Elmwood Avenue, Box 611
Rochester, NY 14642**

POSTDOCTORAL POSITIONS DEPARTMENT OF MOLECULAR GENETICS ROCHE RESEARCH CENTER HOFFMANN-LA ROCHE, INC.

Postdoctoral positions are available immediately for 1 to 3 years, for research in the areas of (i) the structure-function of the high affinity IgE receptor subunits, (ii) structure-function of the human FcGR III (CD16) receptors, and (iii) the molecular biology of phospholipase D. Qualifications include a Ph.D. in biochemistry/cell biology/microbiology with a molecular biology background. We offer a very competitive salary and an additional subsidy for housing. Please send curriculum vitae and names of three references to:

**Dr. J. Kochan
Department of Molecular Genetics
Hoffmann-La Roche, Inc.
340 Kingsland Street
Nutley, NJ 07110**

POSTDOCTORAL RESEARCH ASSOCIATE. Behavior, behavioral ecology, or physiological ecology of larval and juvenile marine and/or anadromous fish under controlled laboratory conditions. Studies will focus on roles of environmental factors in behavior and distribution. Ph.D. in marine biology or allied field and experience in working with experimental behavior, behavioral ecology, or physiological ecology of larval and/or juvenile fish or invertebrates. Salary \$22,500 for 1 year with possible renewal. To apply, send résumé and names and addresses of three references by 21 December 1989 to: **Behavioral Ecology Search Committee, Oregon State University, Hatfield Marine Science Center, Newport, OR 97365.** Oregon State University is an Affirmative Action/Equal Opportunity Employer.

POSTDOCTORAL POSITIONS UNIVERSITY OF FLORIDA

Several postdoctoral positions are available to study the molecular biology and immunology of the hemoparasites, *Babesia* and *Anaplasma*. Research projects involve aspects of: (i) Identification, cloning, characterization, and expression of genes encoding parasite antigens; (ii) molecular analysis of genetic, antigenic, and strain variation; (iii) immunization with experimental subunit vaccines based on cloned antigens; (iv) development of diagnostic assays of infection; and (v) characterization of the immune responses to these parasites. A Ph.D., D.V.M., or equivalent degree is required; experience in genetics, biochemistry, molecular biology, microbiology, or immunology is desirable.

Please send application, including curriculum vitae, statement of research goals, and three letters of reference, to: **Dr. R. Alfred, Department of Infectious Diseases, Building 471, Mowry Road, 633 IFAS, University of Florida, Gainesville, FL 32611.** The University of Florida is an Equal Opportunity/Affirmative Action Employer.

POSITIONS OPEN

POSTDOCTORAL ASSOCIATE. Studies of protein and nucleic acid structure, function, and interactions focused on *E. coli* trp repressor (*Biochemistry* 28, 3875). Both protein folding and protein-DNA recognition are presently being investigated. Our approach combines molecular biology and genetics with biochemical and biophysical methods. Send curriculum vitae, bibliography, and statement of research interests to: **Dr. J. Carey, Chemistry Department, Princeton University, Princeton, NJ 08540.**

AQUATIC ECOLOGY POSTDOCTORAL RESEARCH ASSOCIATE. Opportunity to work in the multi-institutional Pocono Comparative Lakes Program on questions relating to trophic differences between lakes. Interest in application of advanced instrumentation techniques such as optical or acoustical resolution of plankton populations preferred, 1- to 2-year appointment with flexible starting date. Send curriculum vitae, statement of research interests, and list of three references to: **Dr. Craig Williamson, Department of Biology #31, Lehigh University, Bethlehem, PA 18015.** Lehigh University is an Equal Opportunity/Affirmative Action Employer.

POSTDOCTORAL ASSOCIATE

Immediate opening for a postdoctoral research associate to study mechanisms of signal transduction and the function of membrane proteins. There is special emphasis on epithelia and abnormal regulation of chloride channels in cystic fibrosis. Previous work in molecular or cell biology, biochemistry, or electrophysiology is desirable; however, the quality of previous research, rather than the specific area, is of primary importance in selection. Send curriculum vitae and the names and addresses of three references to:

**Dr. Michael J. Welsh
Howard Hughes Medical Institute
500 EMRB
University of Iowa College of Medicine
Iowa City, IA 52242
Equal Opportunity/Affirmative Action Employer.**

RADIOCHEMIST

Radiochemist with experience, required to radiolabel and perform experiments with tracer compounds and participate in radiochemical processing and radiobiology experiments. Qualifications include a masters degree in science and a strong background in nuclear medicine, handling and disposing of radioactive materials, and radiochemistry. To apply, forward résumé and references to: **Roberto L. Ceriani, M.D., Ph.D., John Muir Cancer and Aging Research Institute, 2055 North Broadway, Walnut Creek, CA 94596. Telephone: 415-943-1167.** Equal Opportunity Employer.

AUDITORY/NEUROSCIENCE RESEARCH RESEARCH ASSISTANT PROFESSORS

Three research positions at the assistant professor level are available by about 1 July 1990. We seek persons with a background in the following areas: evoked potentials (animal or human), single-cell physiology, morphology of the cochlea, psychophysics, or speech perception. Persons with a strong background in other areas of neuroscience, such as neuroimmunology, and willing to study the auditory system will receive serious consideration. Interested persons should send curriculum vitae, a brief description of research interests, and names of three references to: **John H. Mills, Department of Otolaryngology and Communicative Sciences, Medical University of South Carolina, 171 Ashley Avenue, Charleston, SC 29425.** The Medical University of South Carolina is an Equal Opportunity/Affirmative Action Employer.

RESEARCH ASSOCIATE

Brigham and Women's Hospital has an opening for a research associate to study electrophysiology of smooth muscle. Applicant should have experience with in vivo experimentation, chronic animal preparations, and basic physiological techniques. Experience with patch clamp technique welcome.

Candidates should have a Ph.D. in a related field and capacity for interdisciplinary research and growth. Please send résumé, letter of interest, and names of references to: **D. S. Sugarbaker, M.D., Department of Surgery, Brigham and Women's Hospital, 75 Francis Street, Boston, MA 02115.**

POSITIONS OPEN

POSTDOCTORAL RESEARCH ASSOCIATE.

Available immediately to study the electrical and pharmacological properties of midbrain dopamine-containing neurons. Experience using conventional electrophysiological techniques preferred, but not essential. Salary commensurate with experience. Send curriculum vitae, a brief description of research interests, and the names of three references to: **Dr. Paul D. Shepard, Maryland Psychiatric Research Center, P.O. Box 21247, Baltimore, MD 21228.** *Affirmative Action/Equal Opportunity Employer.*

RESEARCH ASSISTANT PROFESSOR

The Department of Surgery, Division of Urology, University of Maryland at Baltimore, invites applications for a position in the area of prostate gland growth, development, biochemistry, or physiology. Establishment of a rigorous research program to study benign and malignant growth to complement an ongoing program is expected. Applicants should send a complete curriculum vitae, a statement of research interests, and names of three references to: **Stephen C. Jacobs, M.D., Head of Urology, University of Maryland Medical Center, Suite 320, University of Maryland Professional Building, 419 West Redwood Street, Baltimore, MD 21201.**

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UNIVERSITY OF PENNSYLVANIA DEPARTMENT OF PATHOLOGY AND LABORATORY MEDICINE DIVISION OF NEUROPATHOLOGY RESEARCH ASSISTANT PROFESSOR

Applications are invited for one position to work on the molecular biology aspects of intrinsic membrane proteins of the neuronal Golgi apparatus. The project requires experience on preparation and screening of cDNA libraries, gene cloning, DNA sequencing, studies on gene expression. Further details may be obtained from: **Dr. Nicholas K. Gonatas, 418 Johnson Pavilion, University of Pennsylvania School of Medicine, Philadelphia, PA 19104.** Telephone: 215-662-6695.

RESEARCH SCIENTIST with Ph.D. in immunology and strong background in microbiology to head up program in pediatric otolaryngology immunobiologic research at Children's Hospital of Buffalo. Experience required at postdoctoral level. Salary competitive. Send curriculum vitae to: **Linda Brodsky, M.D., Department of Otolaryngology, Children's Hospital of Buffalo, 219 Bryant Street, Buffalo, NY 14222.**

RESEARCH SCIENTIST. Research and develop treatment and vaccine against AIDS, produce monoclonal antibodies for diagnostic kits, conduct research into biological aspects of humans or other animals to develop new theories and facts, carry out experiments, organize data, interpret results, and prepare acceptable reports, publications, or presentations; research for molecular mechanisms of gene regulations for HIV-1. Must have 6 months of experience in cell and tissue culture in P-3 level biohazard facilities; knowledge and research experience in tumor immunology; knowledge of generating hybridomas and monoclonal antibodies; knowledge of molecular biology; 6 months of experience in HIV-1 env, sor(vif), and tat genes; and be able to manage a research laboratory independently. Ph.D. in microbiology and immunology with 6 months of training in cell and molecular biology of AIDS agent HIV-1 virus, plus 2 years of experience as research assistant. Forty hours per week, 9 a.m. to 5 p.m., \$33,908.16 per year. Mail résumé and copy of ad to: **DEED, 1100 North Eutaw Street, Room 212, Baltimore, MD 21202, Job Order No. 7078041.** Job in Rockville, Maryland. Proof of legal right to work in the United States required.

RESEARCHER, MICROWAVE SCIENCE. Ph.D. in physics or electrical engineering with 5 years of experience. Must have a proven record of achievement in electrophysics as evidenced by publications and patents. To conduct and supervise experimental research of high-powered microwave devices such as free electron lasers, complex cavity gyrotrons, and backward wave oscillators. Experience in plasma generation for injection into high-powered devices required; 5-day, 40-hour week; \$55,000 per year. Mail résumé and copy of ad to: **MDEED, Room 212, 1100 North Eutaw Street, Baltimore, MD 21201.** Job location in College Park, Maryland. Job Order No. 7078965. Proof of legal right to work in the United States required.

POST-DOCTORAL SCIENTIST TRANSCRIPTIONAL CONTROL MECHANISMS

Amgen, a leader in the development of innovative human therapeutics through applied biotechnology, has a post-doctoral position available in the laboratory of Dr. Grant A. Bitter to study control of eukaryotic gene expression. The interaction of defined mammalian DNA regulatory regions with their cognate protein factors will be investigated. When appropriate, *Saccharomyces cerevisiae* will be used as a surrogate host.

Qualified applicants must have a Ph.D. in a relevant discipline and be experienced in recombinant DNA methodology, protein purification and methodologies for studying protein-nucleic acid interactions. Experience in the genetics of *S. cerevisiae* is a plus.

Amgen offers an unique opportunity to participate in challenging research programs using state-of-the-art technology in an environment that fosters scientific creativity and collaboration. If you have the necessary skills and qualifications and would like to experience research in a supportive company environment, please send a C.V., in confidence, to:

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AMGEN

Sr. Research Scientist

We're the R.W. Johnson Pharmaceutical Research Institute, a member of The Johnson & Johnson Family of Companies. Our strategy is to maintain a fast-growing pharmaceutical business by providing a clear focus and direction to managing our R&D resources so that we obtain optimum results and provide opportunities for our employees to grow. We have 2 immediate openings within our Drug Metabolism Department for candidates with a PhD or equivalent in Chemical/Biological Sciences.

- This opening requires at least 2 years of industrial experience in bioanalytical work and pharmacokinetics, including the development of GC/HPLC assays for analysis of drugs in biofluids. Your background must demonstrate the ability to supervise scientists at the BS and MS level on the development and implementation of bioanalytical assays; supervise data collection from pre-clinical and clinical studies; analyze data and prepare reports for FDA submission. (Dept. 65A)
- This opening requires at least 2 years' experience in immunoassay analyses, including liquid and solid-phase extraction methodology. Your background must demonstrate the ability to develop and implement immunoassay methodology including hapten modification, conjugation and immunization; validate immunoassays and manage assay quality control including organizing sample acquisition and results reporting; analyze data from bioavailability and pharmacokinetic studies in animals and humans; interface effectively with other Company units in writing and compiling submissions. (Dept. 65B)

We offer competitive salaries and the comprehensive benefits you would expect from a Johnson & Johnson Company. Please forward resume, including salary history and indicating the Dept. # for the position of your choice, to: **Mr. T. Hutton, R.W. Johnson Pharmaceutical Research Institute, P.O. Box 300, Raritan, New Jersey 08869-0602.** An Equal Opportunity Employer, M/F



R.W. JOHNSON

PHARMACEUTICAL RESEARCH INSTITUTE



UCAR VISITOR RESEARCH PROGRAMS
FOR
SENIOR AND POSTDOCTORAL
SCIENTISTS

The University Corporation for Atmospheric Research (UCAR) announces the continuation of its Visiting Research Programs which provide research opportunities at the National Meteorological Center (NMC) in Camp Springs, Maryland, and at the Naval Oceanographic and Atmospheric Research Laboratory (NOARL) Detachment, Monterey, California (formerly NEPRF).

The program offers visiting research appointments in the atmospheric and related sciences at two of the premier R&D centers devoted to operational weather prediction in the United States. Openings in the UCAR program include positions for senior and postdoctoral scientists. Initial appointments are for one year but may be extended for a second year. Appointments will be made twice per year from applications submitted by January 15 and August 1. For a brochure describing the program in more detail, please contact Meg Austin at (303) 497-8995 or via e-mail at m.austin@omnet.

Send letter of interest, curriculum vitae, a one to two-page statement of research interests, and the names and addresses of four professional references to: Meg Austin, UCAR, P.O. Box 3000, Boulder, CO 80307.

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POSITIONS OPEN

RESEARCH ASSISTANT PROFESSOR. Conduct independent research in the neurochemistry area related to the free radical formations, active oxygen, age pigment, and other biochemical assays. Collect and analyze research results, preparation of manuscripts for publication, and follow-up. Scientific presentation. Writing scientific research proposals for outside funding. Working knowledge in biological systems and neurochemical field. Handling of biological systems. Ph.D. in chemistry, 3 years of training in free radical reaction; 40 hours per week, \$26,000 per year. Send curriculum vitae to: **Division of Employment Security, 421 East Dunklin Street, Jefferson City, MO 65101, Attention: John F. Scott, reference J.O. #295557.**

The Department of Neurology at the University of Michigan is seeking applications for a **RESEARCH OR TENURE-TRACK POSITION** in molecular neurobiology and/or protein chemistry. Successful candidate will join a multidisciplinary team of investigators studying neurotransmitter receptors. Position includes laboratory space, start-up funds, and salary support for initial years of program. Opportunity exists for a joint appointment in a basic science department. Curriculum vitae and three letters of recommendation should be sent to: **Robert L. Macdonald, M.D., Ph.D., Department of Neurology, University of Michigan, 1108 Neuroscience Building, Ann Arbor, MI 48109-1687.** *The University of Michigan is an Equal Opportunity/Affirmative Action Employer and encourages women and minorities to apply.*

STM/AFM IMAGING OF BIOMOLECULES UNDER WATER

POSTDOCTORAL POSITION in STM/AFM using electrochemical methods to manipulate and image biopolymers. I am looking for someone with a strong background in biophysical chemistry and a desire to work in an exciting new interdisciplinary field. I would like a current résumé and three letters of reference sent to: **Dr. S. M. Lindsay, Department of Physics, Arizona State University (ASU), Tempe, AZ 85287-1504.** Closing date 1 January 1990, or until filled. *ASU is an Affirmative Action/Equal Opportunity Employer.*

TOXICOLOGISTS

The California Department of Food and Agriculture seeks staff toxicologists and associate toxicologists in its pesticide regulatory program. Incumbents will evaluate toxicology studies and/or conduct risk assessments. Positions exist for individuals with masters and/or doctorate degrees in toxicology, pharmacology, biochemistry, or a related field with suitable experience in animal toxicology. Salary range begins at \$4229 per month for staff toxicologist and \$3192 per month for associate toxicologists. Comprehensive benefits package. Continuous testing, oral exam required. Submit résumés to:

**Department of Food and Agriculture
Examinations Unit
1220 N Street, Room 154
Sacramento, CA 95814**

VERTEBRATE ECOLOGIST

The Department of Biology, Villanova University, seeks a broadly trained biologist with a specialization in vertebrate ecology to fill a tenure-track position at the **ASSISTANT PROFESSOR** level. The successful candidate will be expected to teach undergraduate courses in general ecology and higher vertebrates and to develop graduate (masters level) courses in his or her area of specialization, and may be asked to participate in undergraduate general biology courses for majors and nonmajors. Candidates should have postdoctoral experience, a record of productive research, an ability to obtain extramural funding, an interest in directing undergraduate and graduate research, and an enthusiasm for teaching. By 22 December 1989, applicants should send curriculum vitae, a statement of research and teaching interests, and official undergraduate and graduate transcripts, and should have at least three letters of recommendation sent to:

**Dr. Joseph A. J. Orkiszewski, Chair
Department of Biology
Villanova University
Villanova, PA 19085**

Villanova University is an Augustinian-related Roman Catholic institution and is an Affirmative Action/Equal Opportunity Employer.

POSITIONS OPEN

PSYCHOPHARMACOLOGIST FOR THE SFVAMC SUBSTANCE ABUSE TREATMENT PROGRAM

The Department of Psychiatry, University of California, San Francisco (UCSF), is seeking a psychopharmacologist for the substance abuse treatment program at the San Francisco Veterans Administration Medical Center (SFVAMC). The program includes an inpatient treatment unit, an alcohol clinic, and a substance abuse treatment clinic which offers treatment to patients with opiate and polydrug abuse. The incumbent will be responsible for continuing and strengthening the substance abuse research program at the SFVAMC and will have an active role in the education and clinical programs of the Department of Psychiatry, UCSF. The position will be at the **ASSISTANT PROFESSOR** level and will be available on or before 1 July 1990.

The ideal candidate would be a Board-certified or Board-eligible psychiatrist with an established record of research in the biological aspects of substance abuse, preferably with an emphasis on basic science research. Candidates should give evidence of a commitment to excellence in teaching and clinical care. California license is desirable.

Letters of interest and curriculum vitae should be received by 1 February 1990. Please send résumé to: **Nick Kanas, M.D., Search Committee Chair, Psychiatry Service (116A), Department of Veterans Affairs Medical Center, 4150 Clement Street, San Francisco, CA 94121.** *UCSF is an Equal Opportunity/Affirmative Action Employer. Women and minorities are encouraged to apply.*

VERTEBRATE EMBRYOLOGIST. Tenure-track position at **ASSISTANT OR ASSOCIATE PROFESSOR** level depending upon qualifications and experience. Available 10 September 1990. Primary responsibility for teaching vertebrate embryology, shared responsibility for teaching human anatomy. Applicants must have Ph.D. by date of appointment. Applicants should have graduate training, primarily in vertebrate embryology, secondarily in human anatomy with cadaver dissection. Evidence of strong commitment to teaching is essential. Preference will be given to individuals with teaching experience at the university level and expertise in neurobiology or developmental aspects of cell biology. Application, including curriculum vitae, transcripts, and three letters of reference, must be received no later than 15 February 1990. Submit materials to: **V. L. Holland, Chair, Biological Sciences Department, California Polytechnic State University, San Luis Obispo, CA 93407.** Telephone: 805-756-2789. *An Equal Opportunity/Affirmative Action Employer.*

VETERINARY RESEARCH SCIENTIST. The Texas A&M University Center at San Angelo, Texas Agricultural Experiment Station, is seeking applications for a scientist to direct a health-related research program concentrating on small ruminants. Close cooperation in team research with other scientists at this unit and with those in related Texas A&M University Veterinary Science Departments at College Station is required. Qualifications include a D.V.M. degree, a Ph.D. in a relevant discipline, and a demonstrated ability to conduct meaningful research. The successful candidate will have appropriate academic rank in the relevant veterinary science department. Candidates should submit a letter of application and professional curriculum vitae, along with transcripts, and request that three letters of recommendation be sent to: **Dr. Carl Menzies, Resident Director of Research, Texas A&M University Agricultural Research and Extension Center, 7887 North Highway 87, San Angelo, TX 76901.** Telephone: 915-653-4576. *Texas A&M University is an Equal Opportunity/Affirmative Action Employer.*

FELLOWSHIPS

POSTDOCTORAL FELLOWSHIPS are available for summer research at the Mountain Lake Biological Station of the University of Virginia. The station is located in the mountains of southwestern Virginia. Proposals will be considered in population biology and evolution. Deadline for applications: 15 March 1990. Write to: **Director, Mountain Lake Biological Station, Room 251, Gilmer Hall, University of Virginia, Charlottesville, VA 22901.** *Equal Opportunity/Affirmative Action Institution.*

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CONGRESSIONAL SCIENCE AND ENGINEERING FELLOWSHIPS

Applications Invited

The American Association for the Advancement of Science (AAAS) invites applications for two one-year Congressional Science and Engineering Fellowships it will offer for the period beginning September 1, 1990. The fellowship program provides an opportunity for accomplished and societally aware postdoctoral to mid-career scientists and engineers to participate in and contribute to the public policy-making processes within the Congress. Fellows work as special legislative assistants within the congressional staff system.

Persons may apply from any physical, biological or behavioral science or any field of engineering. The term "science" is used broadly to include the system sciences, public health, and other technical professions. In addition to the fellowships awarded by the AAAS, about 15 others are given by other participating professional societies. The AAAS runs a year-long seminar program for both its own Congressional Science and Engineering Fellows and those selected by the participating societies. Addresses of all participating societies are available from the address listed below.

The 1990-91 AAAS Congressional Science and Engineering Fellows will receive a stipend of \$38,000; an additional \$2,000 is available for relocation expenses and travel in connection with the program.

The deadline for submission of application materials is January 15, 1990. The award will be announced about May 1, 1990. For detailed information on the program and specific application requirements, write:

Congressional Science and Engineering Fellows Program
American Association for the Advancement of Science
1333 H Street, NW, Washington, DC 20005
Telephone 202/326-6600

SCIENCE, ENGINEERING AND DIPLOMACY FELLOWSHIPS

Applications Invited

The American Association for the Advancement of Science (AAAS), in cooperation with the U.S. Agency for International Development (AID) and the Department of State (STATE) is seeking applicants for approximately twelve Science, Engineering and Diplomacy Fellowships. Fellows will spend one year, beginning September 1, 1990, working either in the Bureau of Oceans and International Environmental and Scientific Affairs of the U.S. Department of State or in one of several bureaus and offices of the Agency for International Development. Other assignments may also be possible.

Prospective Fellows must demonstrate exceptional competence in some area of science or engineering, be flexible, have some experience and/or a strong interest in applying knowledge toward the solution of problems in the area of foreign affairs, and have a Ph.D. or equivalent in years of experience. Awardees will work in international affairs on scientific and technical subjects: foreign policy for STATE and international development for AID. In general, individuals are urged to apply from any area of physical, biological, behavioral, and social science and engineering and whose experience and training is applicable to any one of the following areas: health and population; food and agriculture; nuclear nonproliferation; scientific exchange; forestry, natural resources and ecology; oceans and fisheries; communications; national security; and human resources and education, among others.

The Fellows will serve a one-year appointment at a salary consistent with education level and experience, if possible, but not exceeding the GS-12 level (beginning at about \$35,000). The fellowship award is limited to U.S. citizens and is contingent upon the selectee obtaining a security clearance.

Deadline for receipt of application is January 15, 1990. For more information and application details write:

Science, Engineering and Diplomacy Fellows Program
American Association for the Advancement of Science
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FELLOWSHIPS

TILTON POSTDOCTORAL FELLOWSHIP IN SYSTEMATICS

A 1-year award for collection-based research at the California Academy of Sciences in anthropology, aquatic biology, botany, entomology, herpetology, ichthyology, invertebrate zoology, mammalogy, ornithology, or paleontology. Stipend \$21,500 plus \$1,000 research expenses. Doctoral degree must have been awarded within past 5 years; begins 1 September 1990. To apply, send résumé, research plan, and names of three references by 31 January 1990 to: Tilton Fellowship Committee, California Academy of Sciences, Golden Gate Park, San Francisco, CA 94118.

ALEXANDER HOLLAENDER DISTINGUISHED POSTDOCTORAL FELLOWSHIP PROGRAM provides research opportunities in the life, biomedical, and environmental sciences. Fellowships are tenable at various Department of Energy and university laboratories with programs supportive of the Office of Health and Environmental Research. Stipend is \$35,000. A doctoral degree received after 1 April 1988 is required as is U.S. citizenship or PRA status. Deadline is 16 January 1990. For application materials contact: Hollaender Postdoctoral Fellowships, Science/Engineering Education Division, Oak Ridge Associated Universities, P.O. Box 117, Oak Ridge, TN 37831-0117. Telephone: 615-576-3190.

POSTDOCTORAL FELLOWSHIPS

Position available immediately to study the mechanism of phorbol ester-induced differentiation of human leukemic cells. Studies center on assessing the postactivation processing of protein kinase C; detection of protein kinase C isozymes by biochemical, molecular, and immunological techniques; and evaluation of activation of phorbol ester response factors and their effect on gene transcription. Please send curriculum vitae to: D. Kirk Wais, M.D., Ph.D., Department of Medicine/Endocrinology, East Carolina University School of Medicine, Greenville, NC 27858. An Equal Opportunity/Affirmative Action Employer. Federal law requires proper documentation of identity and employability at the time of employment. It is requested this documentation be included with your application.

POSTDOCTORAL FELLOWSHIP IN VIROLOGY. Funded to investigate the immunologic and pharmacologic mechanisms controlling herpes simplex virus reactivation in animal models. Experience in molecular biology and immunology preferred. Opportunity to work with a team of molecular virologists, immunologists, and pharmacologists interested in this area. Postdoctoral salary as per NIH guidelines. Send curriculum vitae, three letters of reference, and statements of research goals and interests to: Dr. Jay S. Pepose, Departments of Ophthalmology and Pathology, Box 8096, Washington University School of Medicine, 660 South Euclid Avenue, St. Louis, MO 63110.

MEMORIAL UNIVERSITY OF NEWFOUNDLAND OCEAN SCIENCES CENTRE POSTDOCTORAL RESEARCH FELLOW PHYSIOLOGICAL ECOLOGY OF BIVALVES

The Ocean Science Center (OSC), a research unit within the faculty of science, Memorial University of Newfoundland, will hire a postdoctoral research fellow to work on the physiological energetics of the giant scallop *Placopecten magellanicus*. The fellow will join an active research group, undertaking basic research to support the aquaculture of bivalve mollusks, and will focus on feeding and digestive processes in adult and juvenile scallops in the laboratory and in the field.

The position is offered for 2 years in the first instance, with the possibility of renewal. Salary: \$28,000 per annum. Interested persons should send a résumé and the names of three referees to: Dr. B. A. MacDonald, Ocean Sciences Center, Memorial University of Newfoundland, St. John's NF, Canada A1C 5S7. Telephone: 709-726-6681. FAX: 709-726-7711. Tele-mail: NICOS.

Memorial University encourages both men and women to apply for positions. In accordance with Canadian immigration requirements, priority will be given to Canadian citizens and permanent residents of Canada.

FELLOWSHIPS

FELLOWSHIPS IN MOLECULAR BIOLOGY.

Research in plant or fungal biochemistry, molecular genetics, physiology, development, or statistical analysis of nucleotide sequence leading to advanced degrees in biochemistry or botany. Full tuition and stipend. Inquire: Dr. R. C. Ullrich, Department of Botany, Life Science Building, University of Vermont, Burlington, VT 05405.

C. H. BEST FOUNDATION POSTDOCTORAL FELLOWSHIP

In diabetes research, molecular endocrinology, molecular biology, differentiation, reproductive biology, immunology, structure and function of membranes, or lipid metabolism. Tenable in the Banting and Best Department of Medical Research for 2 years after 1 July 1990 with a competitive stipend. Available to new Ph.D.'s or candidates with less than 2 years of postdoctoral training by 30 June 1990. Send curriculum vitae, transcripts, and three letters of reference, preferably before 15 December 1989 to: Dr. Irving B. Fritz, Fellowship Committee Chairman, Banting and Best Department of Medical Research, University of Toronto, Toronto, Ontario, Canada M5G 1L6.

POSTDOCTORAL RESEARCH FELLOW

We are seeking applicants for a postdoctoral fellowship in the area of human molecular genetics. Requirements include training and experience in molecular biology. Experience in gene cloning, characterization of mutations, and DNA sequencing will be an advantage. A variety of research projects in connective tissue, eye disorder, and schizophrenia are currently in progress. We have excellent clinical and laboratory facilities and offer a competitive salary.

Applicants should submit complete curriculum vitae, including names of three references, to: Petros Tsipouras, M.D., Department of Pediatrics, University of Connecticut Health Center, 263 Farmington Avenue, Farmington, CT 06032. An Affirmative Action/Equal Opportunity Employer. M/W/H.

GI/LIVER PATHOLOGY FELLOWSHIP. The Hines Veterans Administration Hospital/Loyola University, Chicago, integrated postgraduate teaching program offers a 1-year fellowship in all aspects of gastrointestinal and liver pathology. Diagnostic services with emphasis on clinical correlations and support of patient care qualify this program for the fifth, clinically related, year of training required by the American Board of Pathology for certification in anatomic and clinical pathology. In addition, support for research includes access to and integration with immunopathology, electron microscopy, cytometry (flow and image), and molecular pathology laboratories. Send curriculum vitae and bibliography to: G. Chejfec, M.D., Laboratory Service, Hines VA Hospital (113), Hines, IL 60141.

PROGRAM

MEDICAL UNIVERSITY OF SOUTH CAROLINA (MUSC) offers programs leading to Ph.D. and M.D./Ph.D. degrees in each of the basic biomedical sciences (anatomy, biochemistry, microbiology/immunology, pathology, pharmacology, physiology), biometry, pharmaceutical sciences, and molecular and cellular biology/medicine; \$9000 assistantships available to qualified students. Contact: College of Graduate Studies, MUSC, 171 Ashley Avenue, Charleston, SC 29425.

ANNOUNCEMENT

The U.S. National Cancer Institute (NCI) and the Ministry of Research and Technology of the Federal Republic of Germany (FRG) announce the availability of a limited number of small bilateral awards for short-term project-oriented exchanges between scientists with a proven record to encourage collaborative efforts in cancer research. Sending party pays airfare, host pays limited in-country expenses. Additional information may be obtained from: Office of International Affairs, National Cancer Institute, Building 31, Room 4B55, Bethesda, MD 20892, or Projekttraegerschaft Gesundheit, DLR, Sudstrasse 125, 5300 Bonn 2, FRG.

COURSE

GENETICS SHORT COURSE 16 to 27 July 1990

31st ANNUAL SHORT COURSE IN MEDICAL AND EXPERIMENTAL MAMMALIAN GENETICS. Conducted by Johns Hopkins University and The Jackson Laboratory at Bar Harbor, Maine. Morning and evening lectures covering the field are supplemented by workshops, tutorials, and demonstrations. Inquiries and/or applications to: T. H. Roderick, Ph.D., c/o Training and Education Office, The Jackson Laboratory, 600 Main Street, Bar Harbor, ME 04609, or to: V. A. McKusick, M.D., 1007 Blalock, Johns Hopkins Hospital, 600 North Wolfe Street, Baltimore, MD 21205.

TRAINING PROGRAM

PRE- AND POSTDOCTORAL TRAINING IN IMMUNOLOGY at Boston University School of Medicine. Areas of research specialization include lymphokine action, growth control of T and B cells, autoimmunity, neuroimmunology, aging, genetic engineering of immunoglobulin, expression of myc and IL-1 genes, and studies of HIV biology. Ph.D. program openings for June and September 1990. Applicants must be eligible for NIH training grant support. Direct inquiries to: Richard Miller, Department of Pathology, Boston University, 80 East Concord Street, Boston, MA 02118.

MARKETPLACE

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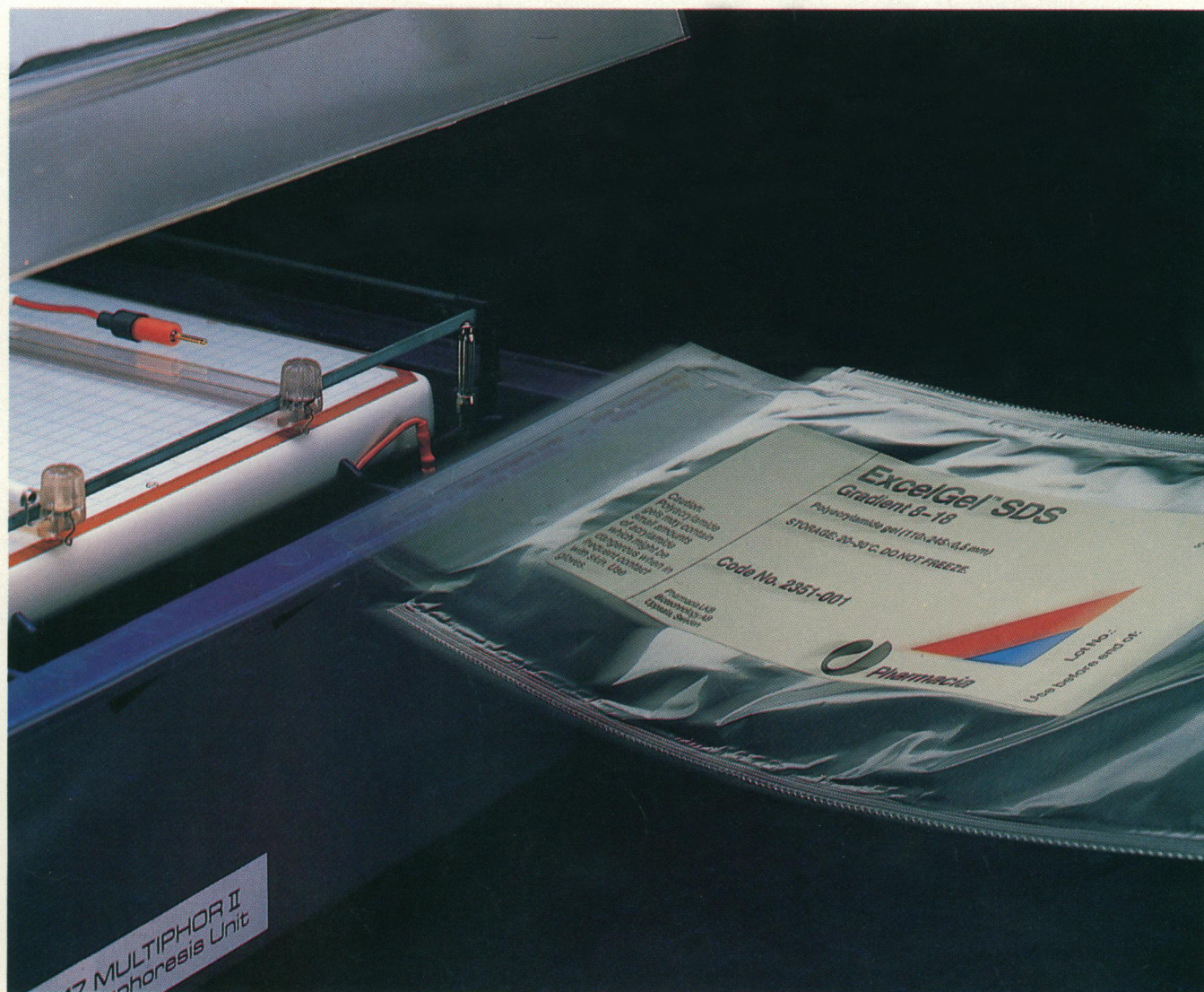
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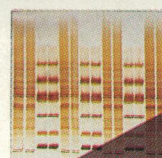
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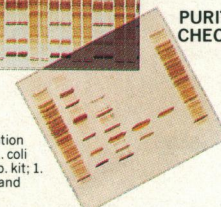
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ROUTINE ANALYSIS



PURITY CHECKING



Purity checking of a purification process, from left to right: E. coli starting material, LMW calib. kit; 1. purification, 2. purification and final purification.

SEPARATION CONDITIONS

Sample: Human growth hormone (kindly donated by KABI, Sweden). Samples are reduced and iodoacetamide treated.
Concentration: 0.1 mg/ml.
Application: 5 µl, as a droplet.
Conditions: 600V, 50 mA, 30W, 15°C, time, 80 min.
Detection: Silver staining, according to the J. Heukeshoven and R. Dernick method, with slight modifications.

Routine analysis of a large amount of samples, from left to right: Repeatedly: E. coli, HMW calib. kit; LMW calib. kit.

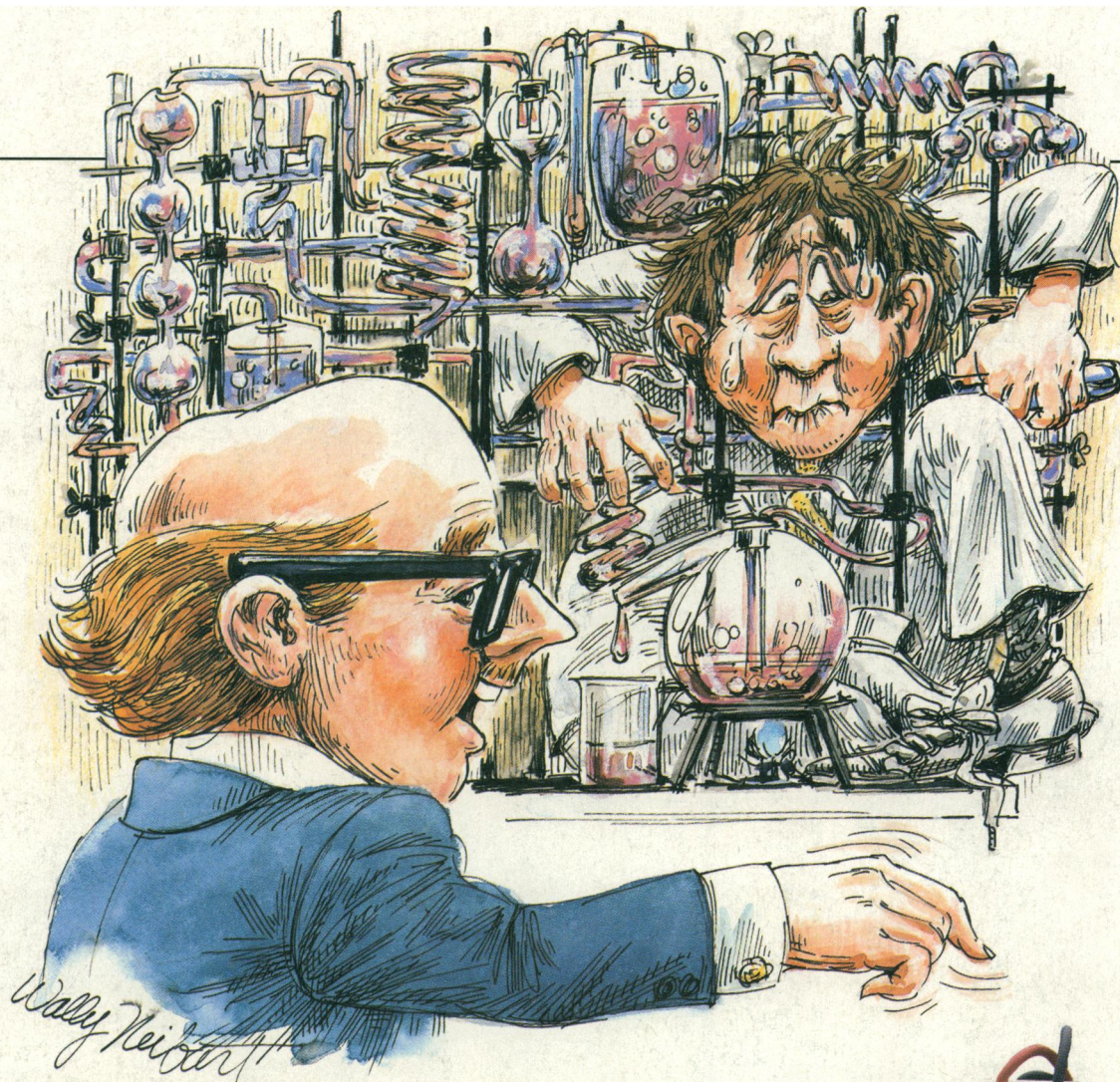
SEPARATION CONDITIONS

Sample: E. coli
Concentration: 0.1–0.2 mg/ml.
Application: 5 µl, with a sample applicator.
Conditions: 600V, 50 mA, 30W, 15°C, time, 80 min.
Detection: Silver staining, according to the J. Heukeshoven and R. Dernick method, with slight modifications.

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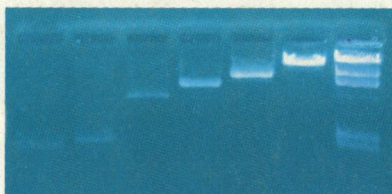
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