

use the mechanisms. Robinson states, however, that though the role of the Golgi apparatus is well established in the synthesis of the plasmalemma in animal cells there is no direct evidence that it plays a similar role in plant systems.

This excellent book not only will be extremely valuable to the student but will be an essential source book for the cell and molecular biologist, the plant physiologist, and the plant biologist. The book is well written and concise, and it raises many exciting questions that will be important to future research in the field.

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Fractals

The Geometry of Fractal Sets. K. J. FALCONER. Cambridge University Press, New York, 1985. xiv, 162 pp., illus. \$32.50. Cambridge Tracts in Mathematics, 85.

The word "fractal" was coined by B. B. Mandelbrot in 1975 to describe a class of sets that arise in mathematical models appropriate for describing phenomena observed in a wide range of scientific disciplines, from astronomy to fluid mechanics to biology to economics. Scientists have now learned to recognize a fractal, though there is still no consensus about a precise definition of one. There are several distinct procedures leading to a fractal index or dimension for a set without interior. The reviewer thinks that the term "fractal" should be reserved for sets whose index is the same when calculated by any of these methods. We can then use the most convenient method for analysis. The book under review uses Hausdorff measures, which result from the most highly developed of the mathematical theories relevant to a rigorous study of fractals.

The main achievement of the book is that it gives a structured, readable account of the development of the interaction between geometry and measure theory, which was discovered initially by A. S. Besicovitch (many papers from 1924 to 1948) and generalized by H. Federer (*Geometric Measure Theory*, Springer-Verlag, 1969) and his school. Falconer's book develops the theory rigorously but avoids complicated notation and jargon and emphasizes the geometrical content of the results.

When the dimension of a set E in n -space is an integer $k < n$, the local geometry of the set can be used to classify sets into those that are "regular" and those that are "irregular." Only the irregular sets of integer dimension satisfy the intuitive properties of a fractal. For example, a regular 1-set is curvelike in the sense that it has a tangent at most points and its projection onto every line (with one possible exception) has positive length. On the other hand, an irregular 1-set intersects every rectifiable arc in a set of zero length, has a tangent almost nowhere, and projects onto almost all lines in a set of zero length.

The study of sets of dimension s when s is not an integer shows that such sets are always geometrically irregular. The author gives precision to the idea of geometric irregularity by obtaining both positive and negative results about s -sets. Cartesian products are considered: in general the dimension of $A \times B$ is at least the sum of the dimensions of A and B , and a strong regularity condition on at least one set is needed for equality. The author also discusses capacity dimension, which is defined by the use of potential theory, and shows this to be the same as Hausdorff dimension. The Besicovitch solution to the Kakeya problem, which gives a set in the plane of zero area that contains a unit line segment in every direction, is also explained.

For the nonspecialist, the last chapter of the book may be the most interesting. Here a range of examples of fractals is described and precise arguments are given concerning the determination of the Hausdorff dimension. A set E is called self-similar if a suitable scalar magnification of a neighborhood of each point yields the whole of E . Such sets have an easily computed dimension and include the "snowflake curve" of von Koch and the classical Cantor set on the line. Beautiful pictures of a mildly random version of self-similar sets can be found in Mandelbrot's book *The Fractal Geometry of Nature* (Freeman, 1982). There is a proof that the trajectory of mathematical Brownian motion in space is a fractal of dimension 2. The author also studies attractor sets arising from a dynamical system and the residual set remaining after efficient packing of space by geometrically similar sets.

The book is written primarily for mathematicians, and all the main results have complete proofs. However, scientists who become interested in fractals would also benefit from a precise definition of a fractal, and the book develops both theory and geometrical intuition to

this end. It is by far the most accessible mathematical account available and therefore is an invaluable addition to the literature.

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Books Received

Abortion Policy. An Evaluation of the Consequences for Maternal and Infant Health. Jerome S. Legge, Jr. State University of New York Press, Albany, 1985. xviii, 182 pp. \$34.50; paper, \$12.95.

Acoustic and Vibrational Communication in Insects. Klaus Kalming and Norbert Eisner, Eds. Verlag Paul Parey, Berlin, 1985. viii, 232 pp., illus. Paper, DM 98. From a congress, Hamburg, Aug. 1984.

Acoustics of Worship Spaces. David Lubman and Ewart A. Wetherill, Eds. Published for the Acoustical Society of America by the American Institute of Physics, New York, 1985. xvi, 91 pp., illus. Paper, \$15. From a meeting, San Diego, Nov. 1983.

The Biology of Crustacea. Vol. 9, Integument, Pigments, and Hormonal Processes. Dorothy E. Bliss and Linda H. Mantel, Eds. Academic Press, Orlando, Fla., 1985. xxx, 550 pp., illus. \$79.

Building the Universe. Christine Sutton, Ed. Basil Blackwell, New York, and New Scientist, London, 1985. xiv, 361 pp., illus. \$24.95; paper, \$8.95. New Scientist Guides.

Calcium Regulation in Biological Systems. Setsuro Ebashi *et al.*, Eds. Academic Press, Orlando, Fla., 1984. xvi, 260 pp., illus. \$29.50. From a symposium, Kyoto, Japan, Nov. 1983.

The Cancer Patient and Supportive Care. Medical, Surgical, and Human Issues. Donald J. Higby, Ed. Nijhoff, Dordrecht, 1985 (U.S. distributor, Kluwer, Hingham, Mass.). xiv, 250 pp. \$52.50. Cancer Treatment and Research.

The Carnegie-Mellon Curriculum for Undergraduate Computer Science. Mary Shaw, Ed. Springer-Verlag, New York, 1985. xiv, 198 pp. Paper, \$18.50.

Cerebrovascular Diseases. Fred Plum and William A. Pulsinelli, Eds. Raven, New York, 1985. xxii, 259 pp., illus. \$69.50. From a conference, Williamsburg, Va., March 1984.

Chemical Induction of Cancer. Structural Bases and Biological Mechanisms. Vol. 3B, Aliphatic and Polyhalogenated Carcinogens. Yin-tak Woo *et al.* Academic Press, Orlando, Fla., 1985. xx, 598 pp., illus. \$98.50.

Chemical Methods in Bacterial Systematics. Michael Goodfellow and David E. Minnikin, Eds. Academic Press, Orlando, Fla., 1985. xvi, 412 pp., illus. \$69.50. The Society for Applied Bacteriology Technical Series, no. 20. From a conference, July 1983.

The Chemistry and Biology of Isoquinoline Alkaloids. J. D. Phillipson, M. F. Roberts, and M. H. Zenk, Eds. Springer-Verlag, New York, 1985. viii, 304 pp., illus. \$39. Proceedings in Life Sciences. From a symposium, April 1984.

Chemistry and Technology of Basic Organic and Petrochemical Synthesis. N. N. Lebedev. Mir, Moscow, 1985 (U.S. distributor, Imported Publications, Chicago). Two volumes. 640 pp., illus. \$16. Translated from the Russian edition (Moscow, 1981) by A. Beknazarov.

Forms of Psychological Inquiry. Joseph H. Notterman. Columbia University Press, New York, 1985. xiv, 195 pp., illus. \$20. Critical Assessments of Contemporary Psychology.

Fourier Transform Infrared Spectroscopy. Industrial Chemical and Biochemical Applications. T. Theophanides, Ed. Reidel, Boston, 1984 (distributor, Kluwer, Hingham, Mass.). viii, 192 pp., illus. \$29.50.

Fragile Sites on Human Chromosomes. Grant R. Sutherland and Frederick Hecht, with contributions by John C. Mulley, Thomas W. Glover, and Barbara K. Hecht. Oxford University Press, New York, 1985. xiv, 280 pp., illus. \$45. Oxford Monographs on Medical Genetics, no. 13.

Frontiers in Fluid Mechanics. A Collection of Research Papers Written in Commemoration of the 65th Birthday of Stanley Corrsin. S. H. Davis and J. L. Lumley, Eds. Springer-Verlag, New York, 1985. xiv, 289 pp., illus. \$34.

Frontiers in Longevity Research. Applications of Nutritional and Other Discoveries in the Prevention

of Age-Related Disorders. Robert J. Morin, Ed. Thomas, Springfield, Ill., 1985. xviii, 278 pp., illus. \$29.75.

Fundamentals of Holography. Yu. N. Denisjuk. Mir, Moscow, 1984 (U.S. distributor, Imported Publications, Chicago). 136 pp., illus. Paper, \$3.95. Translated from the Russian edition (Leningrad, 1978) by Alexander Chubarov.

Germfree Research. Microflora Control and Its Application to the Biomedical Sciences. Bernard S. Wostmann *et al.*, Eds. Liss New York, 1985. xxvi, 512 pp., illus. \$78. Progress in Clinical and Biological Research, vol. 181. From a symposium, Notre Dame, Ind., June 1984.

Global Ecology. Charles H. Southwick. Sinauer, Sunderland, Mass., 1985. xii, 323 pp., illus. Paper, \$14.95.

A Guided Tour of the Living Cell. Student Edition. Christian de Duve. Illustrated by Neil O. Hardy. Published in collaboration with the Rockefeller University Press by Scientific American Books, New York, 1985. xiv, 444 pp. Paper, \$33.95. Reprint, 1984 edition.

Hallucinogens. Cross-Cultural Perspectives. Marlene Dobkin de Rios. University of New Mexico Press, Albuquerque, 1984. x, 255 pp., illus. \$22.50.

Handbook of Physiology. Section 3, The Respiratory System. Vol. I, Circulation and Nonrespiratory Functions. Alfred P. Fishman *et al.*, Eds. 2nd ed. American Physiological Society, Bethesda, Md., 1985 (distributor, Williams and Wilkins, Baltimore). xii, 572 pp., illus. \$136.

A Handbook of Radioactivity Measurements Procedures. With Nuclear Data for Some Biomedically Important Radionuclides, Reevaluated between August, 1983 and April, 1984. Recommendations of the National Council on Radiation Protection and Measurements. 2nd ed. National Council on Radiation Protection and Measurements, Bethesda, Md., 1985. xvi, 592 pp., illus. \$22. NCRP Report no. 58.

The Hidden Universe. Michael Disney. Macmillan, New York, 1985. xii, 257 pp., illus., + plates. \$17.95.

Information Technologies and Social Transformation. Bruce R. Guile, Ed. National Academy Press, Washington, D.C., 1985. x, 173 pp., illus. Paper, \$14.95. Series on Technology and Social Priorities.

Instrumentation and Control of Water and Wastewater Treatment and Transport Systems. R. A. R. Drake, Ed. Pergamon, New York, 1985. xx, 748 pp., illus. \$130. Advances in Water Pollution Control. From a workshop, Houston and Denver, Apr. 1985.

Laminar-Turbulent Transition. V. V. Kozlov, Ed. Springer-Verlag, New York, 1985. xxxviii, 759 pp., illus. \$85. From a symposium, Novosibirsk, USSR, July 1984.

Language and Experience. Evidence from the Blind Child. Barbara Landau and Lila R. Gleitman. Harvard University Press, Cambridge, Mass., 1985. xvi, 250 pp., illus. \$22.50. Cognitive Science Series, 8.

Laser Photobiology and Photomedicine. S. Martellucci and A. N. Chester, Eds. Plenum, New York, 1985. x, 334 pp., illus. \$55. Ettore Majorana International Science Series (Physical Sciences), vol. 22. From a course, Erice, Italy, Sept. 1983.

Life Sciences and Space Research XXI(2). H. Oser *et al.*, Eds. Published for the Committee on Space Research by Pergamon, New York, 1985. viii, 326 pp., illus. Paper, \$49.50. Advances in Space Research, vol. 4, no. 12. From workshops, Graz, Austria, June 1984.

Ligand-Binder Assays. Labels and Analytical Strategies. Larry J. Kricka. Dekker, New York, 1985. xiv, 316 pp., illus. \$65. Clinical and Biochemical Analysis, 17.

Lucid, the Dataflow Programming Language. William W. Wadge and Edward A. Ashcroft. Academic Press, Orlando, Fla., 1985. xiv, 312 pp. \$39.50. A.P.I.C. Studies in Data Processing, vol. 22.

Manufacturing Automation Management. A Productivity Handbook. Roger W. Bolz. Chapman and Hall, New York, 1985. xii, 252 pp., illus. \$27.50. Chapman and Hall Advanced Industrial Technology Series.

Methods in Skin Research. D. Skerrow and C. J. Skerrow, Eds. Wiley-Interscience, New York, 1985. xii, 673 pp., illus. \$97.95.

Microcomputers in Education Conference. The Best of the Proceedings, 1982-1984. Donna Craighead and Gary G. Bitter, Eds. Computer Science Press, Rockville, Md., 1984. viii, 189 pp. \$30.

The Mind at Work and Play. Ronald Englefield. Prometheus, Buffalo, N.Y., 1985. vi, 183 pp. \$24.95.

Mineral Impurities in Coal Combustion. Behavior, Problems, and Remedial Measures. Erich Raask. Hemisphere, Washington, D.C., 1985. xxiv, 484 pp., illus. \$69.50.

Model Research. The National Advisory Committee for Aeronautics, 1915-1958. Alex Roland. NASA Scientific and Technical Information Branch, Washington, D.C., 1985 (available from the Superintendent of Documents, Washington, D.C.). Two

volumes. xxx, 770 pp., illus., + index. \$26. The NASA History Series.

Models for Biomedical Research. A New Perspective. National Academy Press, Washington, D.C., 1985. xii, 180 pp., illus. Paper, \$18.50.

Models of Category Counts. B. Fingleton. Cambridge University Press, New York, 1984. x, 187 pp. \$34.50.

National Leaders of American Conservation. Richard H. Stroud. 2nd ed. Smithsonian Institution Press, Washington, D.C., 1985. 432 pp. Paper, \$24.95.

Natural Zeolites. G. Gottardi and E. Galli. Springer-Verlag, New York, 1985. xii, 409 pp., illus. \$59. Minerals and Rocks, 18.

Neurolinguistic Aspects of the Japanese Writing System. Michel Paradis, Hiroko Hagiwara, and Nancy Hildebrandt. Academic Press, Orlando, Fla., 1985. xvi, 224 pp. \$48. Perspectives in Neurolinguistics, Neuropsychology, and Psycholinguistics.

Neuropsychology of Learning Disabilities. Essentials of Subtype Analysis. Byron P. Rourke, Ed. Guilford, New York, 1985. xvi, 351 pp., illus. \$30.

Neurotransmitters in Action. David Bousfield, Ed. Elsevier, New York, 1985. viii, 351 pp., illus. Paper, \$21. Reprinted from *Trends in Neurosciences*.

New Choices. The Latest Options in Treating Breast Cancer. Mark Rubinstein and Dennis P. Cirillo. Dodd, Mead, New York, 1985. xii, 211 pp. \$15.95.

New Pathways in Science and Technology. Collected Research Briefings 1982-1984. Committee on Science, Engineering, and Public Policy, National Academy of Sciences, National Academy of Engineering, Institute of Medicine. Vintage (Random), New York, 1985. xii, 433 pp. Paper, \$12.95.

New Perspectives in Adipose Tissue. Structure, Function and Development. A. Cryer and R. L. R. Van, Eds. Butterworths, Boston, 1985. xvi, 474 pp., illus. \$94.95.

The New Psychiatry. Jerrold S. Maxman. Morrow, New York, 1985. 329 pp. \$17.95.

New Vaccine Development. Establishing Priorities. Vol. 1, Diseases of Importance in the United States. Division of Health Promotion and Disease Prevention, Institute of Medicine. National Academy Press, Washington, D.C., 1985. xiv, 458 pp. Paper, \$32.50.

1985 Chapel Hill Conference on Very Large Scale Integration. Henry Fuchs, Ed. Computer Science Press, Rockville, Md., 1985. xiv, 476 pp., illus. \$39.95.

Novel Application of Anomalous (Resonance) X-ray Scattering for Structural Characterization of Disordered Materials. Yoshio Waseda. Springer-Verlag, New York, 1984. vi, 183 pp., illus. Paper, \$11. Lecture Notes in Physics, vol. 204.

Novel Biochemical, Pharmacological and Clinical Aspects of Cytidinediphosphocholine. Vincenzo Zappia *et al.*, Eds. Elsevier, New York, 1985. xviii, 406 pp., illus. \$78. From a meeting, Serrito, Italy, June 1984.

Nuclear Battlefields. Global Links in the Arms Race. William M. Arkin and Richard W. Fieldhouse. Ballinger (Harper and Row), Cambridge, Mass., 1985. xx, 329 pp., illus. \$28; paper, \$14.95. An Institute for Policy Studies Book.

Nuclear Magnetic Resonance of Liquid Crystals. J. W. Emsley, Ed. Reidel, Boston, 1985 (distributor, Kluwer, Hingham, Mass.). xvi, 572 pp., illus. \$76. NATO ASI Series C, vol. 141. From an institute, San Miniato, Italy, July 1983.

Nuclear Medicine Annual 1985. Leonard M. Freeman and Heidi S. Weissmann, Eds. Raven, New York, 1985. x, 352 pp., illus. \$59.50.

Nutrition and Immunity. M. Eric Gershwin, Richard S. Beach, and Lucille S. Hurley. Academic Press, Orlando, Fla., 1985. xii, 417 pp., illus. \$58.

Nutritional Pathology. Pathobiochemistry of Dietary Imbalances. Herschel Sidransky, Ed. Dekker, New York, 1985. xiv, 400 pp., illus. \$69.75. The Biochemistry of Disease, vol. 10.

Ocean Disposal Systems for Sewage Sludge and Effluent. National Academy Press, Washington, D.C., 1984. x, 126 pp., illus. Paper, \$13.95.

Oil in the Sea. Inputs, Fates, and Effects. National Academy Press, Washington, D.C., 1985. xx, 601 pp., illus. \$39.50.

The Physiological Properties of Plant Protoplasts. Paul-Emile Pilet, Ed. Springer-Verlag, New York, 1985. xiv, 283 pp., illus. \$44. Proceedings in Life Sciences. From a seminar, March 1984.

Pineal Research Reviews. Vol. 3. Russel J. Reiter, Ed. Liss, New York, 1985. x, 268 pp., illus. \$76.

Principles of Igneous Petrology. Sven Maaßøe. Springer-Verlag, New York, 1985. xiv, 371 pp., illus. \$49.50.

Principles of Phase Conjugation. B. Ya. Zel'dovich, N. F. Pilipetsky, and V. V. Shkunov. Springer-Verlag, New York, 1985. x, 250 pp., illus. \$49. Springer Series in Optical Sciences, vol. 42.

Proceedings of the 17th International Conference on the Physics of Semiconductors. (San Francisco,

Aug. 1984.) James D. Chadi and Walter A. Harrison, Eds. Springer-Verlag, New York, 1985. xxxvi, 1580 pp., illus. \$135.

Proceedings of the Third British National Conference on Databases (BNCOD3). (Leeds, July 1984.) J. Longstaff, Ed. Published for the British Computer Society by Cambridge University Press, New York, 1984. viii, 263 pp. \$44.50. The British Computer Society Workshop Series.

Progress in Molecular and Subcellular Biology 9. F. E. Hahn, D. J. Kopecko, and W. E. G. Müller, Eds. Springer-Verlag, New York, 1985. viii, 179 pp., illus. \$49.

Prolongevity II. An Updated Report on the Scientific Prospects for Adding Good Years to Life. Albert Rosenfeld. Knopf, New York, 1985. xxii, 336 pp. \$18.95.

The Psychobiology of Attachment and Separation. Martin Reite and Tiffany Fields, Eds. Academic Press, Orlando, Fla., 1985. xiv, 509 pp., illus. \$62.50. Behavioral Biology.

The Pulmonary Circulation and Acute Lung Injury. Sami I. Said, Ed. Futura, Mount Kisco, N.Y., 1985. xii, 473 pp., illus. \$65.

The Quantity and Quality of Breast Milk. Report on the WHO Collaborative Study on Breast-feeding. World Health Organization, Geneva, 1985 (U.S. distributor, WHO Publications Centre USA, Albany, N.Y.). viii, 152 pp., illus. Paper, \$8.50.

Quarks, Leptons, and Beyond. H. Fritzsch *et al.*, Eds. Plenum, New York, 1985. viii, 555 pp., illus. \$89.50. NATO ASI Series B, vol. 122. From an institute, Munich, Sept. 1983.

The Quest for SS433. David H. Clark. Viking. New York, 1985. xviii, 206 pp., illus. \$15.95.

Racial and Cultural Minorities. An Analysis of Prejudice and Discrimination. George Eaton Simpson and J. Milton Yinger. 5th ed. Plenum, New York, 1985. xiv, 491 pp. \$29.50. Environment, Development, and Public Policy.

Remote Sensing from Satellites. W. D. Carter and E. T. Engman, Eds. Published for the Committee on Space Research by Pergamon, New York, 1985. xii, 253 pp., illus. Paper, \$49.50. Advances in Space Research, vol. 4, no. 11. From workshops, Graz, Austria, June 1984.

Review of Progress in Quantitative Nondestructive Evaluation. Vol. 4. Donald O. Thompson and Dale E. Chimenti, Eds. Plenum, New York, 1985. 2 vols. xxiv, 1421 pp., illus. \$195. From a conference, San Diego, Calif., July 1984.

Les Sciences Humaines et les Droits de l'Homme. R. Bruyer, Ed. Mardaga, Brussels, 1984. 264 pp. Paper, 990 BF. Psychologie et Sciences Humaines, 137.

Scientific Illustration. A Guide for the Beginning Artist. Zbigniew T. Jastrzebski. Prentice-Hall, Englewood Cliffs, N.J., 1985. x, 319 pp., illus. Paper, \$22.95.

Secure Speech Communications. Henry J. Beker and Fred C. Piper. Academic Press, Orlando, Fla., 1985. xii, 267 pp., illus. \$39.50. Microelectronics and Signal Processing, 3.

Securing a Safer Blood Supply. Two Views. Ross D. Eckert and Edward L. Wallace. American Enterprise Institute for Public Policy Research, Washington, D.C., 1985. xii, 153 pp. \$16.95; paper, \$8.95. AEI Studies 416.

Sedimentology of Coal and Coal-bearing Sequences. R. A. Rahmani and R. M. Flores, Eds. Blackwell Scientific, Palo Alto, Calif., 1985. vi, 412 pp., illus. Paper, \$56. International Association of Sedimentologists Special Publication, no. 7. From a symposium, Hamilton, Canada, Aug. 1982.

Selective Toxicity. The Physico-chemical Basis of Therapy. Adrien Albert. 7th ed. Chapman and Hall, New York, 1985. xiv, 750 pp., illus. \$69.95; paper, \$34.95.

Semiconductors and Semimetals. Vol. 22, Lightwave Communications Technology, Part A. W. T. Tsang, Ed. Academic Press, Orlando, Fla., 1985. xx, 416 pp., illus. \$69.

Semiconductors and Semimetals. Vol. 23, Pulsed Laser Processing of Semiconductors. R. F. Wood, C. W. White, and R. T. Young, Eds. Academic Press, Orlando, Fla., 1984. xiv, 693 pp., illus. \$65.

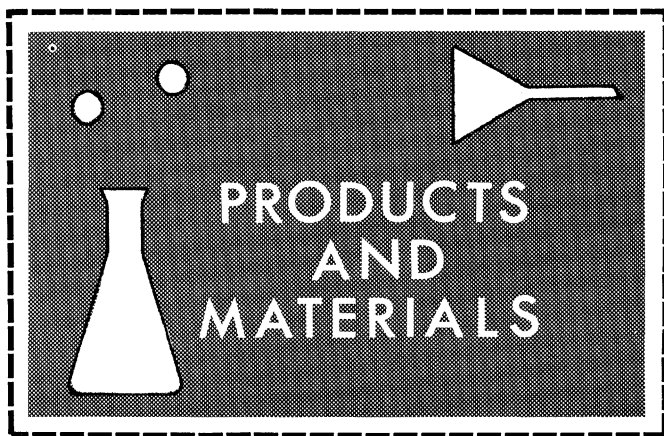
Semiconductors Probed by Ultrafast Laser Spectroscopy. R. R. Alfano, Ed. Academic Press, Orlando, Fla., 1984. Two volumes. Vol. 1. xviii, 462 pp., illus. \$79.50. Vol. 2. xx, 555 pp., illus. \$85.

Semiotic Mediation. Sociocultural and Psychological Perspectives. Elizabeth Mertz and Richard J. Parmentier, Eds. Academic Press, Orlando, Fla., 1985. xvi, 395 pp. \$49.50. Language, Thought, and Culture. From a meeting, Washington, D.C., Dec. 1982.

Sensory Evaluation Practices. Herbert Stone and Joel L. Sidel. Academic Press, Orlando, Fla., 1985. xii, 311 pp. \$39.50. Food Science and Technology.

The Seven Day Circle. The History and Meaning of the Week. Eviatar Zerubavel. Free Press (Macmillan), New York, and Collier Macmillan, London, 1985. xiv, 206 pp. \$16.95.

(Continued on page 1414)



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Mbytes of virtual memory address space, and a 45-Mbyte hard disk with a 5¼-inch floppy disk. These systems include the Smalltalk-80 programming environment, a Unix-like operating system, and a C compiler as standard software. TEK Common LISP, Franz LISP, MProlog, and an EMACS editor are available as options. Tektronix. Circle 625.

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Modified oligonucleotides of 10 to 40 base units are provided with nonradioactive labels. Modified SNAP oligonucleotides contain thymidine analogs with linker arms attached at C-5. The linker arms terminate in a primary amine or label of choice, such as fluorescein, rhodamines, or biotin. Amine derivatized oligomers may be attached to solid supports for immobilization of hybrids. Labeled oligomers may be used for nonisotopic detection of complementary sequences. Molecular Biosystems. Circle 612.

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Coagulation Analyzer

Sonoclot DP-154G performs rapid coagulation tests on whole blood or plasma. Coagulation is detected mechanically without disturbing the 0.4-ml sample. The functional aspects of coagulation may be determined immediately after venipuncture without relying on end-point values. The instrument is easily portable. A continuous chart records changes in viscoelasticity to indicate clotting. Sienco. Circle 624.

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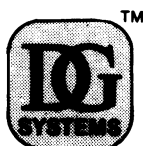
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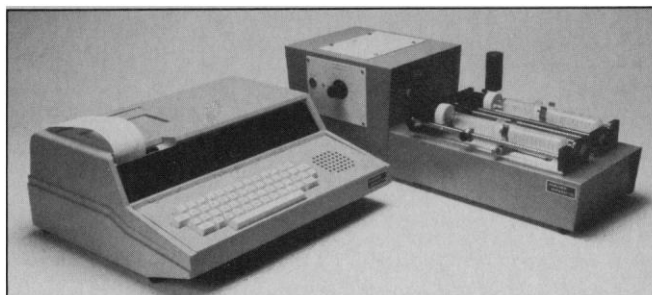
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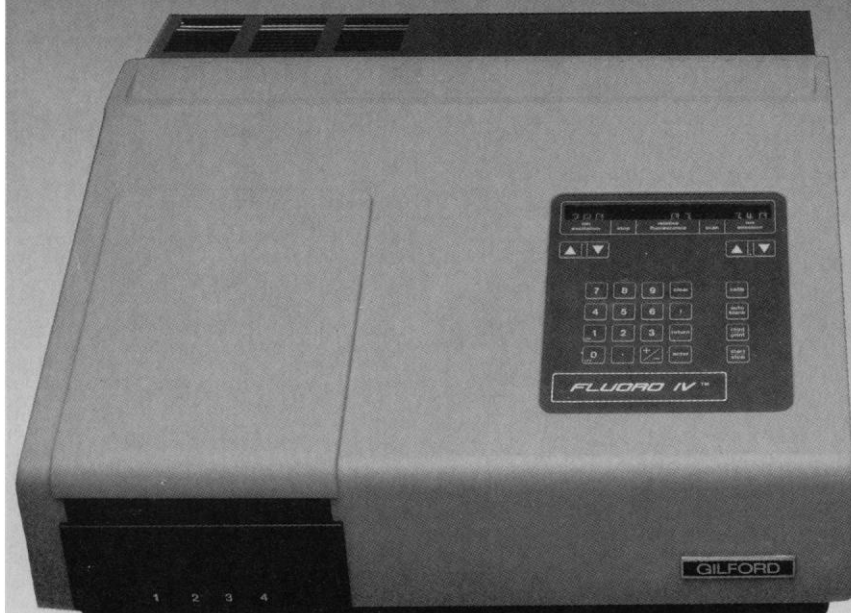
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BOOKS RECEIVED

(Continued from page 1382)

Sicuanga Runa. The Other Side of Development in Amazonian Ecuador. Norman E. Whitten, Jr. University of Illinois Press, Urbana, 1985. xii, 315 pp., illus. \$24.95.

The Skywatcher's Handbook. Night and Day, What to Look for in the Heavens Above. Colin A. Ronan, Ed. Crown, New York, 1985. 224 pp., illus. \$13.95.

The Sky Will Be Blue. G. Gordon and L. Gordon. Mir, Moscow, 1984 (U.S. distributor, Imported Publications, Chicago). 160 pp., illus. \$5.95. Translated from the Russian edition (Moscow, 1981) by Y. Nadler.

Social Behaviour in Mammals. Trevor B. Poole. Blackie, Glasgow, 1985 (U.S. distributor, Methuen, New York). viii, 248 pp., illus. Paper, \$22.50. Tertiary Level Biology.

Social Perception in Infants. Tiffany M. Field and Nathan A. Fox, Eds. Ablex, Norwood, N.J., 1985. viii, 334 pp., illus. \$39.50.

The Socialization of Emotions. Michael Lewis and Carolyn Saarni, Eds. Plenum, New York, 1985. x, 323 pp. \$35. Genesis of Behavior, vol. 5. From a conference, Princeton, N.J.

Solar Thermal Energy Storage. H. P. Garg, S. C. Mullick, and A. K. Bhargava. Reidel, Boston, 1985 (distributor, Kluwer, Hingham, Mass.). xx, 642 pp., illus. \$79.

Solid Modeling by Computers. From Theory to Applications. Mary S. Pickett and John W. Boyse, Eds. Plenum, New York, 1984. x, 382 pp., illus. \$55. From a symposium, Warren, Mich., Sept. 1983.

Solid State Chemistry in Catalysis. Robert K. Grasselli and James F. Brazdil, Eds. American Chemical Society, Washington, D.C., 1985. x, 366 pp., illus. \$64.95. ACS Symposium Series, 279. From a symposium, Washington, D.C., Aug. 1983.

Solid State Physics: Surfaces. Robert L. Park and Max G. Lagally, Eds. Academic Press, Orlando, Fla., 1985. xx, 543 pp., illus. \$80. Methods of Experimental Physics, vol. 22.

Solid State Physics under Pressure. Recent Advances with Anvil Devices. S. Minomura, Ed. KTK Scientific Publishers, Tokyo, and Reidel, Boston, 1985 (U.S. distributor, Kluwer, Hingham, Mass.). xii, 382 pp., illus. \$69. From a conference, Izu-Nagaoka, Japan, Jan. 1984.

Solid State Protonic Conductors III. For Fuel Cells and Sensors. John B. Goodenough, John. Jensen, and Antoine Potier, Eds. Odense University Press, Odense, Denmark, 1985. xii, 284 pp., illus. Paper, \$20. From a workshop, Hérault, France, May 1984.

Solutions of Einstein's Equations. Techniques and Results. C. Hoenselaers and W. Dietz, Eds. Springer-Verlag, New York, 1985. vi, 439 pp. Paper, \$23.50. Lecture Notes in Physics, vol. 205. From a seminar, Retzbach, Germany, Nov. 1983.

Solvent-Dependent Flexibility of Proteins and Principles of Their Function. Alex I. Käiväräinen. Reidel, Boston, 1985 (distributor, Kluwer, Hingham, Mass.). xiv, 290 pp., illus. \$58. Advances in Inclusion Science. Translated from the Russian edition.

Spectroscopy of Condensed Media. Dynamics of Molecular Interactions. C. H. Wang. Academic Press, Orlando, Fla., 1985. xiv, 356 pp. \$74.

The Spectrum of Psychiatric Research. Michael Shepherd. Cambridge University Press, New York, 1985. xii, 240 pp. \$29.95.

Spencer's Computer Dictionary for Everyone. Donald D. Spencer, 3rd ed. Scribner, New York, 1985. xii, 290 pp., illus. \$17.95; paper, \$8.95.

The Spondyloarthropathies. Morris Ziff and Stanley B. Cohen, Eds. Raven, New York, 1985. xvi, 272 pp., illus. \$59.50. Advances in Inflammation Research, vol. 9. From a symposium.

Sputnik to Space Shuttle. Iain Nicolson. Dodd, Mead, New York, 1985. 224 pp., illus. Paper, \$9.95.

Static Critical Phenomena in Inhomogeneous Systems. A. Pekalski and Sznajd, Eds. Springer-Verlag, New York, 1984. viii, 376 pp. Paper, \$21. Lecture Notes in Physics, vol. 206. From a school, Karpacz, Poland, Feb. 1984.

Stellar Radial Velocities. A. G. Davis Philip and David W. Latham, Eds. L. Davis Press, Schenectady, N.Y., 1985. xii, 455 pp., illus. Paper, \$30. Van Vleck Observatory Contribution no. 3. From a colloquium, Schenectady, N.Y., Oct. 1984.

Stochastic Differential Systems. Filtering and Control. M. Metivier and E. Pardoux, Eds. Springer-Verlag, New York, 1985. viii, 322 pp. Paper, \$25. Lecture Notes in Control and Information Sciences, vol. 69. From a conference, Marseille-Luminy, France, March 1984.

Strong and Ultrastrong Magnetic Fields and Their Applications. F. Herlach, Ed. Springer-Verlag, New York, 1985. xii, 362 pp., illus. \$48.50. Topics in Applied Physics, vol. 57.

Storm Depositional Systems. Dynamic Strait-

graphy in Modern and Ancient Shallow-Marine Sequences. Thomas Aigner. Springer-Verlag, New York, 1985. viii, 174 pp., illus. Paper, \$14.50. Lecture Notes in Earth Sciences, vol. 3.

Stress. Psychological and Physiological Interactions. Susan R. Burchfield, Ed. Hemisphere, Washington, D.C., 1985. xvi, 399 pp., illus. \$44.50. The Series in Clinical and Community Psychology.

Stress and Anxiety. Vol. 9. Charles D. Spielberger, Irwin G. Sarason, and Peter B. Defares, Eds. Hemisphere, Washington, D.C., 1985. xvi, 283 pp. \$42.50. The Series in Clinical and Community Psychology.

Structural Chemistry of Silicates. Structure, Bonding, and Classification. Friedrich Liebau. Springer-Verlag, New York, 1985. xiv, 347 pp., illus. \$57.

Superconductivity in Magnetic and Exotic Materials. T. Matsubara and I. A. Kotani, Eds. Springer-Verlag, New York, 1984. xii, 211 pp., illus. \$25. Springer Series in Solid-State Sciences, vol. 52. From a symposium, Kashikojima, Japan, Nov. 1983.

Surface and Interfacial Aspects of Biomedical Polymers. Vol. 1, Surface Chemistry and Physics. Joseph D. Andrade, Ed. Plenum, New York, 1985. xvi, 470 pp., illus. \$69.50.

Symmetry in Bonding and Spectra. An Introduction. Bodie E. Douglas and Charles A. Hollingsworth. Academic Press, Orlando, Fla., 1985. xii, 456 pp., illus. \$39.

Synthetic Modulated Structures. Leroy L. Chang and B. C. Giessen, Eds. Academic Press, Orlando, Fla., 1985. xii, 503 pp., illus. \$87. Materials Science and Technology Series.

Taurine. Biological Actions and Clinical Perspectives. Simo S. Oja *et al.*, Eds. Liss, New York, 1985. xviii, 483 pp., illus. \$68. Progress in Clinical and Biological Research, vol. 179. From a symposium, Hanasaari, Espoo, Finland, Aug. 1984.

Technology's Storytellers. Reweaving the Human Fabric. John M. Staudenmaier. Society for the History of Technology and MIT Press, Cambridge, Mass., 1985. xxx, 282 pp. \$35.

Testicular Cancer and Other Tumors of the Genitourinary Tract. M. Pavone-Macaluso, P. H. Smith, and M. A. Bagshaw, Eds. Plenum, New York, 1985. xiv, 537 pp., illus. \$85. Ettore Majorana International Science Series (Life Sciences), vol. 18. From a course, Erice, Italy, July 1983.

The Theory of Matrices. Peter Lancaster and Miron Tismenetsky. 2nd ed. Academic Press, Orlando, Fla., 1985. xvi, 572 pp. \$59. Computer Science and Applied Mathematics.

Thermal Conductivity. 18. T. Ashworth and David R. Smith, Eds. Plenum, New York, 1985. xx, 764 pp., illus. \$125. From a conference, Rapid City, S.D., Oct. 1983.

Thermal Power Plants and Environmental Control. L. A. Richter, E. P. Volkov, and V. N. Pokrovsky, P. S. Neporozhny, Ed. Mir, Moscow, 1984 (U.S. distributor, Imported Publications, Chicago). 312 pp., illus. \$7.95. Translated from the Russian edition (Moscow, 1981) by V. Afanasyev.

Thermodynamics and Constitutive Equations. G. Grioli, Ed. Springer-Verlag, New York, 1985. vi, 257 pp. Paper, \$17.30. Lecture Notes in Physics, vol. 228. From a conference, Noto, Italy, June 1982.

They All Laughed When I Sat Down at the Computer. And Other True Tales of One Man's Struggle with Personal Computing. Erik Sandberg-Diment. Simon and Schuster, New York, 1985. 224 pp. \$16.95.

3,1416 and All That. Philip J. Davis and William G. Chinn. Birkhäuser, Boston, 1985. x, 188 pp., illus. Paper, \$14.95.

Viruses and Cancer. P. W. J. Rigby and N. M. Wilkie, Eds. Published for the Society for General Microbiology by Cambridge University Press, New York, 1985. xii, 323 pp., illus. \$64.50. From a symposium, Warwick, England, April 1985.

What Darwin Began. Modern Darwinian and Non-Darwinian Perspectives on Evolution. Laurie Rohde Godfrey, Ed. Allyn and Bacon, Boston, 1985. x, 312 pp., illus. Paper, \$12.50.

Wheat Growth and Modelling. W. Day and R. K. Atkin, Eds. Plenum, New York, 1985. xii, 407 pp., illus. \$65. NATO ASI Series A, vol. 86. From a workshop, Bristol, U.K., April 1984.

Wheels, Life and Other Mathematical Amusements. Martin Gardner. Freeman, New York, 1985. x, 261 pp., illus. Paper, \$9.95. Reprint, 1983 edition.

Wind Energy Conversion 1984. Peter Musgrove, Ed. Cambridge University Press, New York, 1985. viii, 464 pp., illus. \$59.50. From a conference, Reading, England, March 1984.

Woman, Poet, Scientist. Essays in New World Anthropology Honoring Dr. Emma Louise Davis. Compiled and edited by the Great Basin Foundation. Great Basin Foundation, San Diego, Calif., and Ballena Press, Los Altos, Calif., 1985. viii, 150 pp., + plates. Paper, \$21.50. Ballena Press Anthropological Papers no. 29.

Zoltan Bay. Atomic Physicist, a Pioneer of Space Research. Francis S. Wagner. Akadémiai Kiadó, Budapest, 1985. 117 pp., illus. \$14.

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Ph.D. Biochemist (1984) with 1 year of postdoctoral experience in mRNA isolation and analysis. Experienced in most areas related to protein chemistry/enzymology, isolation, purification, characterization, and physicochemical studies. Seeks position as research associate, teacher in any institution such as government, private, or health centers. Box 204, SCIENCE. X

Ph.D. Biochemistry/Endocrinology. 1-year postdoctoral fellowship examining energy metabolism, nutrition, diabetic neuropathy, and the sympathetic nervous system; extensive HPLC experience, publications. Seeks industry position. Telephone: 716-461-9572. Box 197, SCIENCE. X

Bioorganic Chemist. Ph.D. 1982. Drug metabolism; physical organic, synthetic organic chemistry. Seeks research position in bioorganic/pharmaceutical chemistry. Available December 1985. Box 189, SCIENCE. X

Bioorganic Chemist, Ph.D. 1966. Experience in R&D management, DNA chemistry, protein chemistry, analytical chemistry (HPLC), synthetic organic chemistry, enzymology. Seeks responsible supervisory position in industry. Will relocate. Box 207, SCIENCE. X

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Experimental Neuropathologist, Ph.D., M.D.Sc., European education and degrees. Trained in electron microscopy and electrophysiology. Distinguished scientific record (cerebral ischemia/stroke/head trauma). Several publications. Experience in leading research teams. Teaching experience in neurosciences and histology (normal/pathology). Formerly affiliated with one of Europe's largest research hospitals, currently at one of America's leading medical science institutions. Excellent references. Available December 1985; seeking position in academia or industry. Box 206, SCIENCE. X

9/27; 10/4, 11, 18

Geologist. Bachelor of Science, Colorado State, August 1984. Seeking entry-level position: geologist assistant or geohydrologist assistant (attended Ohio University Groundwater and Hydrology Course). Knowledge of USGS equipment (groundwater, geophysical, survey). Active AAAS member since 1982. Will relocate/travel. Please inquire: Kevin Sheedy, 39 Barter, Hicksville, N.Y. 11801. X

9/27; 10/4, 11, 18, 25

Immunologist. Ph.D. University and industrial research background in cellular and molecular immunology, lymphokines, lymphocyte cell biology, and hybridoma/monoclonal antibody development. Excellent publications and references. Seeking responsible position in university or industry. Box 192, SCIENCE. X

Microbiologist. Seeks opportunity to provide results-oriented technical services for research, pharmaceutical, or biological products production. Sixteen years of experience in mass cell culture production, medical research, diagnostic virology, serology, electron microscopy; vaccine development; mammalian, insect, and microcarrier cell culture; laboratory design and safety; public speaking, technical writing, publications; equipment purchase and personnel and resource management. Experience in levels 2 and 3 biocontainment laboratories and has been vaccinated for eastern, western, and Venezuelan equine encephalitis, Rift Valley Fever, and rabies viruses. Bonnie King, 90 South Wadsworth Boulevard, Suite 105443, Lakewood, Colo. 80226. Telephone: 303-236-7950 or 744-9577. X

9/27; 10/4

Research/Biomedical Repair Position, B.S.-biology, AS-Hospital Equipment Technology graduate, seeks entry level employment with universities/industrial employers. Career objective: life sciences/biomedical engineering position in R&D, sales/service. Experience: histochemical analysis, basic analytical laboratory procedures in biology, microbiology, biochemistry; biomedical research; electronic troubleshooting; biomedical, clinical laboratory equipment. Low on cash, high on desire to work and to earn advanced degree. Possible JPTA OJT wage reimbursement. Telephone: 814-425-7721/814-337-7105. Jim Pavlicek, Box 242-A, RD2, Cochranton, Pa. 16314. X

Research Assistant, M.S. experienced with geologic mapping, stratigraphic and sedimentological studies of Paleozoic through Cenozoic units in northwest Fremont County, Wyoming. Seeks position in geology. Box 203, SCIENCE. X

Sequenator Operator. Beckman/Applied-Biosystem models, GC, HPLC. Ten years of experience. Excellent work records. Box 201, SCIENCE. X

9/27; 10/4, 11

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TWO TENURE-TRACK ACADEMIC POSITIONS are available in the Department of Biology for scientists working at the molecular or organismic level in modern fields of biology. Teaching responsibilities include undergraduate and graduate courses. The level of appointment is dependent upon the academic achievements and experience of the candidate. Applications including curriculum vitae, list of publications, description of areas of research interests, and names and addresses of at least three referees should be sent to: **Professor Chanan Itai, Chairman, Department of Biology, Ben Gurion University of the Negev, Beer Sheva, Israel.**

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Dr. Charles Flaherty
Chairman
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Rutgers University
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Tenure-Track Assistant Professor Position in the Division of Reproductive Biology at the Johns Hopkins University

The Division of Reproductive Biology, Johns Hopkins University (JHU), invites applications for a tenure-track **ASSISTANT PROFESSOR** position. The person will be expected to establish a strong, independent research program and to teach at the graduate level. The field of interest is open although some preference may be given to candidates interested in the molecular or immunological aspects of reproductive biology. Send résumé, summary of research interests, and names of three references by 15 November 1985 to: **Dr. Larry L. Ewing, Division of Reproductive Biology, Department of Population Dynamics, Johns Hopkins School of Hygiene and Public Health, 615 North Wolfe Street, Baltimore, Md. 21205. JHU is an Affirmative Action/Equal Opportunity Employer.**

ASSISTANT PROFESSOR OF BIOCHEMISTRY—MOLECULAR BIOLOGY

The Department of Biochemistry and Biophysics at Iowa State University is accepting applications for a tenure-track assistant professorship in **MOLECULAR BIOLOGY**, starting summer or fall 1986. Candidates must have a strong record of research productivity and an interest in teaching graduate and undergraduate students. This position provides an excellent opportunity for development of an independent basic research program in the growing molecular biology and biotechnology research community at Iowa State University. Applications, which should include a résumé, bibliography, and brief description of research plans, must be received by 15 November 1985. Arrange to have three letters of reference sent to:

Dr. David E. Metzler, Chairman
Faculty Recruitment Committee
Department of Biochemistry & Biophysics
Iowa State University
Ames, Iowa 50011

ASSISTANT PROFESSOR— CELL BIOLOGIST

Tenure-track, undergraduate teaching position starting 23 August 1986. Ph.D. in biology required; must have a strong commitment to teaching. Responsibilities will include teaching biology for nonmajors, genetics, immunology, histology, cell biology, and developmental biology. A modest research program is expected.

Candidates should submit a letter of application stating their teaching and research interests, curriculum vitae, transcripts, and three letters of recommendation by 25 October 1985 to: **Dr. Robert L. Wallace, Chair, Biology Department, Ripon College, P.O. Box 248, Ripon, Wis. 54971-0248.**

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The Department of Biochemistry, Duke University Medical Center, invites applications for the position of **ASSISTANT PROFESSOR** (tenure-track). The person will be expected to establish a strong independent research program and to teach both medical and graduate students. The field of interest is open, although some preference may be given to candidates interested in structural biochemistry or molecular aspects of cell biology. Send résumé, summary of research interest, and three letters of reference by 1 November 1985 to: **Robert L. Hill, Department of Biochemistry, Duke University Medical Center, Durham, North Carolina 27710. Duke University is an Equal Opportunity/Affirmative Action Employer.**

The Department of Chemistry of the University of Illinois at Chicago invites applications and nominations for **TWO** tenure-track **ASSISTANT PROFESSOR** positions in **BIOCHEMISTRY OR MOLECULAR BIOLOGY** for fall 1986. Appointments at more senior rank will be considered for uniquely qualified candidates. The primary requirements are excellence in research and teaching; Ph.D. required, postdoctoral experience desirable. To be assured full consideration, send résumé, list of publications, statements of research plans, and three letters of recommendation by 31 October 1985 to: **Dr. J. Rocco, Department of Chemistry, University of Illinois at Chicago, Box 4348, Chicago, Ill. 60680. The University of Illinois is an Equal Opportunity/Affirmative Action Employer.**

DEPARTMENT OF CHEMISTRY UNIVERSITY OF CALIFORNIA, BERKELEY

Applications are invited for a position at the level of **ASSISTANT PROFESSOR OF CHEMISTRY**, beginning fall 1986. We are interested in outstanding candidates, with exceptional promise in teaching and research in any area of chemistry. Appointments with tenure are also possible as **ASSOCIATE PROFESSOR** or **FULL PROFESSOR** for persons with outstanding qualifications and sufficient experience.

Candidates should submit curriculum vitae (including a list of publications and a summary of their teaching and research objectives), and request three letters of reference, all to be sent to: **Chairman, Faculty Recruiting Committee, Department of Chemistry, University of California, Berkeley, California 94720.** Deadline for receipt of applications is 1 December 1985. *The University of California is an Equal Opportunity/Affirmative Action Employer.*

ASSISTANT PROFESSOR OF TOXICOLOGY. Candidates must have a D.V.M. and/or Ph.D. in toxicology or a closely related science if accompanied by research experience and publications in some area of toxicology. This tenure-track position provides an excellent opportunity for independent and collaborative research in animal toxicology. Some teaching responsibilities at the professional and graduate levels are associated with the position. The deadline for receipt of applications is 1 November 1985 or until the position is filled. Please forward curriculum vitae, letter of application describing research interests, and names and addresses of three references to: **Dr. John M. Bowen, Department of Physiology and Pharmacology, College of Veterinary Medicine, The University of Georgia, Athens, Ga. 30602. Affirmative Action/Equal Opportunity Employer.**

UNIVERSITY OF HAWAII Pacific Biomedical Research Center

The Kewalo Marine Laboratory of the Pacific Biomedical Research Center is seeking an **ASSISTANT RESEARCHER** for its program in the molecular, cell, and developmental biology of marine invertebrates. Applicants should have a Ph.D. in an appropriate discipline and postdoctoral experience in research is the primary consideration; candidates applying recombinant DNA techniques in an area of cell/developmental biology related to the interests of the current faculty in motility and cytoskeletal systems will be favored. A departmental affiliation is possible at the assistant professor level and is dependent on departmental acceptance and the candidate assuming some teaching responsibilities. This is a tenure-track position and is subject to customary position clearance. Submit curriculum vitae and names of three references to: **Dr. R. E. Kane, Associate Director, Pacific Biomedical Research Center, Kewalo Marine Laboratory, 41 Ahui Street, Honolulu, Hawaii 96813.** Closing date: 1 November 1985. *The University of Hawaii is an Equal Opportunity Employer.*

**POSTDOCTORAL FELLOWSHIPS IN THE
DEPARTMENT OF MICROBIOLOGY
AND MOLECULAR GENETICS,
UNIVERSITY OF CALIFORNIA, IRVINE**

Several positions for research in individual laboratories in the department are available for candidates who have demonstrated exceptional research promise at the predoctoral or postdoctoral level. The emphasis of research in the department is in the areas of molecular genetics, recombinant DNA technology, and cell biology. Outstanding applicants will be invited for seminar presentations. The faculty of the department and their research interests are:

- Dr. Kevin Bertrand:** Regulatory and structural genes determining bacterial tetracycline resistance.
- Dr. Dennis Cunningham:** Mechanism of growth factor action; cell surface proteins and receptors.
- Dr. George Gutman:** Immunology, antibody structure, and gene organization.
- Dr. G. Wesley Hatfield:** Molecular genetic characterization of (i) attenuation in *Escherichia coli*, (ii) human genes of clinical importance.
- Dr. Harris Moyed:** Genetic control of antibiotic susceptibility.
- Dr. Kathleen Postle:** Molecular genetics of *Escherichia coli* cell envelope, iron transport, and gene regulation.
- Dr. Suzanne Sandmeyer:** Structure and function of transposable elements in yeast.
- Dr. Rozanne Sandri-Goldin:** Control of gene expression in Herpes simplex virus.
- Dr. Bert Semler:** Directed mutagenesis and expression of cloned animal virus genes.
- Dr. Stephen Sharp:** Molecular biology of eukaryotic tRNA gene expression.
- Dr. Eric Stanbridge:** Identification and characterization of human oncogenes and oncogene suppressor sequences.
- Dr. Paul Sypherd:** Fungal morphogenesis.

Applications or inquiries for additional information should be sent to: **Dr. Paul S. Sypherd, Department of Microbiology and Molecular Genetics, University of California, Irvine, Calif. 92717.**

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INTERx, a department of Merck Sharp & Dohme Research Laboratories, has vacancies for creative individuals with interest and capability in drug delivery research. Although prior experience in this area is not essential, candidates must demonstrate a high standard of initiative and achievement; should possess a Ph.D., with 3 to 5 or more years post-degree experience desirable; and should have a strong background in the physical or biological sciences, preferably with a good understanding of both areas. Training in one or more of the following areas is desirable: **Physiology, Biochemistry, Biopharmaceutics, Drug Metabolism, Biophysics, Molecular Pharmacology, Pharmaceutics/Pharmacokinetics, Chemical/Biomedical Engineering.**

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ASSISTANT or ASSOCIATE PROFESSOR of MICROBIOLOGY—MOLECULAR GENETICIST

The Department of Microbiology, Loyola University Stritch School of Medicine, is inviting applications for the position of tenure-track assistant or associate professor in the area of molecular genetics-molecular biology. The candidate should have a strong background in eukaryotic, prokaryotic, or viral molecular genetics. An earned doctorate and postdoctoral research experience are required. The successful candidate will be expected to establish an independent research program, direct graduate students, and obtain outside support for research. Individuals applying at the associate professor level should show demonstrable success in these areas. The applicant will be encouraged to interact with an established group of molecular biologists. Teaching responsibilities include participation in a team taught microbiology course for medical students and presentation every other year of an advanced graduate level course in molecular and microbial genetics. The target date for filling the position is 1 July 1986. Salary will be commensurate with qualifications and experience. Send curriculum vitae, a brief description of research interests, and the names of three references to: **Chairman, Faculty Search Committee, Department of Microbiology, Stritch School of Medicine, Loyola University of Chicago, 2160 South First Avenue, Maywood, Ill. 60153, by 1 December 1985.** *Affirmative Action/Equal Opportunity Employer.*

ASSISTANT PROFESSOR OF ORGANIC CHEMISTRY, tenure-track. Candidates in all areas of organic chemistry, defined in the broadest sense, will be considered; excellence is the main criterion. Applicants should have the background, motivation, and ability to be a dedicated teacher and to develop a vigorous, productive research program. While it is intended that this position will be filled at the assistant professor level, an appointment at a higher level will be seriously considered. Reply to: **Chairman of Search Committee, Department of Chemistry, 152 Davey Laboratory, Box B, The Pennsylvania State University, University Park, Pa. 16802,** and include detailed curriculum vitae, list of publications, and description of research interests. Also have three letters of reference sent to the above. Closing date for receipt of applications is 1 December 1985. *Affirmative Action/Equal Opportunity Employer.*

ASSISTANT PROFESSOR OF PHARMACOLOGY faculty position available as early as 1 January 1986 in the Department of Pharmacology, Eastern Virginia Medical School. Applications are invited from individuals who possess the Ph.D. and/or M.D. degree, at least 2 years of postdoctoral experience, and who will develop a vigorous research program in molecular and/or cellular cardiovascular pharmacology. Submit curriculum vitae and names and addresses of three references to: **Search Committee, Department of Pharmacology, Eastern Virginia Medical School, P.O. Box 1980, Norfolk, Va. 23501.**

Equal Opportunity/Affirmative Action Employer

BASIC MEDICAL SCIENCE TUTOR

One or two full-time positions available for persons who hold the Ph.D. degree in one of the basic medical sciences. Individual must attend classes offered to freshmen and sophomore medical students and subsequently tutor disadvantaged students in these classes during the normal medical school year. Applicants must have a proven record in teaching and an interest in student academic progress and problems. Salary and appointment are negotiable and commensurate with experience. Send curriculum vitae, statement of goals, interest, and accomplishments, and three letters of recommendation to: **Dr. William L. Panceo, Associate Dean for Student Affairs, Creighton Medical School, California at 24th Street, Omaha, Nebraska 68178.**

COLLEGE OF AGRICULTURAL AND ENVIRONMENTAL SCIENCES UNIVERSITY OF CALIFORNIA, DAVIS

Inquiries are invited from qualified applicants for **FACULTY POSITIONS** (tenure-track) available in these areas:

Associate or Full Professor/Community Studies and Development, to serve as department chair. Teaching emphasis: planning and policy. Research emphasis: social organization and change of U.S. communities. Apply to: **M. J. Wells, Chair, Search Committee, Department of Applied Behavioral Sciences, by 1 December 1985.** Available 1 July 1986 (negotiable).

Assistant Professor and Assistant Zoologist/Cell and Molecular Biology. Research in molecular aspects of cellular differentiation and gene expression in eukaryotes. Apply to: **Dr. Richard Nuccitelli, Chair, Search Committee, Department of Zoology, by 1 December 1985.**

Professional position (open at all ranks)/**International Agricultural Trade.** Candidate should have interest in international commodity markets and their relation to monetary policy and international financial transactions. Apply to: **Chairman, Department of Agricultural Economics, by 1 January 1986.**

Assistant Professor/Agronomy and Range Science. Quantitative genetics applied to winter cereals with integration of molecular and classical methods, to the development of superior germplasm. Teaching and advising in plant genetics and breeding. Apply to: **L. R. Teuber, Agronomy and Range Science, by 1 November 1985.** Position available 1 January 1986.

Assistant Professor/Agronomy and Range Science. Application of modern genetic tools to investigate the genetic control and improve grain legume germplasm. Teaching and advising in plant genetics and breeding. Apply to: **L. R. Teuber, Agronomy and Range Science, by 1 November 1985.** Position available 1 January 1986.

Assistant/Associate Professor/Molecular Genetics. Interest in application of recombinant DNA technology to domestic animal production and health preferred. Apply to: **G. B. Anderson, Department of Animal Science, by 31 October 1985.** Position available immediately.

Professor and Department Chair/Viticulture and Enology. Administration of department, teaching, and research in viticulture and enology. Apply to: **C. O. Qualset, Dean's Office, by 15 January 1986.** Position available 1 July 1986.

These positions are to be filled at the assistant professor, 11-month salary level (unless other rank is indicated above). The positions have responsibilities for teaching, advising, and research (in the Agricultural Experiment Station). Candidates should have a Ph.D. in an appropriate field and teaching and research experience. Applicants should submit résumé, transcripts (if within 5 years of graduation), statement of research and teaching experience, list and reprints of publications, and the names and addresses of at least three persons familiar with the applicant's qualifications, to individual and department as noted for positions (department name), **University of California, Davis, Calif. 95616.** Please indicate the position in which you are interested. The completed application must be received by date indicated for each position. *In accordance with applicable state and federal laws and university policy, the University of California does not discriminate in any of its policies, procedures, or practices on the basis of race, color, national origin, religion, sex, sexual orientation, handicap, age, veterans status, medical condition (as defined in Section 12926 of the California Government Code), ancestry, or marital status; nor does the university discriminate on the basis of citizenship, within the limits imposed by law or university policy. In conformance with applicable law and university policy, the University of California is an Affirmative Action/Equal Opportunity Employer.*

POSITIONS OPEN

ASSISTANT OR ASSOCIATE PROFESSOR OF SURGERY AND PHYSIOLOGY

The Departments of Surgery and Physiology, Michigan State University, have an opening for a position at the rank of assistant or associate professor. A tenure-track appointment is possible. Candidates must hold a doctoral degree with extensive postdoctoral research experience in the area of shock, preferably emphasizing metabolic aspects. Position also involves the responsibility of coordination of collaborative research projects of the Department of Surgery with existing medical biology departments within the university. Teaching opportunities are available. Please submit curriculum vitae (including reprints, preprints, and a statement of research objectives) and the names and addresses of three references to: **Chairman, Surgery Search Committee, Department of Surgery, B-246 Clinical Center, Michigan State University, East Lansing, Mich. 48824-1315.** Applications will be accepted through 1 November 1985 or until a suitable candidate is identified. *Michigan State University is an Equal Opportunity/Affirmative Action Employer.*

BIOCHEMISTS

University of Colorado, Boulder seeks applications for two tenure-track assistant professor positions in biochemistry to begin September 1986. Applications in all areas of biochemistry are welcome, but the following are of greatest interest: enzymes/proteins; carbohydrates; membranes; bioenergetics; plant biochemistry. Applicants with approaches that interface with other areas of chemistry are encouraged. Applicants should send a résumé, reprints, statement of research plans, and three letters of reference to: **Biochemistry Search Committee, Department of Chemistry and Biochemistry, Campus Box 215, Boulder, Colo. 80309.** The applications will be evaluated 1 November 1985, although later applications will be considered if the positions have not been filled. *The University of Colorado is an Affirmative Action/Equal Opportunity Institution.*

TENURE-TRACK OPENING ANTICIPATED IN BIOCHEMISTRY/MOLECULAR BIOLOGY, UNIVERSITY OF CALIFORNIA, SANTA BARBARA.

Assistant professor level preferred; in the case of an outstanding research record, a tenured appointment will be considered. Applications are sought from persons interested in the study of eukaryotic systems by biochemical and genetic approaches. Ph.D., postdoctoral experience, excellence in research, and the ability to contribute to teaching in general biochemistry and genetic regulation at the undergraduate and graduate levels are required. Position effective 1 July 1986. Salary and rank dependent on qualifications.

Submit curriculum vitae, brief summaries of previous and projected research, and arrange to have at least three letters of reference sent to: **The Chairman, Department of Biological Sciences, University of California, Santa Barbara, Calif. 93106,** by 15 November 1985. *An Equal Opportunity/Affirmative Action Employer.*

BIOLOGY. Baldwin-Wallace College has a tenure-track position available 1 September 1986. Applicants must be prepared to teach biology for the nonmajor student, a course in genetics, and one in molecular biology. All courses are at the undergraduate level. Excellence in teaching at this level is required. Candidates must have a Ph.D. Baldwin-Wallace College is a private, liberal arts, 4-year institution with 1750 full-time and 1200 part-time students enrolled in day, evening, and weekend programs. Letters of application and current academic résumé should be sent to: **Dr. Glenn Peterjohn, Chairman, Biology Department, Baldwin-Wallace College, Berea, Ohio 44017.** Salary dependent on qualifications. *Equal Opportunity/Affirmative Action Employer.*

BOTANIST. Visiting assistant professor, full-time for spring 1986 semester. Broadly trained applicants with a background in plant physiology are desired. Teaching responsibilities include one course and laboratories in introductory plant physiology. Appointment is nontenure-track. Ph.D. required. Evidence of ability to conduct research and interact with colleagues desirable. Salary is \$10,500 for the semester. Please send curriculum vitae, copies of publications, statement of teaching and research interests, and three letters of reference by 1 November 1985 to: **Dr. Craig E. Martin, Department of Botany, University of Kansas, Lawrence, Kansas 66045.** *An Affirmative Action/Equal Opportunity Employer.*

ELECTRON MICROSCOPIST

Monsanto's Central Research Laboratories has a challenging electron microscopy position available in its Physical Sciences Center (PSC) in suburban St. Louis, Missouri.

To support research in our various operating companies and staff departments, you will be responsible for studies in a wide range of biological and materials science areas, especially collaborative (analytical applications) research directed toward techniques and methods development.

To qualify, you must be a Biologist or Biochemist with a Ph.D. or have equivalent experience in using state-of-the-art electron microscopes (HVTEM, 3/TEM, 2/SEM) and optical microscopes. In addition, you will also need at least 8-10 years of related experience with skills in preparing specimens and interpreting electron micrographs.

If you enjoy interacting with other scientists, have the capability to undertake a supervisory assignment and have a solid record of technical leadership along with microscopy training as applied to biological sciences, this is the position for you. We can offer a highly competitive salary and comprehensive benefits. For prompt consideration, please submit your resume to: **Technical Staff Personnel; Box 02H; MONSANTO COMPANY; 800 N. Lindbergh Blvd.; St. Louis, MO 63167.** An Equal Opportunity Employer M/F/H/V.

Monsanto

ASSOCIATE DIRECTOR ALLERGY RESEARCH

The Pharmaceutical Research Division of Schering-Plough Corporation, a growing multi-national pharmaceutical/consumer products corporation, has a scientific leadership opportunity to head an allergy research unit.

The individual we seek will have a Ph.D. in Biochemistry, Pharmacology or equivalent with a minimum of 8 years post doctoral research experience into the mechanisms of allergic reactions or anti-allergy drug action. Supervisory experience of senior scientific personnel is required, since this individual will supervise an active group of 15-20 people including senior staff members involved in a multi-disciplinary research effort. A biochemical research background, as well as some industrial experience, is highly desirable.

We offer a stimulating scientific environment. The successful candidate will receive compensation commensurate with education and experience together with a program of comprehensive company benefits.

Qualified candidates should send their c.v. including biography, list of publications and salary requirements, in confidence, to: **Louis DeMartino, Box DD85-5, Schering-Plough Corporation, 60 Orange Street, Bloomfield, New Jersey 07003.** We are an equal opportunity employer m/f/h.



Schering-Plough

POSITIONS OPEN

CAREERS IN BIOTECHNOLOGY. The Iowa Biotechnology Training Program (IBTP) offers \$15,000 predoctoral fellowships to students desiring careers in immunology, molecular genetics, pathogenic microbiology, and microbial physiology. Please write: **Program Director, IBTP, Department of Microbiology, University of Iowa, Iowa City, Iowa 52242.**

BOTANICAL GARDEN DIRECTOR

The University of North Carolina at Chapel Hill and its Department of Biology invite applications and nominations for the position of director of The North Carolina Botanical Garden (NCBG) beginning 1 July 1986. The appointment will be made at a tenure-track faculty rank commensurate with qualifications and experience. The successful candidate will be expected to manage the Garden, carry on a research program, and will have limited teaching duties. Applications received after 1 December 1985 cannot be assured of consideration. Applicants should send complete curriculum vitae and four letters of recommendation to: **Chairman of the NCBG Search Committee, Department of Biology, Coker Hall 010A, The University of North Carolina at Chapel Hill, Chapel Hill, N.C. 27514. The University of North Carolina is an Equal Opportunity/Affirmative Action Employer.**

TENURE-TRACK POSITION CELL AND DEVELOPMENTAL BIOLOGY HAVERFORD COLLEGE

Haverford College invites applicants for a tenure-track position as assistant professor of biology starting in fall 1986. Applicants should have a Ph.D., postdoctoral experience, and active research interests in the cell biological basis of development. Familiarity with modern optical methods is desirable.

Haverford is an undergraduate institution placing great emphasis on both high quality teaching and research, which are complementary parts of the Biology Department's molecular and cellular "biology core curriculum." The appointee will teach a lecture course and advanced seminar in his or her area of expertise; and a portion of a laboratory course involving electron microscopy. He or she will also work closely with four or five students in a senior-year student honors research course. The appointee's research should be directed towards providing answers at the molecular level to a problem in his/her area of research expertise. *Haverford College is an Affirmative Action/Equal Opportunity Employer.*

Applicants should send curriculum vitae, a statement of research interests and career goals, and the names of three recommenders by 31 October 1985 to: **Dr. Christopher Goff, Department of Biology, Haverford College, Haverford, Pa. 19041.**

The Department of Pathology, Rush Medical College, Rush-Presbyterian-St. Luke's Medical Center, has an immediate opening for a **CELLULAR BIOCHEMIST**. Applicants with Ph.D. in biochemistry should have experience in protein purification (growth modulators) and cell culture techniques. Curriculum vitae, indicating research experience and names of three references, should be submitted to: **Dr. Bendicht U. Pauli, Director of Research, Department of Pathology, Rush-Presbyterian-St. Luke's Medical Center, 1753 West Congress Parkway, Chicago, Ill. 60612. Rush-Presbyterian-St. Luke's Medical Center is an Equal Opportunity/Affirmative Action Employer.**

THE DEPARTMENT OF CHEMISTRY of the newly formed School of Chemical Sciences at the University of Georgia invites applications for three **tenure-track positions** (academic year) at any level beginning 1 September 1986. The area of research is open, but applicants should have a solid record of accomplishment in chemical research with a biological orientation, have at least 2 years of postdoctoral experience or equivalent training, and be committed to the development of a vigorous, independent program of scholarly research which can compete for federal grant support. A strong interest in and aptitude for teaching both undergraduate and graduate courses in analytical, inorganic, organic, or physical chemistry should also be demonstrated. Send curriculum vitae, a summary of research plans, and the names of three or more references by 15 November 1985 to:

Dr. Harry D. Peck, Jr.
Director, School of Chemical Sciences
Chemistry Building
University of Georgia
Athens, Ga. 30602

The University of Georgia is an Equal Opportunity/Affirmative Action Institution.

POSITIONS OPEN

CHAIRPERSON DEPARTMENT OF MICROBIOLOGY MEHARRY MEDICAL COLLEGE

Meharry Medical College, School of Medicine, invites applications and nominations for the position of professor and chairperson of the Microbiology Department. Candidates should hold the M.D. or Ph.D. or equivalent degree and have a demonstrated commitment to excellence in research and teaching and a proven record in obtaining extramural funding in research. The department currently focuses on immunology and host-parasite interactions, regulation of gene expression, and the molecular and genetic basis of pathogenicity. Expansion in other areas is welcomed. Applicants should send curriculum vitae, letter of application, and a list of five references to:

George C. Hill, Ph.D.—Chairman
Microbiology Search Committee
Department of Microbiology
Meharry Medical College
Nashville, Tenn. 37208
Telephone: 615-327-6193

The first-round deadline for this advertisement is 15 December 1985; however, the position will remain open until filled. *An Equal Opportunity/Affirmative Action Employer.*

DEAN SCHOOL OF DENTISTRY CASE WESTERN RESERVE UNIVERSITY

Case Western Reserve University invites nominations and applications for the position of dean of the School of Dentistry, available 1 July 1986.

The School of Dentistry offers a curriculum leading to the D.D.S. degree, and training in orthodontics, oral biology, oral surgery, pediatric dentistry, and periodontics leading to the M.S. in dentistry. Faculty are engaged in teaching, research, and clinical activities.

The dean is the school's chief executive officer, responsible for academic and administrative affairs, for providing leadership to the faculty, and for representing the school to the larger university, the alumni, and the community.

The successful candidate should have the D.D.S. or equivalent degree, qualify for a tenured faculty appointment, and have demonstrated administrative skills. *The University is an Equal Opportunity/Affirmative Action Employer.*

Send nominations and applications by 1 November 1985 to: **Richard E. Baznik, Office of the President, Case Western Reserve University, Cleveland, Ohio 44106.**

DIRECTOR OF THE WAMI MEDICAL PROGRAM IN IDAHO

The University of Idaho solicits nominations and applications for the position of director for Idaho's component of the WAMI (Washington, Alaska, Montana, Idaho) Regional Medical Education Program of the University of Washington School of Medicine. Position descriptions are available on requests made to the address below. Starting date is 1 July 1986. To apply, please submit a letter of application, a résumé, and the names, addresses, and telephone numbers of four references by 1 November 1985 to: **Chair, WAMI Search Committee, College of Letters and Science, University of Idaho, Moscow, Idaho 83843.**

The University of Idaho is an Equal Opportunity/Affirmative Action Employer and Educational Institution.

FACULTY POSITION—BIOCHEMISTRY. The Department of Chemistry at the University of Oklahoma has a tenure-track opening for an assistant professor in biochemistry. Minimum qualifications for applicants include a Ph.D. in biochemistry, chemistry, or closely related field, as well as excellent credentials in, and a strong commitment to, both research and teaching in biochemistry. The successful applicant will be expected to establish a vigorous research program in biochemistry and to teach effectively at both the undergraduate and graduate levels. *Minority candidates are most strongly encouraged to apply.* Applicants should submit a complete résumé, including research and teaching experience, a description of ongoing and future research plans, and a statement of teaching interests. Applicants should also have at least three letters of reference sent by 15 November 1985 to: **Dr. Arthur E. Johnson, Department of Chemistry, University of Oklahoma, Norman, Oklahoma 73019. The University of Oklahoma is an Equal Opportunity/Affirmative Action Employer.**

POSITIONS OPEN

FACULTY APPOINTMENT IN BIOLOGY THE JOHNS HOPKINS UNIVERSITY

We invite applications for a tenure-track position in the Department of Biology. Applicants should be working on mechanistic and molecular aspects of cell differentiation and cell function. Areas of interest include, but are by no means limited to: cell proliferation and differentiation, synthesis and assembly of subcellular organelles, cellular interactions. We intend to make this appointment at the level of assistant professor, but more senior candidates of exceptional ability will be considered. Our faculty is strong in the areas of cell and developmental biology, genetics and biochemistry, and we offer outstanding research facilities in a newly constructed biology complex. Applicants should send curriculum vitae, list of publications, and names of three referees to:

Cell Biology Search Committee, Mudd Hall
The Johns Hopkins University
Charles and 34th Streets
Baltimore, Md. 21218

The Johns Hopkins University is an Equal Opportunity Employer.

CENTER FOR GENETICS UNIVERSITY OF ILLINOIS COLLEGE OF MEDICINE

The Center for Genetics is seeking candidates for one or two **FACULTY POSITIONS** in the area of mammalian molecular genetics. The positions, starting on or after 1 July 1986, will be at the level of assistant professor up to full professor, depending on the candidate's qualifications, and will be either tenure-track or tenured. Candidates must have a Ph.D. or its equivalent, plus 2 years of postdoctoral experience in molecular genetics or related areas. Significant research accomplishments and/or evidence of outstanding research potential will be key considerations. Applicants should provide curriculum vitae, names and addresses of four references, and a brief statement of research interests and plans. Send applications to: **Dr. Richard L. Davidson, Director, Center of Genetics, University of Illinois College of Medicine, 808 South Wood Street, Chicago, Illinois 60612.** To receive fullest consideration, applications should be received by 1 December 1985. *The University of Illinois is an Equal Opportunity/Affirmative Action Employer.*

FACULTY POSITION University of Miami School of Medicine Department of Anatomy and Cell Biology

The Department of Anatomy and Cell Biology of the University of Miami School of Medicine is planning to fill a tenure-track faculty position at the assistant or beginning associate professor level. The appointment can start as early as 1 June 1986. We are particularly interested in candidates whose research interests involve molecular or cellular aspects of developmental biology, but other highly qualified candidates will also be given consideration. The successful candidate will be expected to develop a strong, grant-supported research effort, and to participate in graduate and medical student education. Interested persons should send curriculum vitae and a description of research interests to: **Dr. Kermit L. Carraway, Chairman, Department of Anatomy and Cell Biology (R-124), University of Miami School of Medicine, Miami, Fla. 33101.**

FACULTY POSITION. The Lineberger Cancer Research Center of the University of North Carolina at Chapel Hill and the School of Medicine is recruiting an established scientist to head an interdisciplinary program in cancer cell biology. The candidate should have a nationally recognized research effort in one of the following areas: regulation of the cell cycle, growth factor action, neoplastic transformation, regulation of mammalian genetic expression, or molecular aspects of differentiation. A tenure-track appointment at the level of associate or full professor is being offered. The academic department will be determined by the applicant's discipline. Excellent laboratory space is available in the newly constructed Lineberger Cancer Research Center Building. Administrative responsibilities include scientific leadership of the program and position on the Director's Advisory Committee. Applicants should send their curriculum vitae and the names and addresses of three references to: **H. Shelton Earp, M.D., Associate Director, Lineberger Cancer Research Center 237H, The University of North Carolina, Chapel Hill, N.C. 27514. The University of North Carolina is an Affirmative Action/Equal Opportunity Employer.**

SCIENTIFIC RESEARCH



University Resident Research Program

The Air Force Office of Scientific Research seeks faculty members with unique scientific expertise to carry out challenging research in Air Force laboratories. One Year appointments are available at research organizations located in Arizona, California, Colorado, Florida, Massachusetts, New Mexico, New York, Ohio, Texas and Washington, D.C. Appointment starting date and salary are negotiable.

These areas are of particular interest in Air Force research.

- ★ Electronic and Materials Sciences
- ★ Mathematical and Information Sciences
- ★ Physical and Geophysical Sciences
- ★ Aerospace Sciences
- ★ Chemical and Atmospheric Sciences
- ★ Life Sciences

To be eligible for participation, individuals must be U.S. Citizens currently serving as full time faculty members of U.S. institutions of higher education; have an earned PhD in a scientific discipline or engineering; and have a publication record in their proposed area of research. All qualified applicants will receive consideration without regard to age, color, race, religion, sex or national origin. Successful applicants will require letters of endorsement from the university dean and department chairperson.

Major Amos L. Otis
AFOSR/XOT
Bolling Air Force Base, Washington, D.C. 20332
Phone (202) 767-4971

Interested individuals are requested to send a resume, list of publications, and one page summary of proposed research to:

AIR FORCE OFFICE OF SCIENTIFIC RESEARCH

Air Force Systems Command
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The Howard Hughes Medical Institute

and

The National Institutes of Health

again announce

The Program for Research Opportunities for Medical Students

1986-87

HHMI-NIH Research Scholars can spend 9-12 months in one of the 1,000 research laboratories located at the NATIONAL INSTITUTES OF HEALTH, Bethesda, MD.

Salary, fringe benefits and travel will be provided.

Further information and application forms may be obtained by writing to the Howard Hughes Medical Institute, P.O. Box 330837, Coconut Grove, FL 33133

Your request for the application information should be received by December 2nd, 1985.

Final deadline for return of all application materials is January 15th, 1986.

Drug Metabolism Clinical Pharmacokinetics

The Drug Metabolism Department of SK&F Laboratories is seeking a Ph.D. level scientist interested in becoming part of an expanding pharmacokinetics group. Various projects include cardiovascular agents, recombinant DNA products, and peptides/proteins. The selected individual will be responsible for designing and conducting pharmacokinetic experiments in both humans and animals as well as interfacing in a multidisciplinary environment with Clinical, Drug Metabolism, Pharmaceuticals, and Marketing departments.

The successful candidate must have:

- Ph.D. in Pharmaceuticals or related area.
- Undergraduate/Graduate Degree in Pharmacy desirable.
- Experience in clinical and animal pharmacokinetics including computer use and mathematical modeling.
- Familiarity with HPLC or GC and other analytical techniques.
- Excellent communication skills.

Located near Valley Forge, PA the Department will be relocating to a new, state-of-the-art research facility minutes away from its present location. We offer an excellent salary, compensation, and benefits package as well as the opportunity for personal and professional growth. Please forward your c.v. to George P. Kissell, Jr., Manager, Personnel Relations, SK&F Laboratories, 1586 Spring Garden St., Philadelphia, PA 19101. We are an Equal Opportunity Employer M/F/H/V.

SK&F
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ANNOUNCEMENT

Henry R. Luce Professor in the Social
Implications of Biotechnology

Cornell University

The Henry Luce Foundation has funded a named professorship in the social implications of biotechnology at Cornell University to begin in the 1986-1987 academic year. Nominations and applications are now sought for this professorship. Candidates should have demonstrated interest in the social implications of biotechnology and be able to create a research and teaching program on these issues. A successful candidate will show major research interest and publications in one or more applicable areas (history and/or philosophy of science, law, economics, public policy, etc.). We also encourage nominations of and applications from scientists (biologists, geneticists, biochemists, molecular biologists, chemists, etc.) with proven research interests and substantial publications in the philosophical, historical, or social implications of biotechnology. The appointment will be made in an appropriate academic department but the incumbent will also be associated with Cornell's newly formed Biotechnology Program, and potentially with other interdisciplinary programs as well. Nominations, inquiries, and applications may be directed to **Prof. Sander L. Gilman, Chair, Luce Search Committee, 173 Goldwin Smith Hall, Cornell University, Ithaca, New York 14853 (telephone: 607-256-5265 or telex: 937 478 Cornell Itca).** Applications should be received by **November 1, 1985.** Cornell is an equal opportunity employer.

POSITIONS OPEN

FACULTY POSITIONS—BIOCHEMISTRY

The Department of Biochemistry, Schools of Medicine, Dentistry, and Pharmacy, at the State University of New York (SUNY) at Buffalo, invites applications for up to two tenure-track positions at the level of assistant professor. Responsibilities include teaching graduate, undergraduate, and professional students; training Ph.D. candidates; and developing a productive research program with extramural funding. Talented biochemists are encouraged to submit curriculum vitae, a statement of long-term research objectives, and reprints or preprints. Applicants should have three letters of reference sent to:

Dr. Alexander C. Brownie, Chairman
Department of Biochemistry
102 Cary Hall
SUNY at Buffalo
Buffalo, New York 14214

Deadline for applications is 1 November 1985.

No person in any relation to SUNY at Buffalo shall be subject to discrimination on the basis of age, sex, religion, handicap, national origin, or color.

FACULTY POSITIONS IN MOLECULAR BIOLOGY AND BIOCHEMISTRY

Applications are invited for two tenure-track faculty positions at the assistant or associate professor level in the Department of Molecular Biology at the Northwestern University Medical and Dental Schools. Applicants should have a Ph.D. or an M.D. degree and several years of postdoctoral training. Candidates having research interest and experience in the molecular biology of eukaryotic differentiation and development or in membrane structure and function are especially encouraged to apply. The successful applicants will be expected to establish vigorous, independent research programs and to participate in the teaching of graduate, medical, and/or dental courses and in the training of graduate and postdoctoral students. Applicants should send a complete curriculum vitae, a brief description of previous research and teaching interests (three to four pages), a bibliography and reprints of significant published work or preprints of manuscripts in press, and recommendations from at least three references by 31 October 1985 to:

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

Northwestern University is an Equal Opportunity/Affirmative Action Employer and invites applications from all qualified individuals.

FACULTY POSITION—VIROLOGY

The Department of Microbiology and Molecular Genetics of Harvard Medical School invites applications for an assistant professor position in a research-oriented group at the New England Regional Primate Research Center. A strongly motivated, innovative individual is sought to complement existing programs in the study of primate viruses [for example, *Science* 228, 1201 (1985)]. Postdoctoral experience and a strong foundation in the study of retroviruses is desired, but applicants from all areas of virology will be considered. Please send curriculum vitae, including publications to: **Dr. Ronald C. Desrosiers, New England Regional Primate Research Center, Harvard Medical School, One Pine Hill Drive, Southboro, Mass. 01772.** *Harvard Medical School is an Equal Opportunity Employer.*

MICROBIOLOGY

Applications are invited for a senior level, tenure-track faculty position in the field of microbiology. Preference will be given to persons having established research programs (as evidenced by publications in respected journals and a history of consistent extramural grant support), the ability to interact positively (both scientifically and scholastically) with colleagues, and demonstrated academic leadership capabilities. Salary and rank will be commensurate with the qualifications of the successful candidate(s). Although the specific area of microbiological research is open, teaching responsibility will be microbial physiology at both the graduate and undergraduate levels. Applications, including curriculum vitae and list of references, should be sent to: **Dr. Timothy C. Hall, Head, Department of Biology, Texas A&M University, College Station, Texas 77843.** *Texas A&M University is an Equal Opportunity Employer.*

POSITIONS OPEN

FACULTY POSITION

BIOCHEMISTRY AND MOLECULAR BIOLOGY

The Department of Biochemical and Biophysical Sciences at the University of Houston invites applications for a faculty position at the assistant professor level. Candidates are being sought with postdoctoral experience, recognized scientific accomplishments, and unusual promise in the fields of biochemistry or molecular biology. Individuals who use the methods of molecular biology to study fundamental problems in biochemistry are encouraged to apply. The new faculty member will be expected to establish a vigorous, independent research program of quality and to participate actively in the undergraduate and graduate instruction of the department. The University of Houston is a state-supported institution with an enrollment of about 30,000. Send curriculum vitae, a brief statement of research plans, current representative reprints, and have three letters of recommendation forwarded no later than 1 November 1985 to: **Dr. Allen Bartel, Department of Biochemical and Biophysical Sciences, University of Houston—University Park, 4800 Calhoun, Houston, Texas 77004.**

An Affirmative Action/Equal Opportunity Employer

FACULTY POSITION IN HYDROLOGY UNIVERSITY OF CALIFORNIA, BERKELEY

The Departments of Plant and Soil Biology and Forestry and Resource Management are recruiting for a tenure-track assistant professor of soil and wildland hydrology. The position is 50 percent research in the Agricultural Experiment Station and 25 percent teaching in each of the two departments. The appointee will be expected to conduct research in one or more of the following areas: soil erosion, water movement and retention in soils, water use by vegetation, effects of wildland management practices on water yield and quality. Teaching responsibilities will include an undergraduate course in wildland watershed hydrology and management, an undergraduate course in soil resource management and hydrology to be given in alternate years, and development of a graduate course in soil hydrology and/or watershed management. Qualifications include a Ph.D. degree with academic emphasis in such fields as unsaturated zone hydrology, soil hydrology, or watershed management. Strong academic background in soil physics, with substantial interest or undergraduate background in aspects of professional wildland resource management is required. Submit letter of application, curriculum vitae, summary of research and teaching objectives to: **Professor J. G. McColl, Chair, Search Committee, Plant and Soil Biology, 108 Hilgard Hall, University of California, Berkeley, Calif. 94720,** by 1 January 1986. *The University of California is an Equal Opportunity/Affirmative Action Employer.*

HEAD—DEPARTMENT OF PLANT SCIENCE, SEARCH CONTINUED. The College of Agriculture, University of Wyoming, invites nomination/applications for the headship, Department of Plant Science. The College of Agriculture is seeking an enthusiastic and progressive individual with national/international stature to stimulate and lead the department. The head acts primarily as an administrator but may engage in teaching, research, and/or extension according to personal preference. An earned Ph.D. in an appropriate life science is required along with at least 5 years of research, teaching, and/or extension activity. Administrative experience desirable. Applications will be accepted until a suitable candidate is identified. Send letter of application, current résumé, and three letters of reference to: **L. C. Munn, Plant Science Head Search Committee, Plant Science Department, P.O. Box 3354, University Station, Laramie, WY. 82071. Telephone: 307-766-2127.** *An Equal Opportunity/Affirmative Action Employer.*

MOLECULAR GENETICIST

The Department of Physiology and Pharmacology is extending the search for a molecular geneticist [*Science* 228, 1232 (1985)] to participate in applications of genetic engineering techniques to animal systems. The successful applicant is expected to have advanced training with postdoctoral experience in molecular genetics. Salary and rank commensurate with experience. Applications will be accepted before 1 November. Applicants should submit a letter of application, curriculum vitae, and three letters of reference to: **Dr. Benjamin G. Brackett, Head, Department of Physiology and Pharmacology, College of Veterinary Medicine, The University of Georgia, Athens, Ga. 30602.** *An Equal Opportunity/Affirmative Action Employer.*

Scientists: Immunoregulation/Autoimmunity/ Inflammation

The Immunology and Antinfectives Therapy Department of Smith Kline & French Laboratories, located in suburban Philadelphia, is looking for outstanding scientists with expertise in immunoregulation, lymphokine biology, autoimmunity and inflammation. Our scientists are encouraged to publish, to hold adjunct academic posts and to interact fully with the national and international scientific community.

Associate Director-Molecular Immunology/ Immunoregulation

(ref:IAT1)

Responsible for a research team of PhD and associate-level scientists to investigate molecular and biochemical approaches to immunoregulation. Research activities emanating from this team should provide a mechanistic understanding of the molecular and biochemical events associated with receptor-mediated activation of helper and suppressor T cells leading to development of strategies to regulate the immune response in autoimmunity, cancer and infectious diseases. Candidates are required to have: a PhD with 7 or more years of relevant postdoctoral experience in academia and/or industry; experience in immunoregulation and the establishment and characterization of helper and suppressor T cell lines; knowledge and experience in the biochemistry and molecular biology of cell activation (desirable); a demonstrated record of excellence in research and a significant record of publications; a national reputation in immunological research; excellent interpersonal and communication skills and leadership ability.

Senior Investigator

(ref: IAT2)

An individual with knowledge and expertise in immunoregulation and biology of T cell activation is needed to assume a leadership role in a basic and applied research program in immunoregulation. Emphasis will be on the biochemistry and pharmacology of helper and suppressor T cell responses to immune signals *in vitro* and suppressor T cell regulation *in vivo*. Candidates are required to have 3 or more years of relevant postdoctoral experience.

Associate Senior Investigator

(ref: IAT3)

An individual with skills in the biochemistry of arachidonic acid metabolism, cell activation and inflammation is needed to join a multidisciplinary research program on inflammation and arthritis. Emphasis will be on the role of lipoxygenase and cyclooxygenase products in inflammation and immunoregulation and on the delineation of the mechanism of action of novel antiinflammatory and antiarthritic drugs. Candidates are required to have a PhD in Immunology, Pharmacology or Biochemistry with 2 or more years of relevant postdoctoral experience.

Postdoctoral Scientist

(ref:IAT4)

An individual is needed to join the Lymphokine Program. Research efforts will be directed towards the development of receptor binding assays for lymphokines and studies of membrane signal transduction and regulation of receptor expression in cell activation. Candidates are required to have: a PhD in Cell Biology or Biochemistry with 0-2 years of relevant postdoctoral experience. Experience with the ligand receptor binding assays and signal transduction mechanisms highly desirable.

Postdoctoral Scientist

(ref:IAT5)

An individual is needed to do basic research on immunopharmacology and immunoregulation of macrophage and T cell responses. Candidates are required to have: a PhD in Immunology, Pharmacology or Biochemistry with 0-2 years postdoctoral research experience; experience in *in vitro* and *in vivo* functional assays for macrophages and/or helper and suppressor T cells; experience in establishing murine or human T cell lines preferred; knowledge and experience in biochemistry of receptor-mediated cell activation and arachidonic acid metabolism desirable.

Postdoctoral Scientist

(ref:IAT6)

An individual is needed to do basic research on the cellular interactions and mediators involved in cartilage destruction and/or bone resorption in arthritis. Candidates are required to have: a PhD in Immunology, Biochemistry or Pharmacology with 0-2 years postdoctoral research experience; experience in tissue culture techniques, growth factors and cell activation; knowledge and experience in inflammation, arachidonic acid and metabolism and enzyme analysis preferred; interest in drug-mediated effects on cellular responses in inflammation and arthritis.

Our postdoctoral appointments are of 1 year duration and with mutual agreement renewable for a 2nd year. A significant publication record and clear, concise communications skills are required.

We offer excellent compensation and benefits, an attractive relocation policy and a work environment that offers substantial opportunity for personal and professional advancement. For confidential consideration, send your C.V. and names of three references, citing the appropriate reference number listed above to: Mr. Walter B. Flagg, Senior Employment Consultant, SmithKline Beckman Corporation, 1550 Spring Garden Street, Philadelphia, PA 19101. We are an Equal Opportunity Employer, M/F/H/V.

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POSITIONS OPEN

HEAD of DEPARTMENT

The Department of Civil Engineering at Carnegie-Mellon University is seeking applicants for the position of professor and head of the department. Candidates must have a distinguished record of research and scholarly achievement compatible with one or more areas of concentrations of the department. The primary concentration areas are: engineering planning and management, environmental engineering; mechanics, structural and geotechnical engineering; and computer-aided engineering including robotics. The department is comprised of 18 faculty members, several of whom hold joint appointments, nine research associates, 63 full-time graduate students, and approximately 90 undergraduates. The department has a vigorous externally funded research program. The head is expected to be dedicated to excellence and to provide leadership to maintain and evolve programs in teaching and research. Applications should be received by 31 October and should be sent to: **Professor Richard G. Luthy, Head of Search Committee, Department of Civil Engineering, Carnegie-Mellon University, Pittsburgh, Pennsylvania 15213.** *Carnegie-Mellon University is an Equal Opportunity/Affirmative Action Employer and encourages applications from women and members of minority groups.*

YALE UNIVERSITY/INVERTEBRATE PALEONTOLOGIST. The Department of Geology and Geophysics is soliciting applications for a faculty position in invertebrate paleontology to begin in the academic year 1986-1987. The position may be filled at either the tenured or the untenured level. Curriculum vitae, list of publications, and the names of three referees should be sent by 15 November 1985 to: **Karl K. Turekian, Chairman, Department of Geology and Geophysics, Yale University, Box 6666, New Haven, Conn. 06511.**

Yale University is an Equal Opportunity/Affirmative Action Employer and encourages applications from all qualified scientists.

MOLECULAR BIOLOGY ST. JUDE CHILDREN'S RESEARCH HOSPITAL

Postdoctoral, research associate and assistant member positions are available in a group applying recombinant DNA technology to the definition of structure-function relationships of virus proteins involved in RNA synthesis. We enjoy the stimulating intellectual environment of a large department devoted primarily to the molecular genetics of animal viruses within a renowned multidisciplinary private research institute.

Rank, salary, and length of appointment will be commensurate with experience, which may involve any aspect of molecular biology.

Applications consisting of curriculum vitae and the names of three referees should be sent to: **Dr. David W. Kingsbury, Department of Virology and Molecular Biology, St. Jude Children's Research Hospital, P.O. Box 318, Memphis Tenn. 38101.**

An Equal Opportunity/Affirmative Action Employer

MOLECULAR CONTROL OF CELL PROLIFERATION

Postdoctoral research position available immediately to study the regulation of gene expression during mitogenic activation of animal cells. The genes coding for ornithine decarboxylase, cellular proto-oncogene products, S-adenosylmethionine decarboxylase, and cytoskeletal proteins are regulated at several levels in mitogenically activated cells, including transcription, transcript stability, and translation. The relationship of these regulatory processes to early changes in ion fluxes, phospholipid metabolism, and protein phosphorylation are being studied. Background in molecular biology, especially in research with RNA, would be desirable. Send curriculum vitae and names of three references to: **Dr. David R. Morris, Department of Biochemistry, SJ-70, University of Washington, Seattle, Wash. 98195.** *An Equal Opportunity/Affirmative Action Employer.*

MOLECULAR PLANT PATHOLOGY. Tenure-track position available 1 March 1986 in molecular biology/genetics of host-parasite interactions. Ph.D. in plant pathology or related field required. Send curriculum vitae, transcripts, three letters of reference, and statement of professional goals by 25 November 1985 to: **Dr. Jacqueline Fletcher, Department of Plant Pathology, Oklahoma State University, Stillwater, Okla. 74078.** *Equal Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

AUSTRALIA JAMES COOK UNIVERSITY OF NORTH QUEENSLAND TEMPORARY LECTURER— DEPARTMENT OF ZOOLOGY

Applications are invited for the position of temporary lecturer in the Department of Zoology. The position is available from 3 February 1986 to 31 December 1988.

Applicants must have a Ph.D. and strong quantitative skills, and research expertise in community ecology or ecological genetics. James Cook is Australia's only tropical university, with access to a wide range of terrestrial habitats, and preference will be given to applicants whose research interests will allow them to take advantage of the university's unique position.

Salary range for the position is A\$26236 to A\$34467 per annum. Commencing salary will be determined in accordance with qualifications and experience.

Further information and application forms may be obtained from: **The Registrar, James Cook University, Townsville, Queensland, Australia 4811,** with whom applications close on 18 October 1985. In reply, please quote **Reference Number JS85099 (19639).**

The University of Toronto and the Toronto Western Hospital Invite APPLICATIONS FOR McLAUGHLIN SCIENTISTS IN MOLECULAR BIOLOGY

Applications are invited for two McLaughlin Scientists in molecular immunobiology at the assistant professor level in the Departments of Immunology or Medical Genetics at the University of Toronto. The scientists will have their laboratories located at the Toronto Western Hospital.

Candidates should have a Ph.D. or equivalent with 2 or more years of postdoctoral training with developed skills in modern biotechnologies. Experience with developmental genetics, autoimmunity, immune regulation or gene regulation, and expression in eukaryotic systems would be advantageous. The successful candidates will be expected to develop an independent research program with the potential for collaboration with investigators working in areas such as immunology, infectious diseases, oncology, rheumatology, and transplantation.

Send curriculum vitae, an outline of future research plans, and arrange for three letters of reference to be forwarded to: **Dr. R. Inman, Co-Chairman, Search Committee, Toronto Western Hospital, c/o Rheumatology Department, 399 Bathurst Street, Toronto, Ontario, Canada M5T 2S8, or Dr. J. P. Friesen, Co-Chairman, Search Committee, Department of Medical Genetics, Room 4285, Medical Sciences Building, University of Toronto, Toronto, Ontario, Canada M5S 1A8.** Deadline for receipt of applications is 1 November 1985. *In accordance with Canadian Immigration requirements, this advertisement is directed to Canadian citizens and permanent residents.*

ORGANIC RADIOCHEMIST. A position is available for a radiochemist in a research-oriented nuclear medicine laboratory. Experience in organic synthesis of radioactive tracers with both positron and single emitting radionuclides is extremely desirable. Active research is pursued in PET, SPECT, NMR, and monoclonal antibodies. Send curriculum vitae to: **Abass Alavi, M.D., Chief, Nuclear Medicine, Hospital of the University of Pennsylvania, 3400 Spruce Street, Philadelphia, Pa. 19104.** *The University of Pennsylvania is an Equal Opportunity/Affirmative Action Employer. Qualified female and minority candidates are encouraged to apply.*

PHYSIOLOGIST/PHARMACOLOGIST with research focus on cellular/molecular bases of intercellular mediators active in nervous systems. Minimum of 2 years of postdoctoral experience required. Assistant or associate professor, tenure-track position commensurate with qualifications, is available. First consideration will be given to individuals with an established active research program and demonstrated success as teachers. Qualification for joint appointment will be considered advantageous. A letter describing current line of investigation, a list of references, and curriculum vitae should be addressed to: **Search Committee, Department of Physiology 206H, School of Medicine, Chapel Hill, N.C. 27514,** to be received by 28 October 1985. *The University of North Carolina is an Equal Opportunity/Affirmative Action Employer. Females and minorities are encouraged to apply.*

POSITIONS OPEN

MOLECULAR BIOLOGIST

Assistant professor, tenure-track position, offered by the Institute for Biomedical Research and the Department of Cell Biology and Anatomy of the Oregon Health Sciences University. Candidates should be able to develop a strong research program in an area of cell and molecular biology. Preference will be given to candidates whose research utilizes molecular techniques to understand the regulation of gene expression in eukaryotic development, neoplasia, or the nervous system. Teaching duties will be in the neurosciences, cell and molecular biology, or developmental biology. The position includes a generous start-up package in an environment highly supportive of research in molecular biology, cellular biology, and neuroscience. The appointment is for a 12-month period and the salary will be dependent upon experience. Applicants should send curriculum vitae, statement of future research goals, and the names of at least three references to: **Molecular Biology Search Committee, Institute for Biomedical Research, Oregon Health Sciences University, Portland, Oregon 97201.**

The Oregon Health Sciences University is an Affirmative Action/Equal Opportunity Employer.

MEMORIAL UNIVERSITY OF NEWFOUNDLAND. Faculty of Medicine, Basic Sciences Division. Applications are being accepted for a tenure-track position in **MOLECULAR BIOLOGY** at the **ASSISTANT OR ASSOCIATE PROFESSOR** level. Minimum qualifications required include a Ph.D. and postdoctoral experience in molecular biology. The successful candidate will be expected to establish a vigorous, independent research program which could complement ongoing programs in gene regulation at the transcriptional and posttranscriptional levels, chromatin organization, molecular cloning of receptor genes for hormones and viruses, and molecular approaches to oncogenesis. *In accordance with Canadian immigration regulations, preference will be given in the first instance to Canadian citizens or landed immigrants.* Interested applicants should forward curriculum vitae with an indication of research plans and names of three references by 1 January 1986 to: **Dr. A. T. H. Burness, Faculty of Medicine, Memorial University of Newfoundland, St. Johns, Newfoundland, Canada A1B 3V6.**

COLUMBIA UNIVERSITY—NEUROBIOLOGY

The Department of Biological Sciences, Columbia University in the City of New York, invites applications for a tenure-track faculty position in the area of neurobiology. The level of appointment—senior or junior—will depend upon qualifications of the successful applicant. The candidate is expected to demonstrate a high level of scientific excellence and productivity, and to have a strong commitment to undergraduate and graduate teaching. The three major programs within the Department of Biological Sciences are: molecular biology and biochemistry, eukaryotic cell biology and virology, and neurobiology. Neurobiology faculty share a strong interest in problems of developmental, cellular, and molecular biology of the nervous system: the successful applicant is expected to share these interests.

Applications should include curriculum vitae, copies of most significant publications, and a summary of research goals. Junior applicants should also request that letters from three references be sent in support of their application.

Send inquiries by 15 December to: **Chairperson, Neurobiology Search Committee, Department of Biological Sciences, 1003B Sherman Fairchild Center, Columbia University, New York, N.Y. 10027.**

Columbia University is an Equal Opportunity/Affirmative Action Employer. Women and members of minority groups are especially encouraged to apply.

PLANT MOLECULAR BIOLOGY

Two postdoctoral positions are available immediately to study auxin and ethylene regulated genes in plant tissues. Recombinant DNA technology is required, including DNA sequencing, construction of DNA libraries, Northern and Southern analyses, S1 mapping and primer extension. Appointments will be for 2 to 3 years. Salary will be commensurate with qualifications. Please send curriculum vitae and three letters of recommendation to: **Dr. Sakis Theologis, Department of Biological Chemistry, Washington University School of Medicine, St. Louis, Missouri 63110.**

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CYTOGENETICS

DIRECTOR CYTOGENETICS LAB

Ph.D. Cytogeneticist - Albert Einstein Medical Center, the largest medical center in the state of Pennsylvania, seeks a person to establish and direct a research and service cytogenetics laboratory at its Northern Division (600-bed teaching hospital closely affiliated with Temple University Medical School) beginning May, 1986. The lab will operate within the Department of Pediatrics, whose chairman is a board certified clinical and biochemical geneticist. A molecular biologist directs the department's major research activities immediately adjacent to the cytogenetics lab. The director should have experience working with CVS, bone marrow and solid tissues, and preferably have research interest in molecular genetics. Salary is negotiable and faculty appointment at Temple University Hospital is possible and encouraged. Send inquiries, including CV, to:

Peter Mamunes, M.D.
Chairman
Department of Pediatrics

ALBERT EINSTEIN MEDICAL CENTER
York & Tabor Roads
Philadelphia, PA 19141
OR CALL: (215) 456-6596
Equal Opportunity Employer

Gastrointestinal Pharmacologist

The Pharmacology Department of Smith Kline & French Laboratories, located in suburban Philadelphia, Pennsylvania, is seeking an outstanding scientist to provide scientific and supervisory expertise for present and future research programs in gastrointestinal pharmacology.

The successful candidate will:

- develop and implement appropriate state-of-the-art animal models and methods for the discovery of novel therapies for gastrointestinal diseases
- propose curtailment or expansion of existing research programs within gastrointestinal pharmacology; initiate new research proposals; implement collaborative research activities
- publish work in major scientific journals, and prepare reports for internal circulation and for presentation at scientific forums.

The candidates are required to have:

- a PhD in Pharmacology with 2 or more years of postdoctoral experience in gastrointestinal pharmacology, physiology, immunology, or smooth muscle pharmacology
- experience in mechanisms of smooth muscle contraction and relaxation, or experience with measurements of cyclic nucleotides, cyclic nucleotide-dependent protein kinases, myosin phosphorylation, or intracellular calcium, or
- experience with mediator release from mast cells, neutrophils or leukocytes
- a record of published scientific accomplishments and effective communication skills.

We offer excellent compensation and benefits, an attractive relocation policy and a work environment that offers substantial opportunity for personal and professional advancement. For confidential consideration, send your C.V. and names of 3 references to: Mr. Walter B. Flagg, Senior Employment Consultant, SMITHKLINE BECKMAN CORPORATION, 1554 Spring Garden Street, Phila., PA 19101. We are an equal opportunity employer, M/F/H/V.

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GROUP LEADER LOS ALAMOS NATIONAL LABORATORY

The Life Sciences Division of the Laboratory is seeking a manager to assume the scientific leadership and technical management of the Experimental Pathology Group composed of 50 staff personnel including 20 principle investigators. This group performs a broad range of basic research and programmatic efforts in the life sciences and provides advanced flow cytometry concept for biochemical applications. The group also maintains a major role in sustaining and enhancing established national resources in flow cytometry and chromosome specific recombinant DNA libraries.

Responsibilities:

- Report to the Life Sciences Division Leader and provide scientific leadership for major programs in basic cellular and humoral immunology, molecular mechanisms relating to the development of abnormalities in chromosome structure and function, molecular dynamics and regulation of cellular proliferation and differentiation, with application to basic and clinical problems.
- Provide scientific guidance in the development of advanced flow cytometric systems and advanced applications of cytometric analysis to basic and applied problems in immunology, pathology and cell biology.
- Recruit outstanding staff members and postdoctoral fellows in order to even more effectively address the broad scientific mission of the Experimental Pathology Group.
- A major responsibility will be to identify, obtain and maintain funding support commensurate with the scientific goals and objectives of the group.
- Should communicate and interact effectively with sponsoring and collaborative agencies including DOE, DoD, NIH, academia and the private sector as well as with all levels of Laboratory management, staff and support personnel.

Requirements:

- Strong technical background in the above described activities with potential expertise in the applications of flow cytometry to problems in cellular immunology, pathology and cell biology highly desirable.
- Must have significant research accomplishments in the biological sciences related to the group's mission.
- Proven ability to initiate and develop new research programs and work effectively with DOE and Laboratory management personnel.
- Requires a strong combination of scientific leadership and demonstrated interpersonal skills.
- Excellent written and oral communication skills.
- Ph.D. in cellular immunology, cell biology, biophysics or medicine, or an equivalent combination of education and relevant experience.
- U.S. citizenship required

About Los Alamos

The Laboratory, a national resource for multifaceted scientific research, is operated by the University of California for the United States Department of Energy. Our beautiful location in the mountains of northern New Mexico offers a relaxed lifestyle with exceptional outdoor recreational activities.

To apply, please send your resume with salary history in confidence to:

Sandra Harding
DIV 50855-EI
Personnel Administration Division
Los Alamos National Laboratory
Los Alamos, New Mexico 87545



Affirmative Action/Equal Opportunity Employer

POSITIONS OPEN

ORGANISMAL BIOLOGIST

The Department of Anatomy at The University of Chicago is interested in recruiting experimental organismal biologists in tenure-track faculty positions. The department deploys strong research and teaching programs in several areas of animal biology, emphasizing structure-function relationships. Candidates should have research experience in applying experimental techniques to fundamental problems in an area of organismal biology such as functional morphology, biomechanics, animal physiology, neurobiology, endocrinology, and so forth. Applicants should send curriculum vitae, research statement, and names and addresses of individuals who can write letters of recommendation to: **Dr. Philip S. Ulinski, Department of Anatomy, The University of Chicago, 1025 East 57 Street, Chicago, Illinois 60637.**

The University of Chicago is an Equal Opportunity Employer; women and members of minority groups are specifically encouraged to apply.

Reopened search for **PATHOGENIC MICROBIOLOGIST** with research interests in mechanisms of pathogenesis. Appointment effective spring 1986 semester. Tenure-track assistant professor with competency to teach upper division and graduate courses in pathogenic microbiology and either medical mycology or animal virology. Normal teaching load is two lecture or one lecture/laboratory course per semester. Development of active research program appropriate to M.S.-granting university is expected. Earned Ph.D. required; postdoctoral experience preferred. Send curriculum vitae, three or four representative reprints, statement of proposed research direction, names and addresses of at least three references, and official transcripts to arrive no later than 6 November 1985 to:

**Dr. L. Raymond Fox, Chairman
Department of Biological Sciences
Wichita State University (WSU)
Wichita, Kans. 67208**

All correspondence should identify position for which you are applying.

WSU is an Equal Opportunity/Affirmative Action Employer.

PEDIATRIC GENETICIST (M.D. or M.D./Ph.D.) to join the Department of Pediatrics at the University of Michigan, academic rank to be determined. Must be Board-certified/Board-qualified in pediatrics and clinical genetics. Should be interested in applying molecular genetics to human disease. Send curriculum vitae to: **Robert P. Erickson, M.D., Director, Pediatric Genetics, D1225 Medical Professional Building, University of Michigan, Ann Arbor, Mich. 48109.** *The University of Michigan is an Equal Opportunity/Affirmative Action Employer. Code 50D0.*

DUKE UNIVERSITY PLANT CELL BIOLOGIST

The DEPARTMENT OF BOTANY seeks an outstanding scientist for a tenure-track position in **PLANT CELL BIOLOGY**. Rank is open. The successful candidate will be expected to maintain an innovative research program, contribute to departmental teaching, and participate in the interdepartmental graduate program in Cellular and Molecular Biology. Send curriculum vitae, reprints, and the names of three references by 15 November 1985 to: **Professor James N. Siedow, Chair of the Search Committee, Botany Department, Duke University, Durham, N.C. 27706.**

Duke University is an Equal Opportunity/Affirmative Action Employer.

POSTDOCTORAL POSITIONS—The Respiratory Group of the Department of Physiology, University of Pennsylvania School of Medicine, invites applications for postdoctoral positions. Representative research areas include airway smooth muscle, lung and tissue gas exchange; liver CO₂ metabolism (ureagenesis, gluconeogenesis); carbonic anhydrase; fetal/maternal circulation, lung and lung cell surfactant metabolism, surfactant synthesis and recycling; mechanisms of chemical transduction in carotid and aortic bodies; cellular adaptations to low and high oxygen pressures; chemoreceptor mechanisms and mitochondrial reactions. These positions are intended to provide 1 to 3 years of experience for persons planning to pursue a career in research. Address inquiries to: **Dr. Maria Delivoria-Papadopoulos, Education Officer, Department of Physiology, University of Pennsylvania, Room-A-201 Richards Building/G4, Philadelphia, Pa. 19104.** *Applications from women and minorities are especially welcome. An Equal Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

PLANT GROWTH AND DEVELOPMENT FACULTY POSITION

The Department of Plant Biology, University of Illinois at Urbana-Champaign, invites applications for a tenure-track position at the assistant professor level for appointment by 21 August 1986 or earlier. Applicants should have a Ph.D., with research experience in the control of growth and differentiation of plant cells and tissues. The appointee will be expected to conduct research in the above area and to contribute to the graduate and undergraduate teaching programs. His or her research interests should complement those of the existing members of the plant physiology and molecular biology programs in the department. Salary is open, depending on the applicant's qualifications.

Applicants should send curriculum vitae, a summary of research experience and interests, and at least three letters of reference to: **Dr. Colin A. Wraight, Search Committee Chairman, Department of Plant Biology, University of Illinois, 505 South Goodwin, Urbana, Illinois 61801; telephone: 217-333-3245 or 333-3261.** In order to ensure full consideration, applications must be received by 15 November 1985. *The University of Illinois is an Affirmative Action/Equal Opportunity Employer.*

PLANT MOLECULAR BIOLOGY

The Department of Botany, The University of Texas, is seeking applicants for a full-time faculty position to direct research, develop a graduate program, and teach in the area of plant molecular biology. Rank and salary are open, based on qualifications. Applicants should possess demonstrated capabilities for research in some molecular aspect of plant biology involving the use of recombinant DNA technology. Send curriculum vitae, statement of future research goals, and names of three references by 31 December 1985 to: **Dr. Tom Mabry, Chairman, Department of Botany, The University of Texas at Austin, Austin, Texas 78713.**

POSTDOCTORAL FELLOW

To participate in a recently renewed (5 years) NIH Program Project on lipoprotein-apoprotein metabolism and reverse cholesterol transport. This multidisciplinary program provides an excellent opportunity for future development. Potential for long-range association beyond the postdoctoral level is a possibility. Experience in lipoprotein-apoprotein metabolism is not required.

Please send curriculum vitae to: **Dr. Paul S. Roheim, Department of Physiology, Louisiana State University Medical Center (LSUMC), 1542 Tulane Avenue, New Orleans, Louisiana 70112-2822.** *LSUMC is an Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL FELLOW—Two positions are available for fellows trained either in peptide chemistry or in the study of protein toxins. Preference will be given to applicants with experience in: (i) isolation and characterization of protein toxins, or (ii) synthesis, isolation, and testing of hybrid toxins. The successful applicants will interact with a group of investigators whose facilities include a neuropharmacological laboratory, a protein chemistry laboratory, a microbiology laboratory, and a cell culture room. Interested persons should submit a letter of inquiry that provides curriculum vitae, a bibliography, and the names of three references. Materials should be sent to: **Dr. Lance L. Simpson, Professor of Medicine and Pharmacology, JEFFERSON MEDICAL COLLEGE, 1025 Walnut Street, Philadelphia, Pa. 19107.** *An Equal Opportunity Employer.*

POSTDOCTORAL POSITION available in Clinical Pharmacology Unit involved in basic and clinical studies on human cytochrome P450 system and mechanisms of drug hepatotoxicity. Applicant requires Ph.D. in pharmacology, biochemistry, or molecular biology. Should have experience in area of drug metabolism. Send curriculum vitae, statement of research experience and goals, and three letters of reference to: **Martin Black, Department of Pharmacology, Temple University School of Medicine, 3420 North Broad Street, Philadelphia, Pa. 19140.** *Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL POSITION available immediately to study molecular mechanisms underlying gene expression in maize. Ph.D. in genetics, plant physiology, biochemistry, or related area. Send résumé and three reference letters to: **Dr. J. G. Scandalios, Department of Genetics, North Carolina State University, Raleigh, N.C. 27695-7614.** *An Affirmative Action/Equal Opportunity Employer.*

POSITIONS OPEN

POSTDOCTORAL FELLOW/RESEARCH ASSOCIATE POSITION in neuronal transplantation and regeneration studies involving the mammalian visual system. A 2-year position with an option for an additional year will be available on 1 December 1985 for a candidate who has extensive training in neuroanatomical and immunohistochemical techniques at the light and electron microscopic levels. Starting date and salary negotiable. Send curriculum vitae and names of three references to: **Dr. James E. Turner, Anatomy Department, Bowman Gray School of Medicine, Wake Forest University, 300 South Hawthorne Road, Winston-Salem, N.C. 27103.** *An Affirmative Action/Equal Opportunity Employer.*

POSTDOCTORAL POSITION available immediately to study regulation of acetylcholine receptors in vertebrate skeletal muscle. Experiments involve preparation of subunit-specific antibodies and hybridization probes and measurement of levels of receptor polypeptides and their mRNAs, during denervation and reinnervation in vivo, and in response to specific stimulus regimes in vitro. Applicants should have experience in recombinant DNA technology. Appointment for up to 3 years; starting salary: \$20,000. Send curriculum vitae and names of references to: **J. Schmidt, Department of Biochemistry, State University of New York (SUNY) Stony Brook, Stony Brook, NY 11794.** *SUNY, Stony Brook, is an Affirmative Action/Equal Opportunity Educator and Employer. AK Number 234.*

POSTDOCTORAL POSITION available to study the molecular mechanisms involved in receptor-mediated endocytosis. Current work in the laboratory is focused on understanding the structure, distribution, and regulation of the proton pumps responsible for acidification of endocytic and other intracellular compartments. Experience in membrane protein chemistry and/or immunological techniques is desirable. Send curriculum vitae, reprints, and three letters of reference to: **Dr. Michael Forgac, Department of Physiology, Tufts University School of Medicine, 136 Harrison Avenue, Boston, Mass. 02111.**

A **POSTDOCTORAL POSITION** is available for 2 years (with the possibility of extension) for study mechanisms of specific membrane interactions during the secretory process in exocrine cells. A background including substantial experience in membrane biochemistry, protein chemistry, molecular biology, or development and use of monoclonal antibodies is preferred; however, interested scientists with a strong background in other related areas are encouraged to apply. Salary is comparable to a starting NIH postdoctoral fellowship; however, higher levels commensurate with previous relevant postdoctoral experience will be considered. Please send curriculum vitae and three letters of reference to:

**J. David Castle
Associate Professor of Cell Biology
Yale University School of Medicine
Department of Cell Biology
333 Cedar Street, P.O. Box 3333
New Haven, Conn. 06510**

Yale University is an Equal Opportunity/Affirmative Action Employer.

POSTDOCTORAL POSITIONS

Areas of investigation include: (i) characterization of the structure and function of the sodium potassium ATPase and the expression of its genes. Our laboratory has recently cloned both the cDNA and genes for the α subunit, (ii) the regulation of the expression of human and goat globin genes using in vitro and in vivo systems. Send résumé to: **Jerry B. Lingrel, Ph.D., Department of Microbiology and Molecular Genetics, University of Cincinnati, College of Medicine, Cincinnati, Ohio 45267.** *The University of Cincinnati is an Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL POSITION available 1 January 1986 to develop monoclonal antibodies against NADH and NAD(P)H nitrate reductases for use in studying their molecular regulation in barley. A Ph.D. in plant physiology or biochemistry with experience in enzymology or immunochemistry is required. Provide résumé, transcripts, and three letters of reference by 15 December 1985 to:

**Dr. J. C. Englbous, Chairman
Agronomy and Soils Department
Washington State University (WSU)
Pullman, Wash. 99164-6420**

WSU is an Equal Opportunity/Affirmative Action Employer.

Vacant Professorship in Palaeontology at the University of Oslo

The position of Professor of Palaeontology at the Paleontologisk museum, University of Oslo, Norway, is vacant as of September 17, 1986.

For teaching purposes the Paleontologisk museum, Mineralogisk/geologisk museum, Tøyen and the Geological Institute, Blindern, form one administrative unit.

Applicants must document their capacity of research, teaching and museum experience in one or more branches of Palaeontology. The successful applicant will be expected to have responsibility for parts of the museum collections, popularisation of these and of the science generally, together with administrative duties relevant to the professorship and determined by the museum's administrative council of the Faculty of Mathematics and Natural Sciences.

A special statement regarding the vacant professorship is available by request to the **Faculty of Mathematics and Natural Sciences, P.O. box 1032 Blindern, 0315 Oslo 3.**

Salary is 233 820 crowns annually. From this amount is deducted 2% for superannuation fund.

Applications, together with all necessary details of qualifications and teaching experience and a list of admissible works of research and/or scholarship, should be sent to the **University Director, P.O. box 1072 Blindern, 0316 Oslo 3**, before September 20th 1985. Applicants must furthermore, not later than 1 month after that date submit to the Secretariat, the Faculty of Mathematics and Natural Sciences, five complete sets of their admissible works of research and/or scholarship, a list in sextuplicate of their work, including information of place of publication, and five copies of their application, together with relevant enclosures.

Work in hand at the time of the expiry date for applications may be submitted three months after such date, provided the applicant has stated his intention of so doing on submitting his other works.

The successful candidate will be asked to produce a certificate of health prior to confirmation of his appointment.

Should several of the candidates be adjudged to have equally good qualifications after both scientific/scholarly and professional as well as pedagogical and other qualifications have been assessed, a female applicant shall take precedence over a male applicant.

SCIENTISTS DIAGNOSTICS R&D

Wampole Laboratories, a leading manufacturer of diagnostic devices, has several career scientific positions available for qualified individuals in an expanding R&D program. Individuals are sought who have a strong interest in developing human diagnostic test systems.

MOLECULAR BIOLOGIST Program Director

A career Scientist is sought to direct a new program to develop molecular probes for diagnostic tests. The position includes direction of an innovative internal R&D program, conducting an external academic collaborative program and coordination of external clinical studies. Candidates should have a PhD in Molecular Biology and 5 years of significant accomplishments in molecular recombinant DNA work.

SENIOR SCIENTIST Molecular Biologist

A career Scientist is sought to develop diagnostic tests using recombinant DNA technology. Candidates should have a PhD in Molecular Biology and several years of recombinant DNA technology experience.

SENIOR SCIENTIST Immunologist, Protein Chemist

Two senior level career Scientists are sought to conduct research and develop immunodiagnostic tests. A PhD is required in an appropriate field with several years experience in developing immunoassays for diagnosis of disease.

ASSOCIATE SCIENTIST

Three opportunities are available in immunoassay development and molecular biology. Positions require BS/MS in either related disciplines and several years applicable research experience at the technical level.

Located near Princeton, New Jersey, we offer excellent salaries, all major benefits and solid prospects for advancement in a climate of growth. Please send curriculum vitae or resume in confidence to:

Glenn T. Gnrirrep, Personnel Manager



Division of Carter-Wallace, Inc.
366 Princeton-Hightstown Road
Cranbury, NJ 08512

An equal opportunity employer M/F/H

CSIRO AUSTRALIA SENIOR RESEARCH FELLOW CLIMATE MODELLING A\$33,209 to A\$45,083 DIVISION OF ATMOSPHERIC RESEARCH ASPENDALE, VICTORIA

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

The Division's Large Scale Dynamics program is concerned with the study of processes which determine the general circulation of the atmosphere on length scale of 10^3 km. and greater together with its variability and the climatic consequences of this variability.

DUTIES: To undertake research into the numerical simulation of the atmospheric circulation and in collaboration with other members of the group and outside organizations to contribute to research in studies of climate and its variability. For the first year, the appointee will be required to participate in a study of the impact of "nuclear winter" scenarios on the Southern Hemisphere.

QUALIFICATIONS: A Ph.D. degree or equivalent qualifications in the physical sciences with a record of demonstrated research achievement and, preferably, experience in the development of numerical models for large-scale atmospheric circulation studies of climate and its variability.

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

SALARY LEVEL: Senior research scientist/principal research scientist.

APPLICATIONS: Stating relevant personal particulars, including details of qualifications and experience, the names of at least two professional referees, and quoting Reference number A1839, should be directed to:

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

By 25 October 1985.

Associate Senior Investigator Antinfectives Therapy

The Department of Immunology and Antinfectives Therapy at Smith Kline and French Laboratories, located in suburban Philadelphia, Pennsylvania, is seeking an outstanding scientist to design and execute studies on the identification of agents with antifungal activities.

The successful candidate will:

- identify and evaluate biochemical targets against clinically important pathogenic fungi
- collaborate with medicinal chemists and microbiologists in the establishment of novel drug design and therapeutic targets for selective antiinfective agents

Candidates are required to have:

- a PhD in Biochemistry or Microbiology with two or more years of relevant postdoctoral experience
- experience in studying isolated enzyme reactions or the mechanism of action of inhibitors
- a working knowledge of fungal physiology and genetics (desirable)
- the ability to work within a multidisciplinary program team
- the capability to communicate ideas and experimental results
- a record of published scientific accomplishments

We offer excellent benefits and compensation including an attractive relocation package. For confidential consideration, send your C.V. and names of 3 references to: Mr. Walter B. Flagg, Senior Employment Consultant, SMITHKLINE BECKMAN CORPORATION, 1552 Spring Garden Street, Phila., PA 19101. We are an equal opportunity employer, M/F/H/V.

SK&F
A SmithKline Beckman Company

POSITIONS OPEN

POSTDOCTORAL POSITIONS

Postdoctoral training is available in molecular, cellular, and nutritional aspects of carcinogenesis in The Eppley Institute for Research in Cancer and Allied Diseases of The University of Nebraska Medical Center. Research programs include for example: Chemistry of formation and metabolism of nitrosamides, nitrosamines, and hydrazines; mechanisms of carcinogenesis of polycyclic hydrocarbons and other carcinogens; lymphomagenesis; cell differentiation; and growth factors; biochemical genetics particularly as relates to susceptibility and resistance to cancer development; mutagenesis and DNA repair; molecular biology of cancer; viruses and cell immortalization and transformation; toxicology of food additives; and oncogenes and cancer. The Eppley Institute is well equipped for both in vitro and in vivo work. Postdoctoral applicants should have a Ph.D. in chemistry, biochemistry, microbiology, pharmacology, or related disciplines. Stipends are competitive. Please submit curriculum vitae, three letters of recommendation, and summary of research interests to: **Dr. Edward Bresnick, Director, Eppley Institute for Research in Cancer and Allied Diseases, University of Nebraska Medical Center, Omaha, Neb. 68105. An Equal Opportunity/Affirmative Action Employer.**

TWO POSTDOCTORAL POSITIONS available immediately, one to examine protein secretion and the signal recognition particle, the other to investigate proteins and cell surface receptors involved in the regulation of blood coagulation. Experience with proteins, nucleic acids, and/or fluorescence spectroscopy preferred. Send résumé, names of three references, and brief summary of research experience to: **Dr. Arthur E. Johnson, Department of Chemistry, University of Oklahoma, Norman, Okla. 73019.**

POSTDOCTORAL POSITION. Research associate position available immediately to study mechanisms of insulin modulation of hexose transport in isolated cardiomyocytes. A strong background in cell physiology or biochemistry is desired. Send curriculum vitae and names of three references to: **Dr. Michael F. Shanahan, Department of Physiology and Pharmacology, Southern Illinois University, School of Medicine, Carbondale, Ill. 62901.**

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

POSTDOCTORAL POSITION for research on transgenic animals. Work includes microinjection of genes into eggs, embryo transfer, and development of transgenic mouse lines expressing new gene constructions. Apply with curriculum vitae to: **Dr. R. L. Brinster, School of Veterinary Medicine, University of Pennsylvania, Philadelphia, Pennsylvania 19104.**

POSTDOCTORAL POSITION available immediately to study the role of excitation-contraction coupling in cardiac muscle. Project involves the use of the bioluminescent Ca^{2+} indicator aequorin in isolated cardiac myocytes. Experience with single cell techniques is essential; an electrophysiologic background would be useful. Send curriculum vitae and names of three references to: **Dr. James P. Morgan, Harvard-Thorndike Laboratory, Harvard Medical School, 330 Brookline Avenue, Boston, Mass. 02215.**

POSTDOCTORAL POSITION available immediately to participate in studies on hormonal regulation of the expression of genes coding for contractile proteins [BBRC 130, 1161]. Recent Ph.D. in biochemistry, microbiology, pharmacology, or a related field with strong molecular biology research background is preferred. Salary negotiable. Send curriculum vitae containing names of three references to: **Bruce Markham, Ph.D., Department of Internal Medicine/Cardiology, University of Arizona, Tucson, Arizona 85724. The University of Arizona is an Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL POSITION IN RECEPTOR BIOCHEMISTRY available immediately in vigorous research group, studying odor-sensitive adenylate cyclase and chemosensory GTP-binding protein [*Nature* 316, 214; 255 (1985)], as well as candidate odor receptor proteins possibly coded for by multigene family [PNAS 81, 1859 (1984); TINS 7, 35 (1984); *Neuroscience Abstracts* 10, 861 (1984)]. Project involves identification, isolation, and cloning of smell receptor proteins, using biochemical, immunochemical, and molecular genetic techniques. Send résumé and references to: **Dr. Doron Lancet, Department of Membrane Research, The Weizmann Institute, Rehovot, Israel.**

POSITIONS OPEN

POSTDOCTORAL POSITION RICE UNIVERSITY

The Department of Biochemistry, Rice University, announces the availability of a postdoctoral position in enzymology working with mechanism, inhibition, and protein structure studies on enzymes involved in nucleotide metabolism. All information should be sent to: **F. B. Rudolph, Biochemistry Department, Rice University, P.O. Box 1892, Houston, Texas 77251. Rice University is an Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL POSITION

Position available for Ph.D. in protein chemistry or molecular biology for research on structure-function relationships of coagulation and fibrinolytic proteins. Laboratory is well equipped and dedicated to investigation of hemorrhagic disorders and thrombosis. Located in academic medical center with excellent scientific and collaborative resources. Salary competitive. Position can grow into faculty track. Send curriculum vitae and names of three references to: **Dr. Patrick A. McKee, Chairman, Department of Medicine, P.O. Box 26901, University of Oklahoma Health Sciences Center, Oklahoma City, Okla. 73190. We are an Equal Opportunity Employer.**

POSTDOCTORAL POSITION IN IMMUNOLOGY available immediately to work on regulation of human T-cell responses and immunochemistry of T-cell surface molecules. Background in cellular immunology or immunochemistry preferred. Salary: \$20,000 per year. Send curriculum vitae and the names of references to: **Ronald P. Messner, M.D., Section of Rheumatology/Immunology, University of Minnesota, Box 108, 420 Delaware Street, SE, Minneapolis, Minn. 55455. An Equal Opportunity Employer.**

POSTDOCTORAL POSITION, Oncogene Biology

A postdoctoral fellowship is available by late 1985 to join work on the expression of cellular oncogenes in radiation-induced leukemias of inbred mice. Retrovirus-independent transpositions of specific cellular sequences will be analyzed. A background in nucleic acid cloning and sequencing is desirable. Send applications to: **Erwin Fleissner, Ph.D., Memorial Sloan-Kettering Cancer Center, 1275 York Avenue, New York, N.Y. 10021.**

POSTDOCTORAL RESEARCH ASSOCIATE available for studies on the purification, characterization, and structural analysis of adenosine receptors and on the macromolecular structure and subunit interactions of adenylate cyclase. Experience in enzymology, protein chemistry or molecular cloning would be desirable. Send curriculum vitae and names of references to: **Dr. Roger A. Johnson, Department of Molecular Physiology and Biophysics, Vanderbilt University School of Medicine, Nashville, Tennessee 37232.**

POSTDOCTORAL RESEARCH CHEMIST wanted to assist in developing innovative gel/adhesive matrices and chemical detection systems for investigations of transdermal chemical migration. The position offers experience with advanced transdermal pharmaceutical systems and pharmacokinetics. Knowledge of gel/adhesive chemistry and HPLC/GC is highly desirable. Send curriculum vitae to: **Carl Peck, M.D., c/o Civilian Personnel, Uniformed Services University of the Health Sciences, 4301 Jones Bridge Road, Bethesda, Md. 20814. Telephone: 301-295-3239/40.**

Positions available at (i) **PROFESSOR OF SURGERY (NEUROSURGERY)** level for Board-certified academic neurosurgeon with at least 7 years of experience at an academic institution with specific interest in pain and pituitary disease; (ii) **ASSISTANT PROFESSOR OF SURGERY (NEUROSURGERY)** for Board-qualified academic neurosurgeon with research experience in molecular biology of brain tumors; (iii) **ASSISTANT PROFESSOR OF SURGERY (NEUROSURGERY)** for Board-qualified academic neurosurgeon with research experience in CT guided stereotaxy, surgery of epilepsy, and movement disorders. Deadline for receipt of applications is 30 November 1985. Applications postmarked or submitted after the closing date may be considered if no qualified candidates have applied by that time. *The University of Utah is an Affirmative Action/Equal Opportunity Employer.* Contact: **M. Peter Heilbrun, M.D., Professor and Head, Division of Neurosurgery, University of Utah Medical Center, 50 North Medical Drive, Salt Lake City, Utah 84132.**

POSITIONS OPEN

POSTDOCTORAL RESEARCH ASSOCIATE position available for an individual interested in metabolism of phospholipids and atherosclerosis. Experience in HPLC, GLC, tissue culture, and animal experimentation desirable. Starting salary: \$19,000 to \$21,000, plus fringe benefits. Send résumé and three references to: **Dr. P. V. Subbiah, Section of Endocrinology and Metabolism, Rush-Presbyterian-St. Luke's Medical Center, 1753 West Congress Parkway, Chicago, Ill. 60612.**

POSTDOCTORAL RESEARCH ASSOCIATE IN YEAST MITOCHONDRIAL TRANSCRIPTION. Applications are invited for a postdoctoral (research associate) position for research in the control of yeast mitochondrial transcription. Previous experience in molecular biology a strong recommendation. Position open 1 January 1986. Please send curriculum vitae, three letters of reference, and brief outline of experience and expertise to: **Dr. Godfrey S. Getz, Department of Pathology, Box 414, University of Chicago, 5841 South Maryland Avenue, Chicago, Ill. 60637. The University of Chicago is an Equal Opportunity Employer.**

Title: **PROFESSOR AND CENTER DIRECTOR FOR CENTER FOR ENVIRONMENTAL TOXICOLOGY.**

Location: **UNIVERSITY OF FLORIDA
GAINESVILLE, FLORIDA 32611**

DUTIES AND RESPONSIBILITIES: Director is responsible for a university-wide Center for Environmental Toxicology at the University of Florida. Position is a tenure-track, 12-month appointment in a department appropriate to the qualifications of the candidate. Director will provide leadership in development of research, teaching, and extension programs in environmental toxicology and will also serve as chairman of a state-wide Toxicological Research Coordinating Committee composed of directors from similar centers at Florida State University and the University of Florida. *The Institute of Food and Agricultural Sciences is an Equal Opportunity/Affirmative Action Employer.*

HOW TO APPLY: Submit letter of application, curriculum vitae, and the names and addresses of at least three references. Material should be submitted no later than 31 October 1985 to:

Refer to position Number CET-0801. Return inquiries to:

**Dr. J. M. Davidson, Chairman
Search and Screen Committee
1022 McCarty Hall
Institute of Food and Agricultural Sciences
Gainesville, Florida 32611**

RESEARCH ASSISTANT PROFESSOR

Seeking person with experience in protein chemistry including purification methods, structural analyses, enzyme kinetics, and ligand-cell binding interactions for studies of blood coagulation and fibrinolytic proteins. Excellent opportunity in well-equipped laboratory with superb resources in academic medical center. Salary negotiable. Potential for eventual tenure-track faculty appointment. Send curriculum vitae and names of three references to: **Dr. Patrick A. McKee, Chairman, Department of Medicine, P.O. Box 26901, University of Oklahoma Health Sciences Center, Oklahoma City, Okla. 73190. We are an Equal Opportunity Employer.**

RESEARCH ASSOCIATE, Reproduction Laboratory, Beltsville, Maryland. Agricultural Research Service (ARS) is seeking a research physiologist (animal) to study reproductive biology. Emphasis on X and Y chromosome-bearing spermatozoa isolation, characterization, and identification in mammals. Candidate must have experience and/or interest in DNA, chromosome, flow cytometry, sperm physiology, or immunology. Ph.D. is desirable. Must be U.S. citizen. Salary is commensurate with experience (\$26,381 to \$31,619 per annum). For information on the research program and/or position(s), telephone: **Dr. L. A. Johnson on 301-344-2809.** For information on application procedures/forms, telephone: **Julia Murchison on 301-344-3953.** Applications in response to this advertisement should be marked **NER-PA-019.** Position is open until filled. Mailing address:

**USDA, Agricultural Research Service
Animal Science Institute
Building 200, Room 200, BARC-East
Beltsville, Maryland 20705
An Equal Opportunity Employer**

POSITIONS OPEN

POSTDOCTORAL RESEARCH POSITION. Postdoctoral position available immediately to purify biological growth factors that regulate erythroid differentiation. Background in biochemistry and immunology with experience in column chromatography, gel, electrophoresis, and autoradiographic techniques is desired. Cell culture experience helpful but not essential. Send curriculum vitae and names of two references to: **Dr. Nicholas Dainiak, Chief, Division of Clinical Research, St. Elizabeth's Hospital of Boston, 736 Cambridge Street, Boston, Mass. 02135. An Equal Opportunity Employer.**

RESEARCH ASSISTANT PROFESSOR

Position in the Department of Medicinal Chemistry, University of Pittsburgh, for a Ph.D. biophysicist with extensive experience in solid-state NMR of biological materials. Postdoctoral experience and quality publications required. The responsibilities will include the application of high-resolution and solid-state NMR techniques to the study of biological (including human) tissues. Salary: \$22,000 to \$24,000 per annum, depending on qualifications and experience. Send applications and three letters of recommendation before 15 October 1985 to: **Dr. J. W. Pettegrew, Department of Medicinal Chemistry, Salk Hall, University of Pittsburgh, Pittsburgh, Pa. 15261. The University of Pittsburgh is an Equal Opportunity/Affirmative Action Employer.**

RESEARCH ASSOCIATE position available immediately for individuals with M.D. or Ph.D. degree in studying the subject of brain tumor immunobiology and immunotherapy using monoclonal antibodies. Methods currently in use include HPLC, SDS page, tissue culture, radioisotope assays, autoradiography, and immunocytochemistry. The applicant should have background knowledge in molecular biology, neurohistochemistry, neurooncology, and hybridoma production, especially with syngeneic immunization. Salary: \$17,400 minimum. Send curriculum vitae and names of three references to:

Darrell D. Bigner, M.D., Ph.D.
Department of Pathology
P.O. Box 3156, Duke University
Durham, N.C. 27705

If not U.S. citizen, please indicate visa status.

POSITIONS OPEN

POSTDOCTORAL RESEARCH ASSOCIATE

Position available immediately in laboratory of developmental genetics. Molecular characterization of cell specific gene expression and its regulation during mammalian development. Excellent training opportunity in mouse genetics and use of mutant systems. Background in biochemistry and molecular biology required. Experience with tissue culture desirable. Send résumé, including two references, to: **Dr. Salome G. Waelch, Department of Genetics, Albert Einstein College of Medicine, Bronx, N.Y. 10461. Albert Einstein College is an Equal Opportunity/Affirmative Action Employer.**

RESEARCH ASSOCIATE needed to perform protein purification, SDS electrophoresis preparation and characterization of polyclonal and monoclonal antibodies, mRNA isolation, DNA cloning, Southern, Northern, and Western blot, and tissue culture. Must have Ph.D. degree in biochemistry or equivalent and 3 years of experience in protein chemistry and immunochemistry. Also must have 1 year of experience in recombinant DNA technology and molecular biology. Salary: \$24,150 per year; 40 hrs per week. Apply at the Texas Employment Commission, Houston, Texas, or send résumé to: **The Texas Employment Commission, TEC Building, Austin, Texas 78778, Job Order Number 4274432. Ad paid by an Equal Opportunity Employer.**

Position available, **RESEARCH ASSOCIATE III**, San Francisco General Hospital campus of the University of California. Extensive experience in both large and small animal surgery with sterile technique required, to include microsurgical technique, especially microlymphatic surgery in sheep. Five to 10 years of full-time research experience in a university setting, which has generated an extensive list of publications, is required. Variable work hours to include very early mornings, some evenings, and weekends. Responsibilities to be divided between investigators. Funding for this position guaranteed for only 3 years. Send curriculum vitae to: **Neurology Service, 4M62, San Francisco General Hospital, 1001 Potrero Avenue, San Francisco, Calif. 94110.**

POSITIONS OPEN

REPRODUCTIVE CELL BIOLOGIST

The Department of Obstetrics and Gynecology, University of Louisville, invites applications for a faculty position at a research assistant professor (nontenure-track) level from candidates who have advanced postdoctoral training in cell and molecular biology. Preference will be given to candidates who are productive and experienced in using morphological approaches to investigate gonadotropin, prostaglandin, and epidermal growth factor action in reproductive tissues. The position is now open and the plan is for it to be filled by July 1986. Interested candidates please send curriculum vitae and three references to: **C. V. Rao, Ph.D., Professor, Department of Obstetrics and Gynecology, University of Louisville School of Medicine, Louisville, Kentucky 40292.**

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

RESEARCH SCIENTIST Biochemistry

RESEARCH BIOCHEMIST—To develop and conduct research on skin. Candidates must have 3 years of postdoctoral experience in industry or academia. Experience in cutaneous protein-lipid biochemistry and/or immunochemistry is preferred. An established research record and excellent communication skills are essential.

The Gillette Company is a leading worldwide manufacturer of consumer products, including personal care and shaving products and writing instruments. In addition to an exceptional opportunity for recognition and growth, we offer a comprehensive salary and benefits package and a challenging work environment. Interested candidates are requested to submit detailed curriculum vitae, including list of publications and patents, in strict confidence to:



Gillette Research Institute

1413 Research Boulevard
Rockville, Maryland 20850

Equal Opportunity Employer

DNAX Research Institute

Postdoctoral Fellowships in Immunology

DNAX has postdoctoral fellowships available immediately in several areas of immunology. One is for the study of the structure and functional relationships of interleukin 1 and its influence in T cell activation with Dr. Albert Zlotnik. A second is for the study of structure and function of IgE receptors and the degranulation process in mast cells with Dr. Marilyn Kehry. Candidates must have experience in immunology and cell culture techniques. Preference is for candidates who have a PhD in immunology, biochemistry, or related field. Additional fellowships will be available in other areas of immunology.

DNAX Research Institute, located adjacent to Stanford University, conducts its research in an academic type of environment, offering its researchers opportunities for frequent interaction with other scientists. Two-year postdoctoral fellowships include stipend, insurance, and participation in scientific meetings.

Interested applicants should send a C.V., statement of research interests, and the names of three references to DNAX Research Institute of Molecular and Cellular Biology, 901 California Avenue, Palo Alto, CA 94304-1104. An equal opportunity employer m/f/h.



Hybritech, located in the biotechnology center of San Diego, is a leader in the application of monoclonal antibody technology to human health care needs. Our dynamic growth has created the following career opportunities in research and development of novel immuno-diagnostic methods in infectious disease.

Group Leader will have management responsibility for the research and development of immunodiagnostic assays. Requires a Ph.D. in Microbiology or Biochemistry and three years industrial experience.

Immunochemist will have responsibility for immunoassay research and development including preparation of antibody-enzyme conjugates and protein purification. Requires a Ph.D. in Biochemistry, Microbiology, or Immunology with postdoctoral experience.

Virologist will have project responsibility for research and development of viral diagnostic immunoassays. Requires a Ph.D. in Microbiology/Virology with postdoctoral experience. Industrial experience is desirable.

Hybritech offers a stimulating work environment, competitive salaries and excellent company paid benefits.

Hybritech will be interviewing at the ICAAC Meeting in Minneapolis September 29-October 2 Please contact Mr. Larry Fenwick at the Marquette Hotel.

Please send resume and salary history to:

**Hybritech Incorporated
Human Resources Department
P.O. Box 269006, San Diego, CA 92126**
An Equal Opportunity Employer

POSITIONS OPEN

POSTDOCTORAL RESEARCH POSITION available for an individual interested in studying mechanism of action and effects of catecholamines. A range of problems are centered on alpha and beta adrenoceptor responses in isolated cardiovascular tissues and in cultured cells. Applicants should have a strong background in either pharmacology or biochemistry. Send curriculum vitae and three letters of reference forwarded to: **Dr. Brian B. Hoffman, Department of Medicine, Stanford University, School of Medicine, Stanford, California 94305.**

RESEARCH ASSOCIATE (POSTDOCTORAL) MOREHOUSE COLLEGE

Research associate position is available immediately in the area of medical parasitology, tropical medicine, and electron microscopy. In general the research involves studying various developmental mechanisms, structural and functional host-parasite interactions for Schistosomiasis and Cysticercosis using a combination of approaches. Candidate is expected to have a strong background in parasitology. Salary: \$16,000 to \$20,000.

Please submit curriculum vitae, statement of research interests, and names of three individuals willing to write letters of recommendation to:

Dr. Betty Ruth Jones
Department of Biology
Morehouse College
Atlanta, Georgia 30314

An Affirmative Action/Equal Opportunity Employer

SENIOR RESEARCH ASSOCIATE—Conduct research in the area of design, synthesis, purification, characterization, and study of conformational features of biologically active peptides. Requirements include Ph.D. in chemistry and 4 years of research experience with strong background in organic chemistry with a broad knowledge and experience in peptide synthesis in solution and on a solid support; synthesis of cyclic peptides; modern spectroscopic techniques of peptide analysis; purification methods of peptides and proteins. Salary: \$28,000 per year; 40 hours per week. Respond with résumé only to: **Job Order Number 5869, Division of Employment Security, Government Center, Boston, Mass. 02114.**

STRUCTURAL GEOLOGIST Amherst College

The Department of Geology invites applications for a tenure-track faculty position in structural geology at the assistant professor level, beginning 1 July 1986. A Ph.D. is required. Postdoctoral work and interest/experience in geophysics or geochronology are desirable. Although bedrock mapping experience, preferably in the northern Appalachians, is essential, the applicant should also be well versed in the theoretical and experimental aspects of structural geology. The successful candidate will be responsible for teaching and research in structural geology as well as a course in tectonics and one related to the person's secondary field of interest.

Amherst College is an undergraduate liberal arts institution with an enrollment of 1530 students. The Geology Department has four full-time faculty members, a graduate fellow, and a technician.

Candidates should send a letter of application, résumé, statement of research interests, and the names and addresses of three referees to: **Chairman, Department of Geology, Amherst College, Amherst, Mass. 01002.** The deadline for response is 1 December 1985. *Amherst College is an Equal Opportunity/Affirmative Action Employer.*

VASCULAR RESEARCH Ph.D. SCIENTIST

Major teaching medical center seeks individual to direct research activities of Radiation Oncology Department, including developing and conducting scientific research, presenting at scientific meetings, and supervising in vivo and in vitro laboratories. Qualifications: related Ph.D., experience with biochemistry and vascular research, cell culture, and recombinant techniques. Position offers attractive compensation and academic appointment in affiliated medical school based on publication record and experience. Submit curriculum vitae to: **Employment Manager, Department RO.**

**LONG ISLAND JEWISH
MEDICAL CENTER**
New Hyde Park, N.Y. 11042
An Equal Opportunity Employer

POSITIONS OPEN

RESEARCH FELLOW

The Department of Pathology, Division of Immunogenetics, is recruiting a research fellow to work on T-cell immunoregulation in man. Applicant must have a Ph.D. or M.D. degree and experience in working in the field of immunology. Responsibilities include research and supervision of a facility that develops new monoclonal antibodies against both soluble and cell surface antigens.

Box 196, SCIENCE

RESEARCH INSTRUCTOR

The Moss Heart Center at the University of Texas Health Sciences Center at Dallas (UTHSCD) is requesting applications for the position of research instructor, Department of Internal Medicine and Physiology, to design and direct studies on competitive endurance athletes; teach exercise physiology; and manage a Wellness Program. Candidates must have a Ph.D. and 2 years of postdoctoral training in exercise physiology and 2 years of experience as a faculty member in a medical school. Prior experience in the development and management of a university-wide Wellness Program, 5 years of public relations/fund-raising experience, and experience in directing human research studies are required. Send curriculum vitae to: **Janet Wright, Moss Heart Center, UTHSCD, 5323 Harry Hines Boulevard, Dallas, Tex. 75235.**

Equal Opportunity Employer

RESEARCH POSITION available to participate in an ongoing recombinant DNA project. Person must have experience with modern methods in molecular biology, SDS-PAGE, cloning, and gene sequencing. Qualified applicants should have a B.S. or M.S. in the biological sciences with at least 2 to 3 years of laboratory experience. Liberal benefits offered and salary will be commensurate with experience. To apply, send curriculum vitae and letters of reference to: **Personnel Manager, W. Alton Jones Cell Science Center, 10 Old Barn Road, Lake Placid, New York 12946.** Refer to Job Order CR 8507.

Affirmative Action/Equal Opportunity Employer

AMERICAN BIOGENETICS

RESEARCH SCIENTISTS

American Biogenetics Corporation, specializing in the genetic engineering and biodesign of microorganisms which produce specialty chemicals, has positions available for highly motivated research scientists. American Biogenetics is seeking to fill positions in:

• MOLECULAR GENETICS

To use recombinant DNA techniques to genetically alter and/or engineer biochemical pathways in *Escherichia coli* and *S. cerevisiae*.

• MICROBIAL PHYSIOLOGY

To design new biochemical pathways in *E. coli* and *S. cerevisiae* and to transfer these pathways to other industrially important microorganisms.

Successful applicants must possess a Ph.D. and have at least 2 years of postdoctoral experience. American Biogenetics offers a challenging and creative working environment and excellent opportunities for personal and scientific development. American Biogenetics is located in a desirable coastal area of Southern California.

Send curriculum vitae and the names of three references to: **Janice A. Sharp Ph.D., Director of Research, American Biogenetics Corporation, 19732 MacArthur Boulevard, Suite 130, Irvine, Calif. 92715.**

TECHNICAL DIRECTOR

For Seattle-based international nonprofit organization engaged in the development and transfer of appropriate health technologies to developing countries. Recruiting a technical director for government-funded project to develop and introduce new diagnostic technologies which address major LDC health problems. Requires several years of experience in related biotechnology field or in diagnostic product development and demonstrated ability in research management; strong technical writing and interpersonal skills; familiarity with computerized management techniques; LDC experience. Prefer Ph.D. in molecular biology, or M.D. with specialization in infectious diseases or tropical medicine. Immediate opening. Telephone: **Dr. Michael Free at 206-285-3500** or send curriculum vitae to: **Personnel Officer, Program for Appropriate Technology in Health, 130 Nickerson, Seattle, Wash. 98109.** *Equal Opportunity Employer.*

FELLOWSHIPS

POSTDOCTORAL FELLOWSHIP

Psychophysics and physiological optics. Two-year fellowship beginning July 1985 or later. Postdoctoral training in color vision and assessment of vision in clinical population. Send curriculum vitae and supporting material to:

Joel Pokorny, Ph.D.
University of Chicago
Department of Ophthalmology
939 East 57 Street
Chicago, Ill. 60637

An Equal Opportunity Employer

HEWLETT FELLOWSHIP PROGRAM IN SCIENCE AND TECHNOLOGY POLICY

A resident fellow's program at Princeton University's Center for Energy and Environmental Studies (CEES) is intended for postdoctoral, policy significant technical research in some field under active study at the Center: technological aspects of energy conservation, nuclear energy and nuclear weapons policy, or low-energy global futures. Applications will be reviewed on 15 February 1986. Annual stipends up to \$24,000; term of residence, 6 to 24 months; sabbatical visitors are specifically encouraged. Send curriculum vitae, outline of research interests, samples or abstracts of recent work, and names of five references to: **Harold A. Feiveson, CEES, H102 Engineering Quadrant, Princeton University, Princeton, N.J. 08544.** *Princeton University is an Affirmative Action/Equal Opportunity Employer.*

Smithsonian Institution Fellowship Program

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

THE HEISER PROGRAM FOR RESEARCH IN LEPROSY

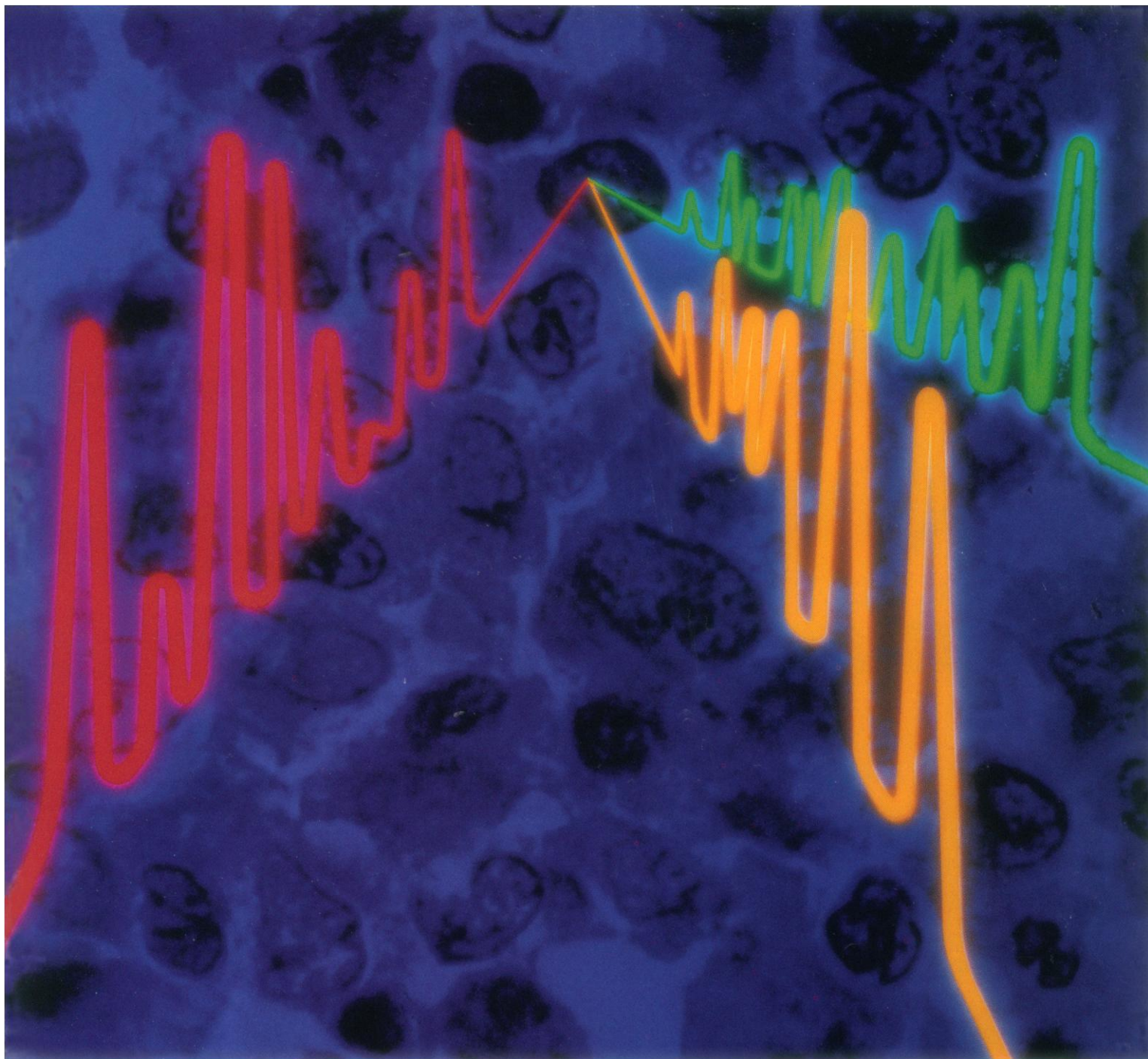
Beginning postdoctoral research fellowships, research grants, and visiting research awards available in amounts up to \$19,000 per year, plus other allowances. Applicants should have M.D., Ph.D., or equivalent degree. Applications by 1 February 1986, for awards to be activated June to December 1986. For information, write: **The Heiser Program, 450 East 63 Street, New York, New York 10021.**

FELLOWSHIPS IN REPRODUCTION. Postdoctoral and predoctoral fellowships are available for training in regulation of reproductive processes. Ten investigators from the Departments of Biochemistry and Cell Biology-Anatomy participate in this interdisciplinary NRSA supported program. The faculty and their research are: K. L. Barker, estrogen mechanisms-uterus; B. C. Chilton, steroid actions-cervix; A. W. Coquelin, neural regulation-gonadotropins; C. W. Garner, hormone action-uterine membranes; J. C. Hutson, testis cell-cell interactions; W. W. Leavitt, hormone receptors-decidualoma; R. L. Norman, gonadotropin secretion-primates; D. M. Stocco, testicular mitochondria synthesis; H. M. Weitlauf, blastocyst-uterine interactions; and S. M. Whelly, estrogen mechanisms in uterus. *Only U.S. citizens and permanent residents are eligible.* Apply or inquire to: **Dr. Kenneth L. Barker, Biochemistry, or Dr. Harry M. Weitlauf, Anatomy, Texas Tech University Health Sciences Center (TTUHSC), Lubbock, Tex. 79430.** *TTUHSC is an Equal Opportunity/Affirmative Action Employer.*

MARKETPLACE

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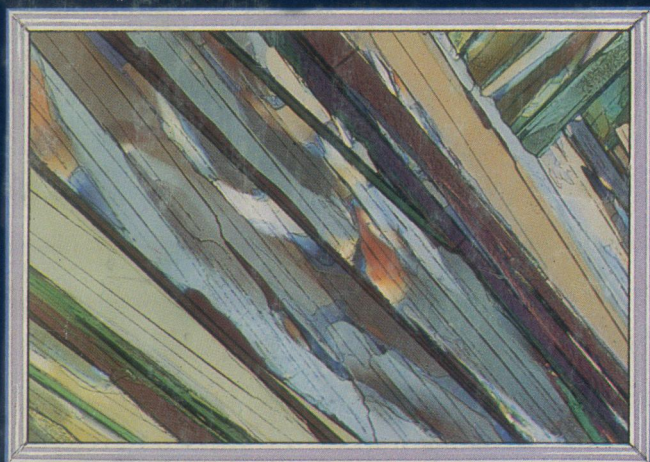
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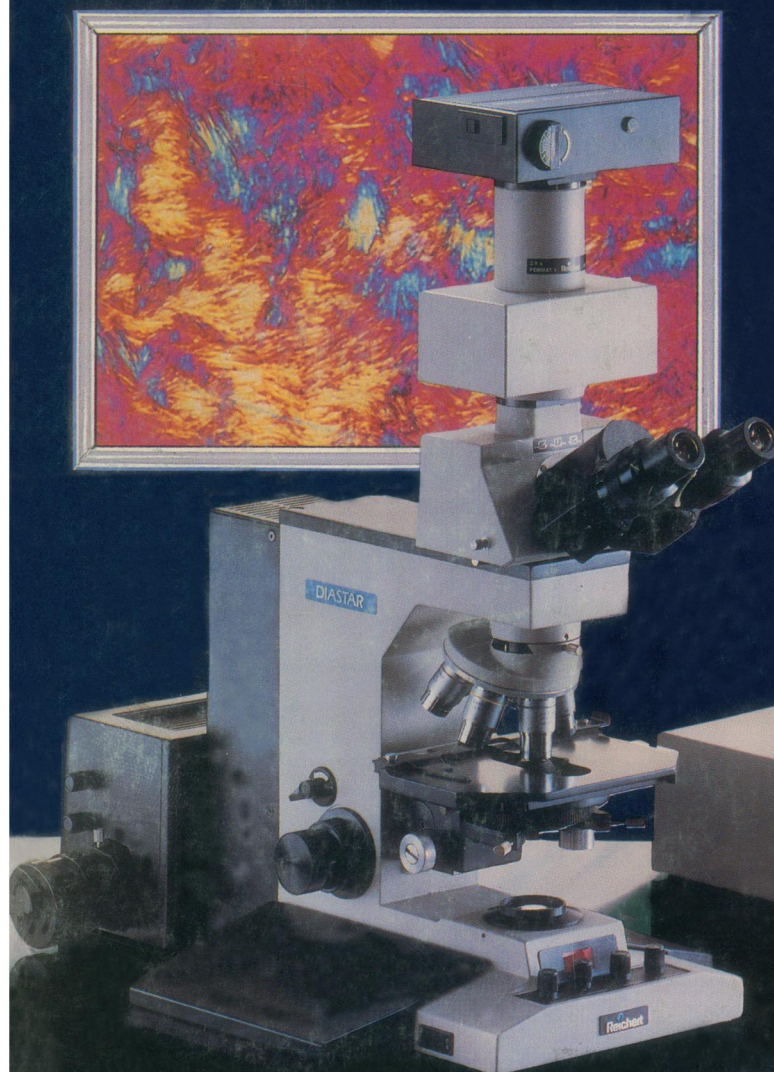
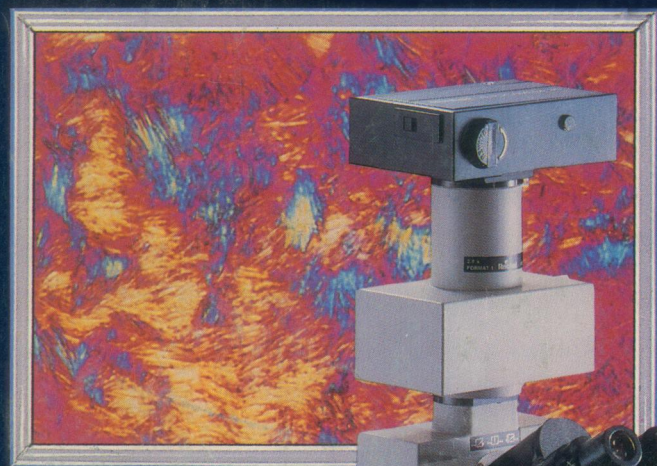
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