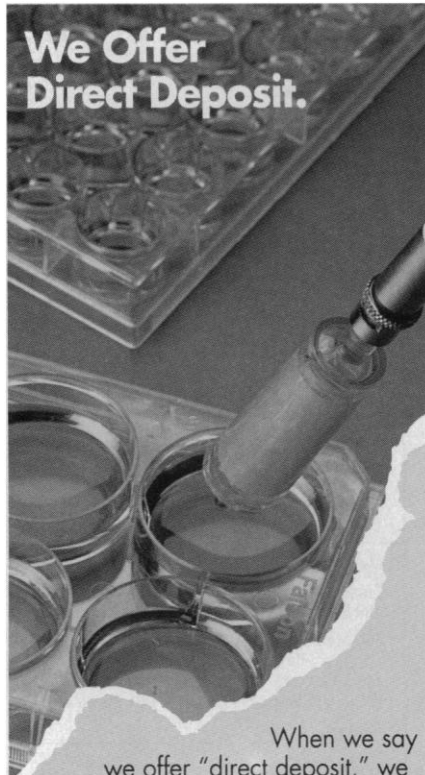


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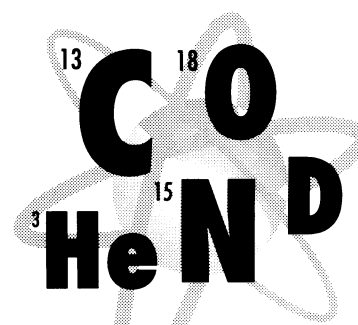
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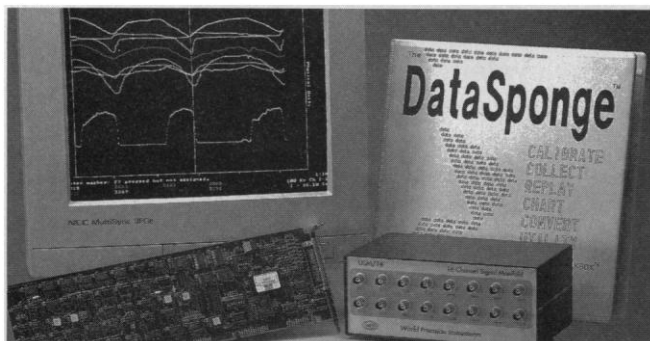
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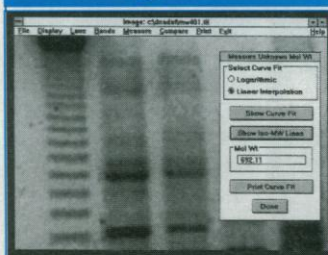
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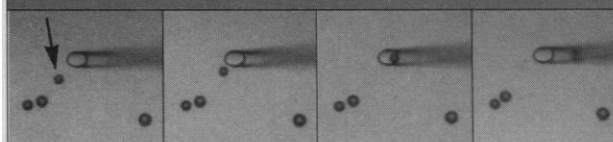
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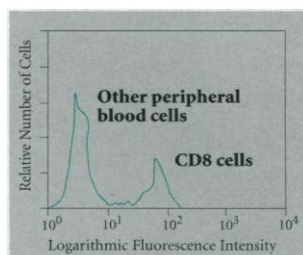
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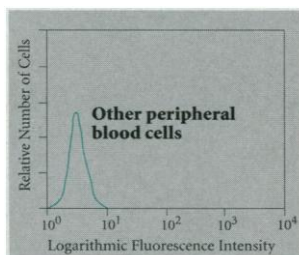
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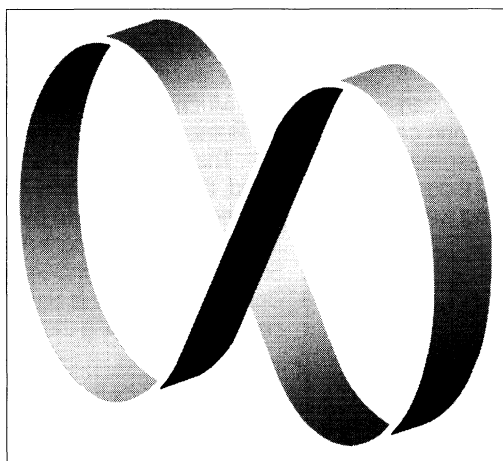
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The American Cancer Society predicts that at least 85 million people living in the U.S. today will have some form of cancer.

This year alone, more than 200,000 American women will be diagnosed with breast or ovarian cancer.

Clearly, cancer is one of our most widespread and devastating health problems. Which is why thousands of researchers around the country are studying ways to prevent and treat the disease.

NEEDED: GOOD TUMOR SAMPLES TO STUDY.

One of the keys to this research is the ability to reproduce cancer cells in the laboratory in the same way they grow in the body.

If we can replicate the cells, we can try out different drugs to see how the cells react. This, in turn, could lead to new and better treatments.

But under conventional Earth laboratory conditions, human cells are extremely difficult to grow. The cells either do not last long in culture, or they show growth characteristics that are not representative of the way cells develop in the body.

However, when these cells are allowed to form a three-dimensional arrangement in reduced gravity conditions, cells assemble next to one another, form cellular bridges, and join together much as they do in our bodies.

In other words, if we can grow cells in the microgravity of space, or in simulated microgravity here on Earth, we might be able to create many of the cell samples we need for advanced cancer research.

A TOOL DEVELOPED FOR SPACE HELPS ACHIEVE CELL GROWTH ON EARTH.

The Rotating Wall Vessel, a "bioreactor" created to grow cells and tissue in space, is already generating new insights into several forms of cancer.

The vessel was originally designed by scientists at Houston's Johnson Space Center. The idea was to mimic

microgravity in order to protect delicate cell structures from breaking apart during launches and landings of the space shuttle.

Much to the surprise of scientists around the country, the Rotating Wall Vessel works fairly well on Earth, as well.

The vessel's simulated microgravity allows organized, three-dimensional clusters to be grown that are superior to cells grown by conventional lab methods.

Today, researchers at Harvard, MIT, the University of South Florida, the University of Texas at Houston, the University of Texas at San Antonio, and several other institutions are using the device for Earth-bound research.

THE SPACE STATION COULD BE ONE OF OUR MOST USEFUL CANCER RESEARCH TOOLS.

As good as current bioreactor samples are, they offer only a hint at what could be achieved aboard the Space Station.

The Station will provide scientists with research conditions that are impossible to duplicate on Earth. It will allow us to expand today's cancer research by performing experiments for extended periods of time in a true microgravity environment.

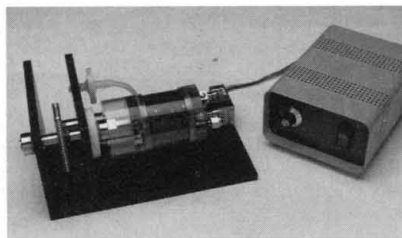
Today, even with simulated microgravity, we can't grow cell clusters as large as we'd like. Typically, sizes no greater than a fraction of an inch in diameter are possible.

Long-term, large-sized, advanced cellular development will be attained only in the near-zero-gravity environment the Space Station offers. This weightless condition will allow for months of uninterrupted, three-dimensional cellular growth.

We can't, of course, predict that the Space Station will produce a cure for cancer.

But we can ensure that the Station is built and equipped to facilitate promising areas of research.

And we can say without doubt that what we learn in space will help improve the lives of millions of people living on Earth today.



The Rotating Wall Vessel. This research tool offers tremendous potential for increasing our understanding of the basic biology and growth patterns of human cancer cells.

Photo: NASA

It's about life on Earth.

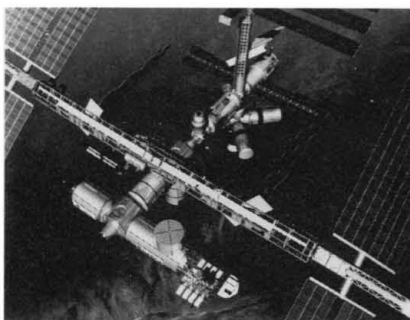
S REPORT

MAY 1994



SUCCESSFUL SYSTEMS DESIGN REVIEW IS MAJOR MILESTONE.

In late March, the Space Station Program Office completed a comprehensive design review of all Space Station systems.



By successfully completing the Systems Design Review, the Space Station team demonstrated that it was ready to move from design work to full-scale production of flight hardware.

Altogether, 200 managers and engineers representing 17 nations were in attendance. After the full-day review, the program managers reported that plans for the International Space Station are maturing rapidly, and the orbiting research facility is on track for assembly to begin in 1997, as scheduled.

By incorporating approximately 75 percent of the hardware that was in development for Space Station Freedom, NASA has been able to maintain the nation's investment-to-date, yet redesign the Space Station to be less expensive and more capable.

Since the transition from the Freedom program began last fall, more than 1,500 technical issues have been resolved. By the close of SDR, only 17 minor issues remained open. All of these issues are expected to be resolved by the end of June.

The Space Station will orbit the Earth every 90 minutes. And its observation angle will cover 85% of the world. So astronauts will be able to view and record most volcanoes, storms, and environmental changes within minutes or hours of occurrence.

MEMBERS OF VEST COMMITTEE HIGHLY IMPRESSED WITH STATION PROGRESS.

Shortly after the conclusion of the Systems Design Review, 15 former members of the Vest Committee met in Houston for their own review of the Space Station's status.

Led by Dr. Charles Vest, President of MIT, the committee was created by the White House last year to make recommendations on the Station. In its June 1993 assessment, the panel was highly critical of the way the program was being handled.

But after the recent briefing, Vest said, "There has been an absolute sea change in the management and organization of this program." He went on to say, "I can state with confidence that the high-level conclusions were self-evident and overwhelmingly positive."

Another former member, Professor Bradford Parkinson of Stanford, said, "The changes wrought by Dan Goldin and an outstanding new project management team have won us over. Given our original skepticism, this turnaround is quite remarkable." He also said, "I believe this project deserves to be strongly supported by the Administration."

We'll have more comments from former Vest Committee members in our next *Progress Report*.

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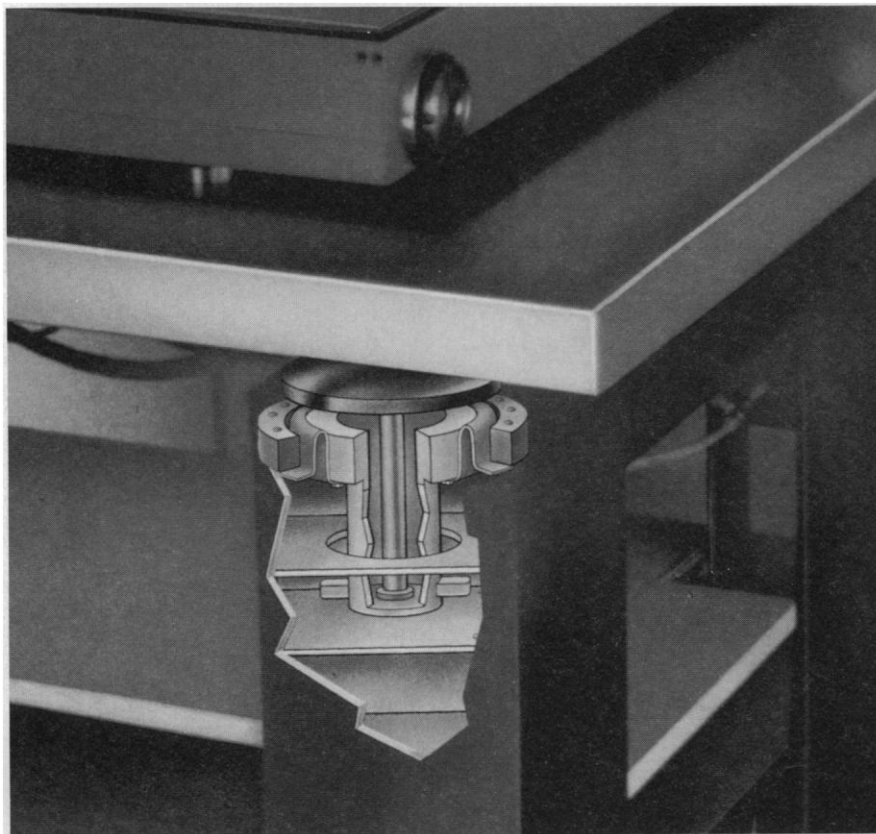
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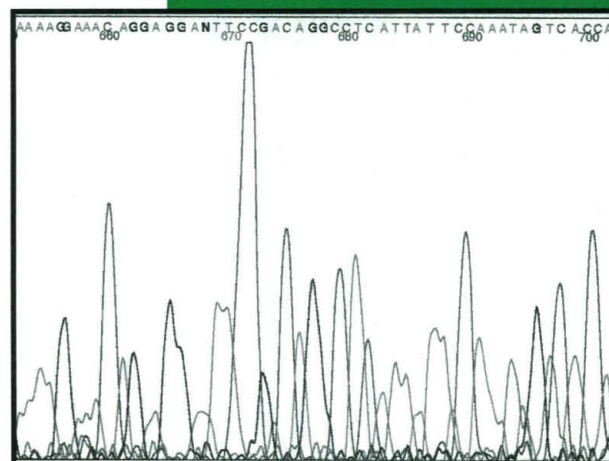
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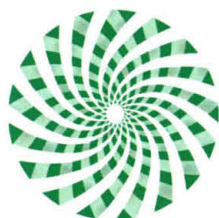


C. elegans M13 subclone sequenced using the SequiTherm Long-Read Kit and an ABI Model 373A "Stretch" Sequencer. Trace data show excellent peak resolution 700 bases from the primer.
(Results courtesy of L.A. Weinstock & E.R. Mardis, Wash. Univ. Genome Sequencing Center)



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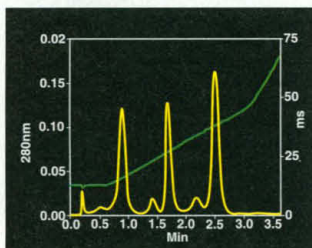


M13mp18 plasmid sequenced using the SequiTherm Long-Read Kit and LI-COR Model 4000L Sequencer; reads of 800 bases or greater at >99% accuracy are possible.
(Results courtesy of S.L. Sutter, LI-COR, Inc.)

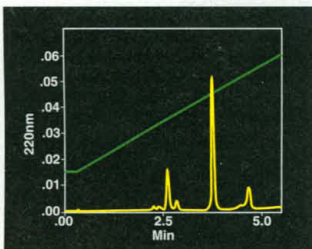
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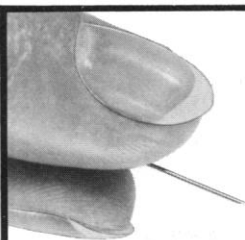
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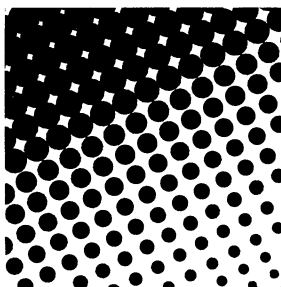
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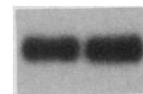
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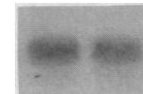
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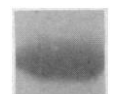
Northern blot of rat
growth hormone
(rGH) mRNA (1 kb)



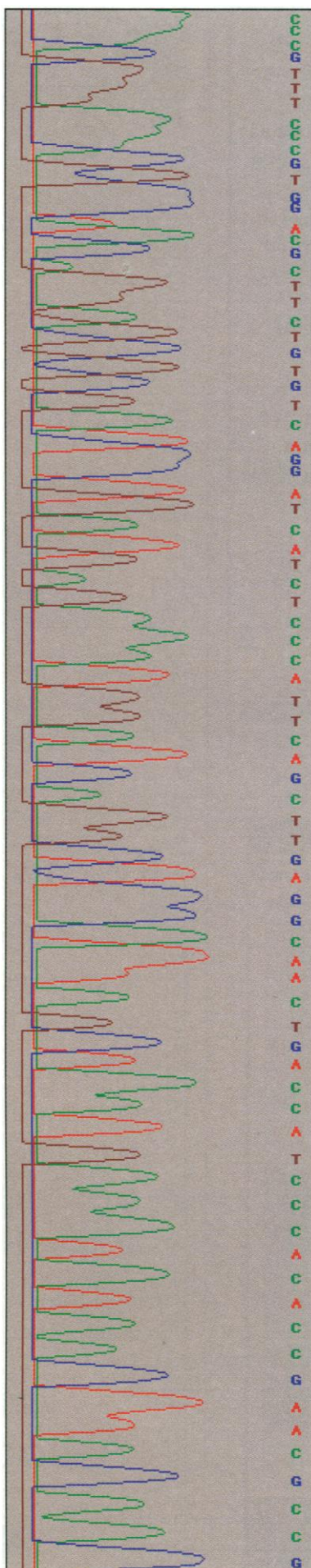
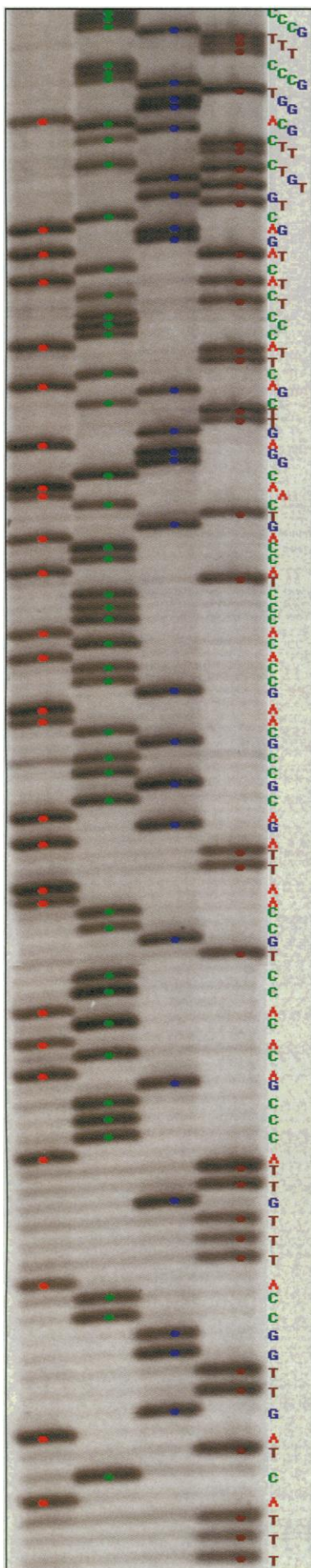
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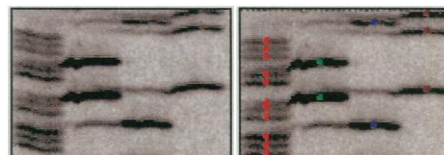
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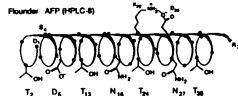
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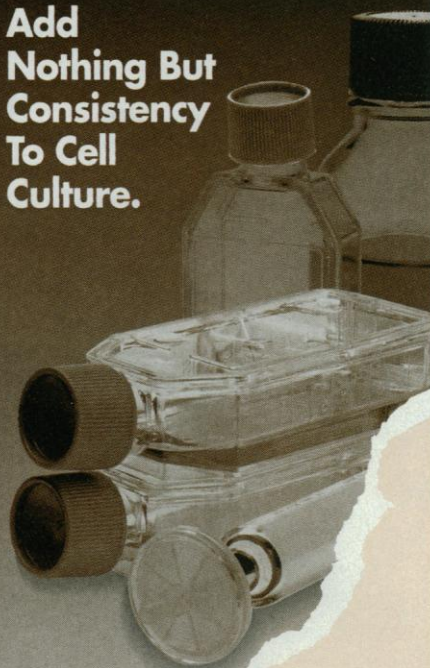
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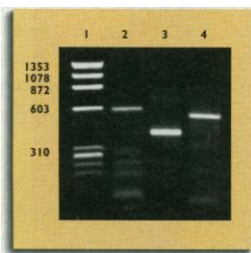
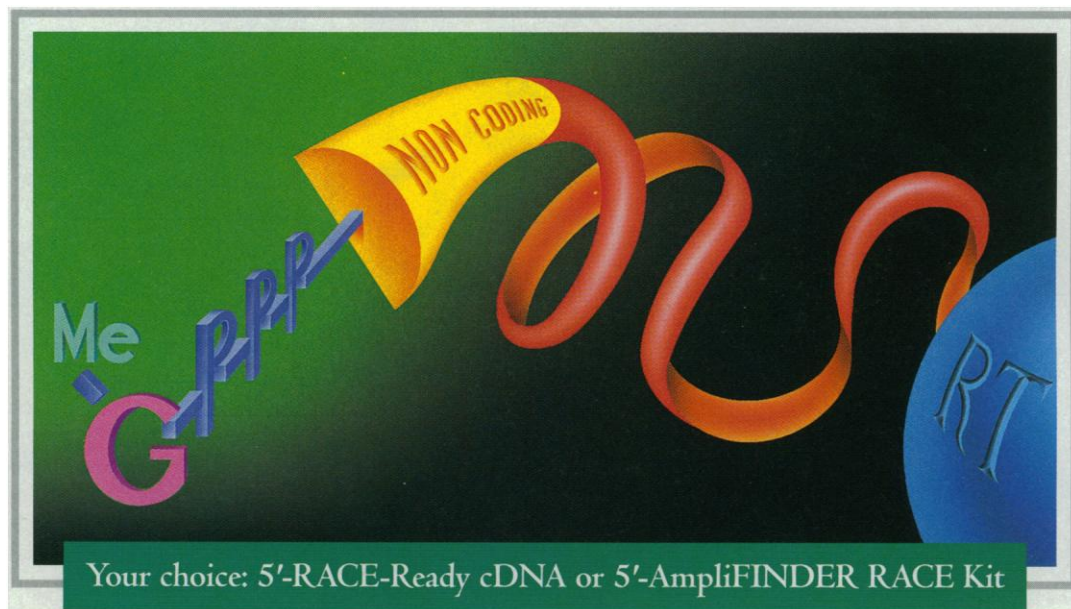
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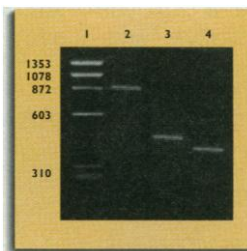
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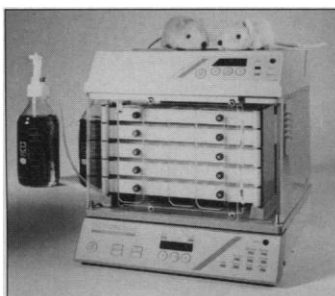
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Applicants should submit curriculum vitae, a description of research accomplishments and future interests, and have three letters of recommendation sent on their behalf to: **Dr. John E. Wilson, Chair, Department of Biochemistry, Box S, Michigan State University, East Lansing, MI 48824.** To ensure consideration, applications should be received by September 1, 1994. *Michigan State University is an Equal Opportunity/Affirmative Action Employer.*

WETLAND ECOLOGIST

The Horn Point Environmental Laboratory of the University of Maryland Center for Environmental and Estuarine Studies invites applications for an **ASSISTANT PROFESSOR**, tenure-track position available January 1995. Ph.D. and research experience in physiological ecology of marsh, SAV, or macroalgae required; the successful candidate will be expected to establish a strong research program, to contribute to interdisciplinary research on land-sea interaction, and to participate in graduate education. Send résumé and 4 references (name, address) to: **Search Committee Chair, Wetland Ecologist, Horn Point Environmental Laboratory, P.O. Box 775, Cambridge, MD 21613.** Deadline 15 September 1994. *UMS is an Affirmative Action/Equal Opportunity Employer.*

The Department of Medicine at the University of California, San Francisco, is searching for a faculty member at the level of **ASSISTANT PROFESSOR** of Medicine. Individuals who have demonstrated superior talent in areas of basic science relevant to breast cancer research are encouraged to apply for junior faculty positions now available at the University of California, San Francisco, as part of the Specialized Program on Breast Cancer Research. Investigators will have the opportunity to interact with leading investigators at UCSF in several areas of research including regulation of expression of genes encoding steroid hormone receptors, hormonal regulation of the cell cycle, signaling pathways in cancer cells, tumor progression and angiogenesis using transgenic models, characterization of the role of metalloproteinases and their inhibitors in invasive processes in the breast, and the role of oncogenes in cancer. Particularly attractive areas for developmental research include immunotherapeutic and hormonal approaches to treating breast cancer.

Candidate will be expected to have an M.D. or M.D./Ph.D., to have demonstrated exceptional promise in scientific creativity and productivity, and to make a commitment to studying problems related to breast cancer. He/she will be expected to conduct research bridging the basic sciences and clinical investigation of breast cancer diagnosis and treatment. Candidates will be expected to participate in teaching and patient care activities. Interested candidates should send curriculum vitae and a description of their future research plans to: **Tristram Parslow, M.D., Ph.D., Chair, Cancer Center Search Committee, University of California, San Francisco, Box 0506, San Francisco, CA 94143.** *The University of California is an Equal Opportunity/Affirmative Action Employer. Women and minorities are encouraged to apply.*

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Research Molecular Biologist

Requires an MS or BS in biology or biochemistry with post graduate experience in molecular biology, and experience with conventional molecular biology techniques and cell cultures. An understanding of cell biology and biochemistry is desirable. **Job Code MB2**

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POSITIONS OPEN

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The Department of Pathology at Tufts University Medical School seeks to recruit an established investigator for a tenure-track faculty position, initially at the **ASSOCIATE PROFESSOR** level or above. Of particular interest would be individuals interested in molecular or cellular aspects of disease pathogenesis; however, scientists with a wide range of research interests will be considered. Candidates should have a strong record of independently funded research. The investigator will have the opportunity to interact with established programs in the Department including basic research in Immunology, Genetics and Pathology. Interested individuals should send a letter and current curriculum vitae, with the names of three references, to: **Search Committee, c/o Prof. David A. Thorley-Lawson, Department of Pathology, Tufts University School of Medicine, 136 Harrison Avenue, Boston, MA 02111.**

AVIAN BIOLOGIST, Waterfowl. University of California, Davis. **ASSISTANT PROFESSOR**, tenure-track. Ph.D. in behavior, ecology, physiology, or related field required, postdoctoral experience preferred. Research, graduate education and courses on wild birds and waterfowl. Send curriculum vitae, statement of background/interests and 3 references to: **Louis W. Botsford, Department of Wildlife and Fisheries Biology, University of California, Davis, CA 95616**; before 30 June 1994. *The University of California is an Affirmative Action/Equal Opportunity Employer.*

TENURE-TRACK POSITION IN PHYSIOLOGY

The Department of Physiology, West Virginia University, invites applications for a tenure-track faculty position at the **ASSISTANT PROFESSOR** level from candidates with a Ph.D. or M.D. degree and at least 3 years of postdoctoral experience. We are seeking applications from individuals working in the area of Neural Control of Smooth Muscle function at the cellular and molecular level. Special consideration will be given to individuals with expertise in electrophysiology, including patch clamp, measurement of intracellular constituents using chromophores, cloning and molecular characterization of cell proteins. Teaching opportunities include graduate, undergraduate and professional programs in a comprehensive health sciences center including colleges of Medicine, Dentistry, Nursing, Pharmacy and programs in health-related professions. Applicants should send curriculum vitae, a brief statement of research interests, and three letters of recommendation to: **Dr. David L. Kreulen, Van Lier Professor and Chair, Department of Physiology, Box 9229, West Virginia University, Morgantown, WV 26506**. First consideration will be given to completed applications received before June 1, 1994.

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The Division of Cardiology, Medical College of Virginia/Virginia Commonwealth University seeks qualified full-time collateral-track physician scientist at **ASSOCIATE PROFESSOR/PROFESSOR** level with expertise in molecular cardiology. Candidates should be experienced investigators capable of directing a Molecular Cardiology Research Program, and must be Board certified in Internal Medicine and BC/BE in cardiology. Applicants should send curriculum vitae and a summary of research interest to: **Dr. George W. Vetrovec, Chief of Cardiology, P.O. Box 980036, Medical College of Virginia, Richmond, VA 23298-0036**. *Virginia Commonwealth University is an Equal Opportunity/Affirmative Action Employer. Women, minorities and persons with disabilities are encouraged to apply.*

POSITIONS OPEN

ASSISTANT PROFESSOR YALE UNIVERSITY SCHOOL OF MEDICINE

The Section of Neurobiology invites applications for a tenure-track Assistant Professor. In particular, we are seeking an individual with interests in molecular and developmental neurobiology. Expertise in transgenic technology is desirable but not essential. The applicant's interests should fit with existing programs in cellular, developmental, and systems neurobiology in the Section. A strong research record and outstanding promise is important. The successful candidate will be expected to develop an independent, externally funded research program and to participate in teaching medical and graduate students.

Application reviews will begin June 1, 1994, and continue until the position is filled. Candidates should submit curriculum vitae, a brief statement of research interest, selected reprints and the names of three professional references to: **Dr. Pasko Rakic, Chair, Section of Neurobiology, Yale University School of Medicine, 333 Cedar Street, New Haven, CT 06510**. *Yale University is an Affirmative Action/Equal Opportunity Employer.*

RESEARCH ASSISTANT PROFESSOR GASTROINTESTINAL SURGERY

Applicants are invited for a position as Research Assistant Professor in the Division of General Surgery, University of Maryland and the Baltimore Veterans Affairs Medical Center. Candidates are sought with a Ph.D. in cell or molecular biology, completion of one postdoctoral fellowship in a molecular biology laboratory and an interest in gastrointestinal surgical research. Successful applicants will hold a secondary appointment in one of the basic science departments, and be expected to participate in graduate and medical teaching programs as well as to develop and maintain an extramurally funded research program. There are excellent institutional programs in molecular and cell biology that provide opportunities for collaborative research. If interested, send current curriculum vitae, a summary of research interests and three letters of reference to: **Anthony L. Imbembo, M.D., Professor and Chairman, Department of Surgery, University of Maryland, c/o Lois Reisig, 5th Floor—405 West Redwood Street, Baltimore, MD 21201.**

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NATURAL RESOURCES MANAGEMENT:

Grand Valley State University, **ASSISTANT or ASSOCIATE PROFESSOR**, full-time, tenure-track. Responsibilities: teaching courses in conservation, management, and restoration of soil and water resources, and others as qualified. Research involving students encouraged. Salary commensurate with experience and qualifications. Qualifications: Ph.D. in natural resources, forestry, or applied ecology-oriented program with coursework and field experience in the area of natural resources management. Teaching experience and expertise in environmental laws and regulations preferred. Excellent communication skills required. Review of applications begins May 30, 1994, and will continue until the position is filled. Send letter of application, transcripts, statement of teaching philosophy and research interests, curriculum vitae, and three letters of recommendation to: **Dr. Melvin Northup, Chair, Search Committee, Department of Biology, Grand Valley State University, Allendale, MI 49401**. *Equal Employment Opportunity/Affirmative Action/ADA.*

POSITIONS OPEN

NEUROBIOLOGIST ASSISTANT/ASSOCIATE PROFESSOR

The Department of Neurobiology and Anatomy invites applications for a tenure-track faculty position. Applicants should have postdoctoral experience, a strong record of achievement, and an independent research program. The Department is seeking an outstanding individual who is using modern cellular, molecular, or systems approaches in an area of research that complements that of current neuroscience faculty, especially in the area of **developmental neurobiology**. Research interests of the faculty include sensory systems, retinal biology, neurodegeneration, neuronal and synaptic plasticity, neuron-glia interactions, aging, programmed cell death, trophic factors, and axonal growth and projections. Preference will be given to individuals with a demonstrated success in obtaining extramural research support. Although we are seeking an individual who can contribute to the teaching of gross anatomy, those with competence in teaching in other areas within the department will also be considered. The Bowman Gray School of Medicine of Wake Forest University offers a unique opportunity to interact with a broad range of neurobiologists that comprise part of a strong and active interdisciplinary Ph.D. Program in Neuroscience with over 25 graduate students and 60 faculty. Send curriculum vitae, description of research and three letters of recommendation to: **Dr. Ronald W. Oppenheim, Chair of the Search Committee, Department of Neurobiology and Anatomy, Bowman Gray School of Medicine, Wake Forest University, Winston-Salem, NC 27157-1010**. *Equal Opportunity Employer/Affirmative Action.*

ASSISTANT PROFESSOR OF ANATOMY

One tenure-track 12-month faculty position at the Assistant Professor rank. The initial contract is for two years and can begin July 1, 1994. Applicants must have a Ph.D. in Anatomy and a commitment to teaching. The major teaching would be in Gross Anatomy. *The College is an Equal Opportunity/Affirmative Action Employer and actively seek applications from women and minorities.* Applicants should send curriculum vitae and three letters of recommendation to: **Rafi Younoszai, Ph.D., Chair, Search Committee, College of Osteopathic Medicine of the Pacific, 309 East 2nd Street, Pomona, CA 91766-1889.**

UNIVERSITY OF MARYLAND School of Medicine,

Research Molecular Hematology/Oncology

Department of Pathology invites applicants for two positions at the **ASSISTANT or ASSOCIATE PROFESSOR** level in Research Molecular Hematology/Oncology. Applicants should have an academic orientation, and will be required to be active in the Department of Pathology teaching, research and applied programs. Appropriate training and experience in Molecular Biology related to Hematology/Oncology is required.

Please forward curriculum vitae to: **Sanford Stass, M.D., Director, Laboratories of Pathology, c/o Cathy Brown, Department of Pathology, University of Maryland at Baltimore, 10 South Pine Street, Room 700 MSTF, Baltimore, MD 21201**. *The University of Maryland is an Affirmative Action/Equal Employment Opportunity/ADA Employer.*

TECHNICAL PROGRAM MANAGER IOWA STATE UNIVERSITY

The Ames Laboratory, Iowa State University, is seeking a Scientific Technical Program manager to assist with a national applied Research and Development program for characterization and monitoring of contaminated sites and facilities, hazardous and mixed wastes, and waste treatment processes being addressed by the U.S. Department of Energy, Office of Environmental Restoration and Waste Management. Position requires a Ph.D. (or M.S.) in Environmental Science, Environmental Engineering, Chemistry, Physics, or Geochemistry plus at least three years (six years with M.S.) of professional experience within the field of specialization. Candidates with direct experience in environmental science related to characterization, monitoring, and sensor technology are particularly encouraged to apply. Prior experience with regulatory agencies in this area is desirable. Salary: commensurate with experience and education (\$42,658 minimum). Applicants should submit a résumé plus the names and addresses of three references to: **Ames Laboratory Personnel Office, 127 Spedding Hall, Iowa State University, Ames, IA 50011**. *An Equal Opportunity/Affirmative Action Employer.*



PathoGenesis Corporation is dedicated to the discovery, diagnosis and treatment of infectious agents associated with chronic disease. We are currently seeking the following professionals:

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Reporting to the V.P. of Medical and Regulatory Affairs, you will manage all regulatory activities, supervise the regulatory team and ensure timely preparation of organized and scientifically valid submissions. Requires M.S. (Ph.D. preferred) in life/physical sciences and 5 to 9 years experience in research and regulatory affairs; IND, NDA and/or PLA filing experience required (clinical focus preferred). Experience with international corporate partners and regulatory agencies and a background with small molecules strongly desired. Biologic experience useful.

Pharmacokineticist

Requires a Ph.D. in pharmacokinetics and/or drug metabolism with a background in analytical chemistry. Preferred candidates will have experience in the design, supervision, execution and analysis of small animal pharmacokinetic experiments, both enteral and parenteral as well as experience in the ADME evaluation of new chemical entities (NCE). Strong writing and integrative skills plus experience in the design and supervision of outside-contractor conducted large animal studies and the design of drug interaction studies essential. Skill with reverse phase HPLC techniques and Beckman System Gold desired.

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The Anatomic Pathology Division seeks a Research Associate to focus on the development of in vivo models of gastrointestinal and skeletal disease. Some tissue culture work will also be involved. This position requires a BS/MS in Biology or related field, experience with in vivo experimentation (preferably in gastrointestinal or skeletal disease), and the ability to work independently. (Job Code: OA-SC-DL-001)

RESEARCH ASSOCIATE PHARMACOLOGY

The Pharmacokinetics Group seeks an experienced Research Associate to conduct ADME pre-clinical studies and pharmacodynamics studies. A BS/MS in Biology, Pharmacology, or related field is required. The ideal candidate will have experience with in vivo experimentation, preparation of study protocols, and data analysis. Computer skills and the ability to work independently is desired. (Job Code: OA-SC-EC-001)

RESEARCH ASSOCIATE/SCIENTIST LABORATORY AUTOMATION

The Laboratory Automation Department seeks a scientist/engineer with experience in developing and implementing automation in the laboratory environment. Duties include defining automation opportunities, implementing solutions, and evaluating technology with vendors and consultants. Computer programming and verbal/written communication skills are essential. (Job Code: OA-SC-SH-005)

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For information contact: Dr. Larry Thompson (510-422-5658), Dr. Christine Weber (510-423-8155), or Fax (510-422-2282). Interested applicants are invited to send their CVs including references to: Ms. Quincy McClain, Recruiting and Employment Division, Lawrence Livermore National Laboratory, PO Box 5510, L-725, Dept. AJSC5K4QM, Livermore, CA 94551. We are proud to be an Equal Opportunity Employer. M/F/D/V.

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The University of Hawaii at Manoa, a land-, sea-, and space-grant institution with an enrollment of some 20,000 students, is seeking a distinguished scientist to assume the Directorship of its Hawaii Institute of Marine Biology (HIMB). The Institute's permanent staff currently includes nine state-funded research faculty and 16 support staff. In addition, faculty from various UH colleges are affiliated with HIMB, as are three scientists from federal agencies. The number of short-term visiting scientists averages about 40-50 annually.

The Institute's principal facilities and operations are located on a coral reef island in Kaneohe Bay, about 15 miles from the Manoa campus on the island of Oahu. At present, the general research program encompasses basic and applied aspects of tropical marine biology, including areas of emphasis in aquaculture, coastal ecology and management, conservation biology and biodiversity, and marine endocrinology and biotechnology.

Candidates are sought with broad, progressive views of marine biology, with a proven ability to compete for research funds, and with thorough dedication to the Institute's wide range of research, education, and service activities. Appointed by the President of the University and reporting also to the Dean of SOEST, the Director is expected to foster close interaction between HIMB and other parts of SOEST and the University. Applicants must have: a doctoral degree in a relevant field; a distinguished, nationally established reputation in research so as to meet the standards for appointment at full professorial rank; and experience in obtaining programmatic support and in the administration of a research institute or large research program. Collaborative experience with other institutions, including those of other countries, is highly desirable.

The salary will be competitive and commensurate with qualifications and experience, starting at a minimum of \$65,280. Screening will be continuous until the position is filled. First screening will commence June 1, 1994. Nominations and letters of applications, including a resume and the names, addresses, and telephone numbers of at least four professional references, and requests for additional information should be sent to: Chair, Search Committee for Director, HIMB, c/o OVRPGE, Bachman Hall 204, University of Hawaii at Manoa, 2444 Dole Street, Honolulu, Hawaii 96822.

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ASSISTANT PROFESSOR DEPARTMENT OF PHYSIOLOGY EAST TENNESSEE STATE UNIVERSITY JAMES H. QUILLEN COLLEGE OF MEDICINE

Tenure-track position at the Assistant Professor level is to begin July 1994, contingent upon state funds. Applicant must have a doctoral degree with extensive training in physiology and have two or more years of postdoctoral experience. Potential to develop and sustain a fundable, independent research program will be an important selection criteria. Area of expertise is open, but currently the department has six faculty members whose interests represent a wide range of cellular and systems oriented research in the physiological sciences. There are opportunities for collaboration throughout the department and college with research groups interested in cell biology of the vascular wall, neuroscience, membrane transport, electrophysiology, cardiovascular control, and cell and molecular biology. East Tennessee State University, James H. Quillen College of Medicine, provides a growing research community, ample start-up funds, modest teaching loads, and a beautiful physical location. Candidates should submit a letter, curriculum vitae, names of three references, and a brief research prospectus to **Dr. William L. Joyner, Professor and Chair, Department of Physiology, James H. Quillen College of Medicine, East Tennessee State University, P.O. Box 70,576, Johnson City, TN 37614-0576.**

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The University of California at Los Angeles is conducting a search for a Campus Veterinarian. The individual oversees an animal population of 16,000 at seven campus sites encompassing 68,000 square feet of animal space.

The Campus Veterinarian implements a comprehensive system of animal health care and quality control; provides professional support for research and teaching; monitors regulatory compliance of research projects using live animals; maintains an organizational structure to support facilities; manages animal research space; implements procedures and systems for the physical security of animal units; participates in the development, design, and renovation of animal facilities; interacts with the university community, other California research institutions, professional organizations; reviews animal use protocols as a voting member of the Chancellor's Animal Research Committee; directs 40 professional, paraprofessional and administrative employees; provides supervision of the Division of Laboratory Animal Medicine budget. The Campus Veterinarian is accountable to the Vice Chancellor of Research and the Provost of Medical Sciences.

The candidate must be a graduate of an approved school of veterinary medicine, licensed, board certified in laboratory animal medicine and possess a minimum of 5 years experience in research and administration. Salary is open to negotiation.

Applications, including curriculum vitae, should be sent by August 1 to Raymond L. Eden, Veterinarian Search Committee, Dean's Office, UCLA School of Medicine, 10833 Le Conte Avenue, Los Angeles, CA 90024-1722.

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

**RESEARCH SPECIALIST IN
LIFE SCIENCE
FERMENTATION SPECIALIST**

The Department of Microbiology and the Biotechnology Center, University of Illinois at Urbana-Champaign, seeks a qualified individual to operate its pilot-plant fermentation facility.

Applicants should hold a B.S. or M.S. degree in Microbiology, Chemical Engineering or a related area with a strong background in biochemistry. Practical experience with modern fermentation equipment is desirable as well as experience with microcomputers. Practical mechanical and electronic knowledge is also required.

The successful applicants will be responsible for the daily operation and maintenance of the fermentation system as well as assisting department faculty and other users in conducting research dependent on large-scale bacterial cultivation. In addition, the successful applicant together with faculty of the Department will be expected to offer short courses on the operation of the fermentation system to undergraduate and graduate students. Salary is negotiable. Starting date: As soon as possible.

Applicants should send resume, a summary of relevant experience, and arrange to have three letters of reference sent to: Ms. Carolyn Corn, Department of Microbiology, University of Illinois, 131 Burrill Hall, 407 S. Goodwin, Urbana, Illinois 61801 (217) 333-1736.

To receive full consideration, applications should be received by: June 22, 1994. Some interviews may be conducted before June 22, 1994, however, all applications that are received by that date will be given equal consideration.

*The University of Illinois is an Affirmative Action, Equal Opportunity Employer.

The field of pharmaceuticals and health care is more rewarding than ever as new products create a healthier world population. As one of the leaders in this dynamic industry, Pfizer Inc, a Fortune 100 company, is committed to continuing its remarkable growth. As we expand our resources to support drug discovery and development we have a need for:

Diabetes and **O**besity, PhD

We are currently seeking a scientist with a PhD in Biochemistry or related fields. Experience with Molecular Biology techniques and/or with *in vivo* modeling required. Research experience in insulin action, carbohydrate metabolism or mechanisms controlling energy expenditure would be advantageous.

The primary R&D facility for Pfizer is located in a southeastern Connecticut shore community, giving easy access to the well known academic and cultural centers of the Northeast and offers the attractions of a New England lifestyle.

We offer competitive salaries and a flexible benefits package including medical and dental insurance, paid holidays and vacation, educational assistance, savings, investment and pension plans, relocation assistance and more. To learn how you can be a part of the future of Pfizer, send your resume to: **Manager, Employee Resources, Pfizer Inc, Central Research Division, Eastern Point Road, Groton, CT 06340.** Please indicate reference DB001 in correspondence. We are an equal opportunity employer.



Central Research
Bringing science to life.



WASHINGTON UNIVERSITY IN ST. LOUIS

Biology & Biomedical Sciences

*Graduate and postdoctoral training
opportunities in...*

Protein-Nucleic Acid Interactions

Gary Ackers - Thermodynamic and kinetic studies of protein-DNA complexes; repressor-operator interactions; models of gene control.

Peter Burgers - Molecular genetics and biochemistry of DNA replication and DNA repair in *Saccharomyces cerevisiae*.

Sarah Elgin - Chromatin structure/gene expression; euchromatin/heterochromatin structural determinants; chromosomal proteins.

Kathleen Hall - NMR and biochemical studies of RNA and RNA:protein complexes.

Mark Johnston - Transcriptional regulators in yeast.

Robert Kranz - Gene regulation and biogenesis of extracellular components in bacteria.

Bob Landick - Regulation of transcriptional elongation in prokaryotes and eukaryotes.

Tim Lohman - Mechanisms of action of helicases and SSB proteins.

John Majors - Regulation of gene expression in retroviruses.

John Taylor - Repair and replication of photodamaged DNA.

...and others

Please direct inquiries for postdoctoral training to specific faculty members. For graduate school information, please write to: Biology & Biomedical Sciences, Campus Box 8226, 660 S. Euclid Ave., St. Louis, MO 63110-1093; or call 800-852-9074.

FACULTY POSITION IN BACTERIAL PATHOGENESIS

The Department of Microbiology at the University of Hawaii invites applications for a tenure-track, 9-month faculty appointment at the ASSISTANT PROFESSOR level, beginning January 1, 1995. The successful candidate is expected to establish an active research program in the area of microbial virulence and immunopathogenesis. Related research areas in the department include basic pathogenesis, molecular epidemiology and immunology. Teaching duties include participation in the undergraduate and graduate instructional program of the Microbiology Department and responsibility for an upper-division Cell Biology course in the interdisciplinary Biology program. Minimum qualifications: doctorate in Microbiology or closely related field, postdoctoral experience, and peer-reviewed publications. Salary will be commensurate with experience. To apply send curriculum vitae, statement of research and teaching interests, and the names of three references to: Dr. Paul Q. Patek, Chair, Department of Microbiology, University of Hawaii, 2538 The Mall, Honolulu, HI 96822; FAX: 808-956-5339. Closing date: July 15, 1994. The University of Hawaii is an affirmative action, equal opportunity employer.

STAFF SCIENTISTS & POSTDOCTORAL FELLOWS **Membrane Biochemistry, Cell Biology, Organic Chemistry and Drug Delivery**

Inex Pharmaceuticals, an innovative and dynamic biopharmaceutical company, develops systems for the intracellular delivery of large molecules including proteins, oligonucleotides and DNA vectors. The Company is establishing a world-class, multidisciplinary team of scientists - positions are available for recent Ph.D. graduates with research experience in the following areas: organic chemistry, lipid chemistry, membrane biochemistry, liposomology, drug delivery, intracellular membrane trafficking, ligand/receptor biochemistry, immunology, membrane fusion, tumor biology, control of gene expression and molecular biology.

Inex Pharmaceuticals is committed to attracting top candidates for these positions. Salary and benefits packages are most competitive. The opportunity exists for rapid career development associated with an expanding company. In accordance with Canadian immigration requirements, priority will be given to Canadian citizens and permanent residents of Canada. For consideration, please forward your resume to the: **Manager, Human Resources, Inex Pharmaceuticals Corporation, 1779 West 75th Avenue, Vancouver, B.C. CANADA V6P 6P2.**

POSITIONS OPEN

EBERLY CHAIR PROFESSOR AND ASSISTANT PROFESSOR IN STRUCTURAL BIOLOGY CARNEGIE MELLON UNIVERSITY

The Department of Biological Sciences at Carnegie Mellon University is expanding its activities in Structural Biology. We are looking for (1) a senior internationally recognized structural biologist with a vigorous, outstanding research program who will hold the Robert E. Eberly Chair in Structural Biology; and (2) a tenure-track assistant professor for a promising individual who is ready to begin a vigorous, independent research career. In both cases, investigators using multidimensional NMR, X-ray crystallography, and/or computational tools to solve significant problems in structural biology are encouraged to apply. Carnegie Mellon University has existing strengths in NMR and high-speed computational approaches to structural biology. Currently, in addition to the planned growth in structural biology, there is growth in the Departments of Biological Sciences and Chemistry in the areas of cell biology, bio-inorganic, and bio-organic chemistry.

Carnegie Mellon University invites nominations and applications for these two faculty openings. Candidates should send curriculum vitae and a brief description of their research interests. Candidates for the junior position should include names of three references. Reviews of applications will begin on August 1, 1994, and will continue until suitable candidates are recruited. All correspondence should be sent to:

Chair of the Structural Biology Search Committee
Department of Biological Sciences
Carnegie Mellon University
4400 Fifth Avenue
Pittsburgh, PA 15213-2683

Carnegie Mellon University is an Equal Opportunity/Affirmative Action Employer.

DIRECTOR, OFFICE OF THERAPEUTICS RESEARCH AND REVIEW

The Food and Drug Administration is recruiting for the Director, Office of Therapeutics Research and Review in the Center for Biologics Evaluation and Research located in Bethesda, Maryland. The position is in the Senior Executive Service with a salary range of \$96,830 to \$111,839. The Director is responsible for directing a staff of 174 in assuring the safety, purity, potency and effectiveness of biological therapeutic products used in the prevention, diagnosis, treatment and mitigation of disease. Applicants must have: executive-level experience in planning and conducting research and related activities; demonstrated strong leadership and managerial abilities in directing complex, scientific programs; ability to deal effectively with high level government officials, the scientific and academic communities, medical and health-related organizations, representatives of the regulated industry and others; and the ability to implement equal employment opportunity programs. An M.D. degree with board certification or a Ph.D. in a related science with postdoctoral training, recognition as an authority in therapeutic biological products or related disciplines, and knowledge of FDA laws and regulations related to therapeutic biological products is desired.

If you are interested and want to be considered, send curriculum vitae to: **Jim Keady, Office of Human Resources Management, Food and Drug Administration, Parklawn Building, Room 7B-32, 5600 Fishers Lane, Rockville, MD 20857.** If you need more information, call Jim, collect on (301) 443-1755.

This position can also be filled by current Commissioned Officers of the U.S. Public Health Service, or by former officers willing to rejoin the Corps.

Applications will be accepted until July 29, 1994. An Equal Opportunity Employer.

POSTDOCTORAL POSITIONS in molecular pulmonary pharmacology available for recent Ph.D. in pharmacology, physiology or biochemistry. Project related to molecular pharmacology of purine receptors and the involvement of second messenger systems in airway smooth muscle and epithelial cells. Salary NIH level. Experience in related field preferred. Send curriculum vitae and 3 letters of recommendation to: **Dr. S. Jamal Mustafa, Department of Pharmacology, East Carolina University, Greenville, NC 27858.** Federal law requires proper documentation of identity and employability at the time of employment. Affirmative Action/Equal Employment Opportunity.

POSITIONS OPEN

STUDY DIRECTOR IN VITRO TOXICOLOGY

MICROBIOLOGICAL ASSOCIATES (MA) is a leading international provider of toxicological and biotechnology safety testing services. The successful candidate will not only direct *in vitro* ocular and dermal irritation studies for clients from multiple industry segments, but will also be responsible for additional developmental activities. We require a Ph.D. with emphasis in Mammalian Cell Biology or Cellular Toxicology/Pathology and 2 plus years of experience with cell culture and/or cell biochemistry. Excellent communication skills and prior supervisory experience are essential. Experience with the toxicology of consumer products a plus. Forward curriculum vitae and salary requirements to: **Human Resources Department, MICROBIOLOGICAL ASSOCIATES, 9900 Blackwell Road, Rockville, MD 20850; FAX: 301/738-1036.** Equal Opportunity Employer/m/f/d/v.

TECHNICAL SUPPORT COORDINATOR

Genetics Computer Group has an opening on its technical support staff for an individual to handle all aspects of technical support including directly responding to user questions and organizing and maintaining an in-house resource on the latest information. An advanced degree in biology and experience with sequence analysis software is required. VMS or UNIX computer systems experience is also required. The successful candidate should also have good interpersonal skills as s/he will be responsible for all aspects of technical support for the international community of scientists that use the Wisconsin Sequence Analysis Package. Submit curriculum vitae with references to: **Genetics Computer Group, Inc., 575 Science Drive, Madison, WI 53711.** Genetics Computer Group is an Equal Opportunity Employer.

POSTDOCTORAL POSITIONS for work on aging and signal transduction in T lymphocytes, emphasizing calcium regulation and protein kinase pathways. A strong background in cell biology and/or molecular immunology is required. Send curriculum vitae, brief statement of research interests, and names and telephone numbers of three references to: **Richard Miller, University of Michigan, Box 2007, 300 North Ingalls Street, Ann Arbor, MI 48109.** An Equal Opportunity Employer.

POSTDOCTORAL POSITION AT UCLA MOLECULAR ANALYSIS OF STEROGEN SYNTHESIS IN BRAIN

Position available to study molecular aspects of the regulation and expression of genes related to sexual differentiation and steroid action in brain. Collaborative project in laboratories of **A. P. Arnold, A. T. Campagnoni, and B. A. Schlenger.** Please send curriculum vitae and three letters of recommendation to: **Dr. Anthony Campagnoni, Mental Retardation Research Center, UCLA School of Medicine, Los Angeles, CA 90024-1759.**

POSTDOCTORAL POSITION, SEATTLE

Apply by 1 July 1994 for Research Associate position starting 1 August 1994 to study plant **MITOCHONDRIAL GENOME REPLICATION** using pulsed-field gels and DNA Movies. See *Current Genetics* 17:421 (1990), 24:279 (1993), *Protoplasma* 160:121 (1991). Send résumé and 3 reference letters to: **Arnold Bendich, Botany KB-15, University of Washington, Seattle, WA 98195.** The University of Washington is an Equal Opportunity/Affirmative Action Employer.

POSTDOCTORAL POSITION studying the hepatocyte nuclear factor 3/fork head (HFH) transcription factors' expression pattern during mammalian development. This work also entails identification of cell-type-specific target genes regulated by the HFH proteins and characterization of protein domains involved in transcriptional activation. Experience in molecular biology is required. Preference will be given to applicants with knowledge of developmental biology and *in situ* hybridization technique. See *Proc. Nat'l. Acad. Sci.* 90:3948, 1993; *Mol. Cell. Biol.* 14: 2755, 1994. Please send curriculum vitae, names and telephone numbers of three references to: **Dr. Robert Costa, University of Illinois at Chicago, College of Medicine, Department of Biochemistry (M/C 536), 1819 West Polk Street, Chicago, IL 60612-7334.** FAX: 312-413-0364. UIC is an Equal Opportunity/Affirmative Action Employer.

POSITIONS OPEN

YALE UNIVERSITY SCHOOL OF MEDICINE POSTDOCTORAL POSITIONS IN LYME DISEASE PATHOGENESIS

Postdoctoral positions available to work with **Dr. Erol Fikrig** on the molecular and cellular immunobiology of Lyme disease. Preference will be given to applicants with prior experience in molecular biology, microbial pathogenesis or cellular immunology. From July 1, 1994. Send curriculum vitae and three letters of recommendation to: **Erol Fikrig, M.D., Section of Rheumatology, Yale University School of Medicine, 333 Cedar Street, 610 LCI, Box 208031, New Haven, CT 06520-8031.** Yale University is an Equal Opportunity Employer.

POSTDOCTORAL POSITIONS in molecular-cellular biology and drug discovery available immediately. Challenging working environment and competitive salaries. Send curriculum vitae and three references to: **James W. Larrick, M.D., Ph.D., Palo Alto Institute of Molecular Medicine, 2462 Wyandotte Street, Mountain View, CA 94043.** FAX: 415-851-3959. Equal Opportunity Employer.

POSTDOCTORAL POSITION to study biochemical/structural polarization in neurons. Dynamics of MAP's and motor proteins in neurons will be examined using FRAP, image analysis, and immuno-EM of micro-injected neurons. Stimulating environment for postdoctoral training in cell biology and neuroscience. Send letter, curriculum vitae, and the name-address-telephone of 3 references to: **Dr. Douglas Murphy, Department of Cell Biology, Johns Hopkins Medical School, 725 North Wolfe Street, Baltimore, MD 21205.**

POSTDOCTORAL POSITIONS. Anatomical and pharmacological studies of the endogenous pain inhibitory system. Tract tracing and functional studies using herpes virus in models of nerve regeneration and inflammation. Candidates should have a Ph.D. degree. Background in immunocytochemistry, *in situ* hybridization, PCR *in situ*, virus and cell culture. Experience in stereotaxic surgery desirable. **Dr. Luc Jamin, Georgetown University Medical Center, Department of Neurosurgery, 3800 Reservoir Road N.W., Washington, DC 20007.**

POSTDOCTORAL POSITION IN VIRAL ONCOGENESIS. Available immediately to work on etiology of Kaposi's sarcoma. Candidates with prior experience in recombinant DNA techniques, serologic test development, virus isolation and/or molecular epidemiologic/phylogenetic techniques preferred. Send curriculum vitae and three references by FAX or mail to: **Drs. Yuan Chang and Pat Moore, Department of Pathology, P&S 14-515, Columbia University, 630 West 168th Street, New York, NY 10032; Telephone: (212) 305-1669, FAX: (212) 305-5498.** Columbia University is an Equal Opportunity/Affirmative Action Employer.

POSTDOCTORAL POSITION

Postdoctoral student sought to study the molecular basis of bacterial chemoreception or motility. Knowledge of bacterial genetics and physiology, molecular biology, or protein structure and ability to work independently strongly advantageous. Salary according to experience. Contact: **Dr. Michael D. Manson, Department of Biology, Texas A&M University, College Station, TX 77843-3258.** Equal Opportunity Employer/Affirmative Action.

POSTDOCTORAL POSITION

A position is available in the Department of Medicine, Division of Hematology/Oncology at Baylor College of Medicine to study molecular mechanisms of prostate cancer cell motility, metastasis, and drug resistance. The project will require a strong background in molecular biology, tumor biology, and protein methods. Experience in the study of cell structural and contractile proteins is desirable. There will be ample opportunity to collaborate with several world-class basic science and clinical departments at Baylor College of Medicine and Rice University. Send curriculum vitae, 3 references, and a statement of research interests to: **Daniel Epner, M.D., Medical Service (111), VA Medical Center, 2002 Holcombe Boulevard, Houston, TX 77030; Telephone: (713) 794-7070.** Baylor College of Medicine is an Equal Opportunity/Affirmative Action and Equal Access Employer.

SENIOR-FACULTY POSITION
Biomedical Computer Laboratory (BCL)
 Institute for Biomedical Computing (IBC)
WASHINGTON UNIVERSITY
 St. Louis, MO

Applications are invited for a position at BCL, a component of IBC in the Washington University Schools of Medicine and Engineering. BCL's current research emphasizes multiple aspects of quantitative biomedical imaging for which a faculty and research staff of 10 full-time equivalents collaborate with biomedical and engineering scientists both intra- and extramurally. BCL's program includes modeling for image analysis in multiple modalities, PET, optical and electron microscopy, and genome analysis. Emphasis is on the application of advanced computing technologies to problems in biomedical research. Additional information is available by anonymous ftp at [wubcl.wustl.edu](ftp:wubcl.wustl.edu), e-mail to ljt@wubcl.wustl.edu, or from the address given below. Eligible candidates should have a Ph.D., M.D., or equivalent degree; be established in and have served as a principal investigator in a research area relevant to the BCL program; be prepared to participate actively in the matching of BCL technologies and capabilities to the needs of collaborating scientists; be able to work with other senior staff in developing new programmatic directions for BCL; and have administrative experience in the direction of interdisciplinary teams of faculty and staff.

To apply, send curriculum vitae, list of publications, one copy of each of five of the most significant recent publications, a statement of research interests and plans, and arrange to have no less than three letters of reference sent to: Dr. Lewis J. Thomas, Jr., Director, Biomedical Computer Laboratory, Washington University School of Medicine, 700 S. Euclid Ave., St. Louis, MO 63110.

Washington University is an equal-opportunity employer. Women and minorities are encouraged to apply.



affymax

Affymax is a dynamic young company devoted to the rapid discovery of new pharmaceutical products. We have brought together an outstanding interdisciplinary team of biologists, molecular biologists, chemists, engineers and computer scientists and have become recognized as a leader in the development and application of novel approaches to the drug discovery process. Our systems employ combinatorial chemistry libraries and innovative strategies for rapid, automated micro-scale screening against important biological targets.

Affymax is in the process of building a pharmaceutical development team to exploit certain drug discovery leads by advancing candidate compounds through pre-clinical testing and into clinical trials. Currently the company has several openings in the fields of:

PHARMACOLOGY • PHARMACOKINETICS • METABOLISM

The positions are for experienced B.S., M.S. and Ph.D. scientists and involve the study of in vivo activities of our development compounds. All positions involve hands-on laboratory activities, including vivarium operations. Experience in pharmaceutical industry research and development is preferred. While the initial focus of this work is in the area of inflammation, we anticipate pursuing development activities over a diverse range of mechanisms and indications.

Affymax provides an excellent compensation package including a stock option program. We are located in the San Francisco Bay Area, and the available positions will be located in new laboratory facilities in Santa Clara. Please send your resume to: **Rose Sturgess, Affymax Pharmaceuticals, 3410 Central Expressway, Santa Clara, CA 95051. EOE**

affymax



SENIOR MANAGING SCIENTISTS
MICROPROPAGATION OF DATE PALM
CALIFORNIA/SAUDI ARABIA JOINT VENTURE

ESCA GENETICS CORPORATION, a public San Francisco Bay Area biotech company, has formed a joint venture to commercially propagate date palms in Saudi Arabia, using ESCA Genetics' proprietary technology. This exciting, highly profitable enterprise joins state-of-the-art science and technology with a sound business plan. **Two** challenging key positions are **immediately available** for senior scientists experienced in plant tissue culture and micropropagation. The positions will be based in San Carlos, California, and will require stays in Saudi Arabia of approximately six months per year.

Responsibilities will include managing on-site operations of a new state-of-the-art micropropagation facility in Saudi Arabia, training lab personnel in all phases of micropropagation and acclimatization of plants, planning production schedules and attaining production goals, and troubleshooting of equipment.

These openings require an M.S. or Ph.D. in Plant Tissue Culture, Horticulture, Micropropagation, or Plant Physiology and five years' professional experience. Management experience in a commercial tissue culture propagation/greenhouse production operation is highly desirable. (Experience with date palms is **not** required.) Additional requirements include supervisory skills, and the ability to diagnose and troubleshoot problems with plants, lab equipment and operations. Foreign work experience is desirable. **Cultural adaptability and a "can do" attitude are a must. The ability to live in Saudi Arabia and to work effectively as a professional with the scientific and business community in Saudi Arabia, as well as in the U.S., is essential.**

A very attractive compensation package will be offered including competitive base salary, relocation, full benefits, stock option and other incentives. **Qualified candidates should apply immediately by mail or fax.** Please send your resume, letter of application including possible start date if hired, and three references to: C. Eldridge, Human Resources, ESCA Genetics Corporation, 830 Bransten Road, San Carlos, CA 94070; FAX (415) 595-4332. EOE



Pioneer Hi-Bred International, Inc.

Regulatory Affairs Manager

Pioneer Hi-Bred International, Inc. is a leading supplier of agricultural genetics to the world's farmers through improved seeds and microbial inoculants. We require an experienced regulatory professional to play an important role in commercializing exciting new products developed using the modern techniques of biotechnology. The successful candidate will join our Regulatory Affairs group located in a modern research campus close to Des Moines, Iowa.

Responsibilities include determining regulatory requirements necessary for testing and approval of new products, coordinating the collection of scientific data and preparation of applications for review by government agencies. A Ph.D. in a scientific subject, familiarity with applicable EPA and/or FDA regulatory guidelines and at least five years experience in the regulation of food and/or pest control products, including GLP compliance, is required. Working knowledge of at least one European language, other than English, will be an advantage. Salary will be commensurate with education and experience.

Please send a letter of application, your resume and names of references to:

Mary Baker
 Administrative Assistant
 Department of Regulatory Affairs
 Pioneer Hi-Bred International, Inc.
 7300 N.W. 62nd Avenue, Box 129
 Johnston, Iowa 50131, 0129
 Telephone: 515-270-3574
 FAX: 515-270-4212

An equal opportunity employer.



1994 ASBMB Fall Symposia

"GENETIC & BIOCHEMICAL APPROACHES FOR STUDYING CELL DEATH"

October 7-10

Granlibakken, Lake Tahoe, CA

Organized by:

Stanley J. Korsmeyer, *HHMI, Washington Univ.*

Keynote Address:

Shigekazu Nagata, *Osaka Bioscience*

Experimental Models of Cell Death

Herman Stellar, *HHMI, MIT*

Mammalian Cell Death Regulation

Eileen White, *Rutgers Univ.*

Biochemical Mechanisms of Cell Death

Tom Curran, *Roche Inst.*

Cell Death in Development

Martin Raff, *Univ. College of London*

Cell Death in Disease

Tyler Jacks, *MIT*

"MECHANISMS OF REGULATED INTRACELLULAR PROTEIN DEGRADATION"

OCTOBER 14-17

Whistler, British Columbia, Canada

Organized by:

Stuart M. Arfin, *Univ. of California, Irvine*

Ralph A. Bradshaw, *Univ. of California, Irvine*

Keynote Address:

Robert T. Schimke, *Stanford Univ.*

Ubiquitin-Mediated Degradation

Alex Varshavsky, *California Inst. of Technology*

Protein Folding and Denaturation

William Lennarz, *SUNY, Stony Brook*

Protein Processing/Turnover Signals

Stuart M. Arfin, *Univ. of California, Irvine*

Physiological Systems Characterized by

Regulated Turnover

Robert D. Simoni, *Stanford Univ.*

Intracellular Proteolytic Systems

Jennifer Rivett, *Leicester Univ., UK*

"OLIGONUCLEOTIDE SELECTION AND MOLECULAR DIVERSITY"

OCTOBER 28-31

Granlibakken, Lake Tahoe, CA

Organized by:

Jack D. Keene, *Duke Univ. Medical Center*

David Bartel, *Whitehead Inst. for Biomedical Res.*

Keynote Address:

Gerald F. Joyce, *Scripps Res. Inst.*

Jack Szostak, *Massachusetts General Hospital*

Theoretical Aspects of Molecular Diversity

Jack D. Keene, *Duke Univ. Med. Ctr.*

Stuart Kauffman, *Santa Fe Inst.*

Mario Geysen, *Glaxo, Inc.*

Larry Loeb, *Univ. of Washington*

In Vitro Selection of Ribozymes

David Bartel, *Whitehead Inst. for Biomedical Res.*

Functional Ligands from Shape Space

Andrew Ellington, *Indiana Univ.*

In Vitro Selection Using RNA

and DNA Binding Proteins

Olke Uhlenbeck, *Univ. of Colorado*

Future Directions and Uses of *In Vitro* Evolution

Larry Gold, *NexaGen, Inc.*

For information contact:

ASBMB SYMPOSIA OFFICE, ROOM 3206

9650 ROCKVILLE PIKE

BETHESDA, MARYLAND 20814-3998

TEL: 301-530-7010 FAX: 301-530-7014

SPEAKERS WILL BE CHOSEN FROM ABSTRACTS.

ABSTRACT DEADLINE, JULY 12, 1994.

ONTOGEN CORPORATION is a rapidly growing pharmaceutical company with vigorous research programs for the development of small molecule therapeutics. Our research facility is located 30 miles north of San Diego. We currently have openings for highly qualified individuals in biology:

Principal Scientist

This position requires a Ph.D in a biological science, and a postdoctoral appointment with a minimum of 5 years of industrial experience in the *in vitro* and *in vivo* evaluation of small molecules as potential human therapeutics. The qualified candidate will be responsible for leading a research team focused on screening compounds and investigating mechanisms of action.

Research Associate

This position requires a BS/MS in biology or molecular biology and a minimum of 1 year academic or industrial experience. Experience with enzymatic and cellular assays is highly desirable.

Ontogen offers competitive compensation and benefits packages including a stock option plan. Qualified candidates are invited to send resumes to: **Human Resources, Ontogen Corporation, 2325 Camino Vida Roble, Box 0527-SC, Carlsbad, CA 92009.** We are an equal opportunity employer.

Ontogen Corporation

POSTDOCTORAL FELLOWSHIP AQUATIC ECOTOXICOLOGIST

Oklahoma State University, Zoology Dept., Water Quality Research Lab seeks applicants for a postdoctoral position in aquatic ecotoxicology. Applicants should have expertise and interest in an ecological risk based approach to evaluation of water quality. Specifically we are evaluating the effects of oil refinery wastewater discharges, sediment leachates, and leachates from contaminated soils upon aquatic organisms. Applicants with research experience in aquatic ecotoxicology, aquatic ecology, ecological risk assessment, and/or aquatic chemistry will be considered preferentially. Some "hands-on" experience with acute and partial-chronic toxicity test procedures with fathead minnows, daphnids, Microtox® and/or other aquatic organisms is expected. Some experience with chromatographic and atomic absorption analyses of trace contaminants is desirable.

This is a two year position with an August 1, 1994 start date. Applications accepted until the position is filled. Recent graduates that have not received their diplomas yet, may submit a letter from the graduating institution indicating all the requirements for the Ph.D. degree have been completed prior to accepting the appointment.

Submit curriculum vitae, copies of recent publications and/or a summary of research interests, and three letters of recommendation to Dr. S.L. Burks, Oklahoma State University, Zoology Department, Water Quality Research Lab, LSW 427, Stillwater, OK 74078-0459. Oklahoma State University is an Affirmative Action/Equal Opportunity Employer M/F/D/V.

DEPARTMENT OF MOLECULAR BIOLOGY

Faculty Positions

Tenure track and tenured full-time positions are available at the Assistant, Associate and full Professor level in the Department of Molecular Biology, University of Medicine & Dentistry of New Jersey-School of Osteopathic Medicine. Applications are invited from candidates utilizing modern technologies to study issues applicable to the human condition. The Department is especially interested in individuals whose research is in the area of the molecular biology of aging, cancer or virology.

- The successful candidate will be expected to develop an independent, extramurally funded research program and participate in the teaching of Osteopathic Medical students and Graduate students.
- Individuals seeking senior level positions must show track record in research.
- Exceptional salary, start-up and support packages are available to the successful candidates.

Interested individuals should send their curriculum vitae, a statement of research interests, and the names of three individuals willing to write a letter of reference to: **Sal Caradonna, Ph.D., Department of Molecular Biology, UMDNJ-School of Osteopathic Medicine, Two Medical Center Drive, Stratford, New Jersey, 08084.** UMDNJ, NJ's University of the Health Sciences, is an Affirmative Action/Equal Opportunity Employer, M/F/D/V, and a member of the University Health System of New Jersey.



Crystal Formation Scientist

Cygnus Therapeutic Systems has an opening for a Staff Scientist to initiate and develop a collaborative research effort to identify and control drug crystal formation in controlled release delivery systems. Candidates should possess a Ph.D. in Physical Organic, Pharmaceutical or Biophysical Chemistry and a minimum of five years industry or postdoctoral experience. Qualified candidates should have expertise in one or more of the following disciplines: crystal kinetics and properties, thermodynamics, differential scanning calorimetry, molecular modeling, metals/ceramics, drug polymorphism, x-ray diffraction, spectroscopy. Drug delivery experience is desirable but not essential.

Cygnus Therapeutic Systems develops and manufactures advanced drug delivery systems which control the release of drugs over extended periods of time. This rapidly growing business sector improves the efficacy and cost-effectiveness of therapies. We offer competitive salaries and benefits including stock options. Qualified candidates should mail or FAX their resume to:

Michael Patrick
Manager, Human Resources
Department 94-43
CYGNUS THERAPEUTIC SYSTEMS
400 Penobscot Drive
Redwood City, CA 94063
FAX: (415) 599-2503



An EEO Employer

PROGRAM OF EXCELLENCE IN MOLECULAR BIOLOGY OF THE HEART AND LUNG

Special Postdoctoral Positions

The University of Cincinnati Program of Excellence in Molecular Biology of the Heart and Lung, funded by the National Heart, Lung and Blood Institute of NIH, has as a goal the application of molecular genetic approaches to study heart and lung function. Postdoctorals work closely with the sponsor in initial years but are encouraged to develop a research program separate from that of the sponsor and apply for independent funding during the final year.

The Program is open to Ph.D.s or M.D.s with training in molecular genetics who wish to apply their skills to significant problems of heart or lung or to individuals with strong backgrounds in heart and lung who wish to develop molecular genetic tools for continued study of these problems. We are particularly interested in recruiting minorities to the Program. Stipends begin at \$30,000 per year with benefits. The faculty and their interests are described below.

Jerry B Lingrel

Na,K-ATPase gene regulation and structure-function studies including identification of the cardiac glycoside binding site using site specific mutagenesis

Jeffrey Whitsett

Characterization of lung surfactant proteins and genes

Winston Kao

Collagen gene expression in the heart and lung

Gary Shull

Structure-function relationships and genetic regulation of ion-transport proteins of heart and lung

Jeffrey Robbins

Targeted modification of the cardiac contractile proteins and growth and developmental control of cardiac muscle

Steven Potter

Manipulating genes important in heart and lung development by insertional mutagenesis and targeted modification in ES cells

Arnold Schwartz

Molecular structure, function and regulation of ion channel proteins (heart, brain, vascular smooth muscle) and gene regulation; molecular identification of receptors for calcium antagonists

Judith Harmony

Role of apolipoproteins in heart and lung development and in resistance to disease

Thomas Doetschman

Role of growth and differentiation factors in the development and function of heart and lung using targeted gene modification in the mouse

Anil Menon

The genetics of human cardiovascular disease

Stephen Liggett

Molecular biology and pharmacology of adrenergic receptors

Applicants should submit a C.V. and the names of three references to Jerry B Lingrel, Ph.D., Director, Program of Excellence in Molecular Biology, Department of Molecular Genetics, Biochemistry and Microbiology, University of Cincinnati College of Medicine, Cincinnati, Ohio 45267-0524.

Affirmative Action/Equal Opportunity Employer

POSITIONS OPEN

POSTDOCTORAL POSITION

Available June 1, 1994, at Dana-Farber Cancer Institute. Project involves investigating the interaction of retroviruses with cells and host organisms, especially the effect of primate immunosuppressive lentiviruses on the developing immune system. Predoctoral experience in virology and/or immunology essential. Send curriculum vitae and names of 3 references to: **Attention: Dr. Ruth M. Ruprecht, Chief, Laboratory of Viral Pathogenesis, Dana-Farber Cancer Institute, 44 Binney Street, Boston, MA 02115.** Dana-Farber Cancer Institute is an affiliate of Harvard Medical School; Affirmative Action/Equal Opportunity Employer.

POSTDOCTORAL POSITION available June/July 1994 for study of the regulation of expression of human PRPP synthetase genes. Projects will focus on the structure and activity of promoter regions and on cis- and trans-acting elements influencing transcription of this gene family. Experience in recombinant DNA techniques and protein biochemistry is desirable. Send curriculum vitae and two letters of reference to: **Dr. Michael Becker, MC0930, The University of Chicago Medical Center, 5841 South Maryland Avenue, Chicago, IL 60637.** FAX: 312/702-3467. Affirmative Action/Equal Opportunity Employer.

POSTDOCTORAL POSITION MOLECULAR POPULATION GENETICS

Available July 1994 or January 1995 to develop and utilize new laboratory approaches to generate molecular markers in the study of ecological or evolutionary genetics. Preference will be given to candidates who combine exceptionally strong laboratory skills in molecular genetics (e.g., nuances of PCR, micro-satellites, DNA fingerprinting, RFLP analyses) with interests in ecology, evolution, or population genetics. Send curriculum vitae, a brief statement of research interests, selected reprints, and three letters of recommendation to: **Dr. John C. Avise, Postdoctoral Position, Department of Genetics, University of Georgia, Athens, GA 30602-7223.** Applications will be considered as received, but the final application deadline is November 15, 1994.

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

POSTDOCTORAL POSITIONS: Position available to study vascular smooth muscle cell growth regulation in *in vitro* and *in vivo* models. Second position available to study leukocyte/osteoclast differentiation and activation, and involvement of reactive oxygen in inflammation and bone resorption. Knowledge of cellular/molecular techniques required. Please send curriculum vitae and 3 references to: **Dr. Morris J. Karnovsky, Department of Pathology, Harvard Medical School, 200 Longwood Avenue, Boston, MA 02115.**

POSTDOCTORAL POSITION beginning summer/fall 1994 to study the role of parathyroid hormone-related peptide (PTHrP) in development and cancer. Current interests include breast, bone, CNS and skin development and regulation of PTHrP gene expression by tumor suppressor genes in models of multistage transformation. Ph.D. with experience in cellular, molecular and/or developmental biology required, and U.S. citizenship or permanent residency preferred. Send curriculum vitae, statement of research interests and names of three references to: **Arthur E. Broadus, M.D., Ph.D., Endocrine Section, Department of Medicine, Yale University, 333 Cedar Street, New Haven, CT 06520-8020.** FAX: 203-785-6015. Equal Opportunity Employer.

POSTDOCTORAL POSITION available to study the structure, modification, and regulation of noncollagenous bone proteins and their function in bone formation and metabolism. Proteins to be studied include the vitamin K-dependent matrix Gla protein and bone Gla protein. Send résumé and 3 references to: **Dr. Paul Price, Department of Biology, University of California, San Diego, La Jolla, CA 92093-0322.** FAX: 619-534-1492.

SCIENCE welcomes placement of line classified ads by Internet Mail. Please include name and telephone number for our confirmation call when transmitting ad to:

Internet E-Mail: Science_classifieds@aaas.org

POSITIONS OPEN

POSTDOCTORAL POSITIONS are available immediately at the Southern Alberta Cancer Research Centre for **MOLECULAR BIOLOGISTS** interested in studying signal transduction mechanisms in yeast or mammalian cells, with emphasis on Ras signalling pathways. Send curriculum vitae with letters of recommendation or names and telephone numbers of references to: **Dr. Dallen Young, Southern Alberta Cancer Research Centre, University of Calgary Health Sciences Centre, Calgary, Alberta, CANADA T2N 4N1.** FAX: 403-283-8727.

POSTDOCTORAL POSITION

Woods Hole Research Center seeks scientist for research/education program in rural development in Brazilian Amazon, dealing with communities of forest residents and sustainable development.

Required: Ph.D. in tropical resource management, rural economics, or related, minimum 3 years of experience in Third World region, fluent Portuguese. Live in Brazilian Amazon 10 months of year.

Deadline: June 3, 1994. Salary on experience. Send letter, résumé, list of publications, list of 3 references to: **Amazon Search, Woods Hole Research Center, Box 296, Woods Hole, MA 02543.** We acknowledge. Smoke-free. Equal Opportunity Employer.

POSTDOCTORAL POSITIONS

Three positions are available for: (i) computational studies of protein-metal ion interactions; (ii) analytical studies of site-specific binding thermodynamics; (iii) site-directed mutagenesis studies of thrombin. Send curriculum vitae and 3 letters of reference to: **Dr. Enrico Di Cera, Department of Biochemistry and Molecular Biophysics, Washington University School of Medicine, Box 8231, St. Louis, MO 63110.** An Equal Opportunity Employer.

POSTDOCTORAL POSITION—Lyme Disease: Project to study immunological aspects of the disease and to develop an assay for disease activity. Competence in basic immunologic techniques including immunoblotting, immune complex determinations and column chromatography required. Send curriculum vitae to: **Eileen Hilton, M.D., Long Island Jewish Medical Center, 270-05 76th Avenue, Room FP333, New Hyde Park, NY 11042.** LJ is the Long Island Campus for the Albert Einstein College of Medicine. An Equal Opportunity Employer.

POSTDOCTORAL POSITIONS

Immediately available (1) to conduct research on molecular marker analysis of cereal crops (2) to participate in genetic and physical mapping of the soybean mosaic virus resistance gene, and (3) to use molecular markers in population and evolutionary genetic studies in barley. Please send résumé to: **M. A. Saghai Maroof, Department of Crop and Soil Environmental Sciences, Virginia Polytechnic Institute and State University, Blacksburg, VA 24061.** FAX: 703/231-3431. An Equal Opportunity/Affirmative Action Employer.

POSTDOCTORAL FELLOWSHIP

Fellowships are available, supported by an Institutional National Research Service Award (NIH), in the area of Lipid/Lipoprotein Metabolism and Cardiovascular Disease. Research topics include regulation of hepatic production and secretion of lipoproteins; hormonal regulation of lipoprotein gene expression and apoB mRNA editing; regulation of fatty acid oxidation and carnitine palmitoyltransferase; regulation of cholesterol synthesis; phosphoinositides and calcium in trans-membrane signalling; signalling mechanisms in the cardiac actions of epidermal growth factor; metabolic aspects of lipid absorption; autonomic mechanisms and vasoactive peptides in arachidonic acid and prostaglandin metabolism; regulation of lipoprotein-lipase; mechanisms of reverse cholesterol transport; and regulation of lipolysis in adipocytes. First year stipend minimum is \$21,000. Applicants must be U.S. citizens or permanent residents. Please send curriculum vitae and names of three references to: **Murray Heimberg, Ph.D., M.D., The University of Tennessee, Memphis, The Health Science Center, Memphis, TN 38163.** Women and minorities are encouraged to apply. The University of Tennessee, Memphis is an Equal Employment Opportunity/Title IX/Section 504/Affirmative Action Employer.

POSITIONS OPEN

HORN POINT POSTDOCTORAL FELLOW

The Horn Point Environmental Laboratory (HPEL) of the University of Maryland Center for Environmental and Estuarine Studies invites applications for a Postdoctoral Fellowship. Deadline 1 August 1994. This is a two-year appointment starting on or about October 1, 1994. The successful candidate will be expected to conduct research in collaboration with a member(s) of the HPEL faculty. General areas of research include coastal oceanography, estuarine ecology, plankton dynamics, invertebrate ecology, geochemistry, algal physiology, aquaculture, and seafood science. Applications, including a letter outlining research interests and directions, a résumé, and a list of four references, should be sent to: **Chairman, Postdoctoral Fellowship Committee, HPEL, P.O. Box 775, Cambridge, MD 21613.** UMS is an Affirmative Action/Equal Opportunity Employer.

POSTDOCTORAL FELLOW IN NEUROSCIENCE

Postdoctoral positions are available to study transcriptional regulation of neuronal differentiation and the cellular and molecular mechanisms of growth cone function. Candidates should have a Ph.D., M.D. or equivalent degree and experience in cellular biology, molecular genetics or amphibian development. Please submit curriculum vitae, list of publications and two letters of recommendation to: **Dr. M. X. Zuber, Program of Neuronal Growth and Development, Department of Biochemistry and Molecular Biology, Colorado State University, Ft. Collins, CO 80523.** The Program of Neuronal Growth and Development at CSU brings together an interactive group of internationally renowned scientists in a beautiful environment by the Rocky Mountains. An Equal Opportunity/Affirmative Action Employer. Equal Opportunity Office—21 Spruce Hall.

RESEARCH FELLOWSHIP—The Mount Sinai Medical Center of New York. A position is available in a collaborative program with Pilgrim Psychiatric Center in Basic Neurobiology and Clinical Treatment of Schizophrenia. Board certification/eligibility and NYS M.D. licensure required; faculty appointment and salary commensurate with credentials and experience. Send curriculum vitae to: **Robert L. Trestman, M.D., Ph.D., Director of Research Fellowship Training, Department of Psychiatry, Box 1230, Mount Sinai School of Medicine, One Gustave L. Levy Place, New York, NY 10029-6574.** An Equal Opportunity Employer.

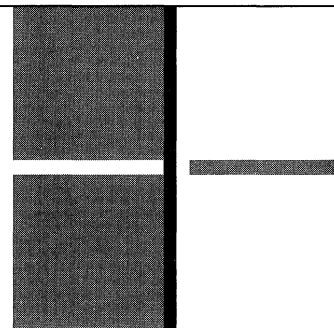
FELLOWSHIPS IN REPRODUCTIVE BIOLOGY NORTHWESTERN UNIVERSITY

Postdoctoral and predoctoral fellowships are available in reproductive biology for highly qualified applicants. A diverse but integrated program offers research training in molecular, biochemical, cellular, physiological and behavioral aspects of reproduction. Participating faculty include: **James Bartles** (Sperm surface polarity); **Erwin Goldberg** (Molecular biology of the testis); **Mary Hunzicker-Dunn** (Ovarian signal transduction); **J. Larry Jameson** (Hormonal regulation of gene expression); **Jon Levine** (Neuroendocrinology of peptidergic neurons); **Daniel Linzer** (Molecular endocrinology); **Kelly Mayo** (Gene regulation in reproductive systems); **Neena Schwartz** (Gonadal-pituitary endocrinology); and **Fred Turek** (Seasonal Cycles/Circadian Clocks). Send curriculum vitae and names of three references to: **Dr. Jon E. Levine, Department of Neurobiology and Physiology, Northwestern University, 2153 North Campus Drive, Evanston, IL 60208-3520.** Applicants must be eligible for N.I.H. training support (U.S. citizen or permanent resident). An Equal Opportunity Employer.

POSTDOCTORAL FELLOWSHIP available immediately to work with a research group directed by **Dr. Donald Gilden** using cDNA expression libraries to study neurologic disease. Candidate should be experienced in cloning, expression, and transcript analysis. Sequencing experience desirable, but not required. Candidate must be eligible for NIH-funded training. Submit curriculum vitae and letters of reference to: **Dr. Donald Gilden, Professor and Chair, Department of Neurology, University of Colorado School of Medicine, 4200 East 9th Avenue, Denver, CO 80262.** The University of Colorado is committed to Equal Opportunity and Affirmative Action.

Helmut Horten Foundation

Madonna del Piano, May 1994



Nominations for the Helmut Horten Research Award 1995

The Helmut Horten Research Award will be presented on September 29, 1995, in Lugano.

The Helmut Horten Foundation will award a scientist, or a group of scientists working on a common project, the Helmut Horten Research Award which totals one million Swiss francs (approximately US\$ 700.000.-). This amount includes a sum to be given to the laureate for his discretionary use and funds to support his research in the field of basic, clinical or applied sciences. The Award will be granted every other year on a worldwide basis.

The Award honours achievements and encourages research in the fields of medicine and biology to benefit human health. Such achievements could include seminal scientific contributions to the basic biomedical sciences, epidemiology, parasitology or to disease eradication efforts.

The Award winner will be selected by a committee of internationally prominent scientists.

Readers are invited to assist in nominating candidates for the Helmut Horten Research Award.

Please note:

1. Nominees should be proposed by scientists, physicians or institutions having detailed knowledge of the candidate's research.
2. Nominations submitted by candidates themselves cannot be considered.
3. Nominations must be made on the official form. For additional information please contact:
The Secretary of the Selection Committee
Helmut Horten Foundation
CH-6995 Madonna del Piano
Switzerland
4. Nominations must be sent by September 2, 1994.

At Genetics Institute, we provide a work environment which many have described as challenging and dynamic, while friendly and informal. We attract top people and provide them with challenging projects and the kind of supportive culture that keeps them here.

PRE-CLINICAL RESEARCH AND DEVELOPMENT

Research Staff (2 positions) This Scientist will be responsible for establishing a program to characterize novel therapeutic proteins both *in vitro* and *in vivo*. The primary focus will be to employ gene expression techniques in animal models to assess their therapeutic potential. *In vivo* gene expression experience is required, with a preference for candidates that have used Adenovirus or liposome transfection expression approaches. Requirements include a PhD in Cellular Biology or a related biological discipline. Candidates should have 3 or more years' experience in a biomedical research environment, be capable of independent research, and have experience in scientific presentations and publications. **Job Code: 94-C576-S**

A second position exists in this group for a BS/MS candidate with 5 years' related experience. **Job Code: 94-C570-S**

CELLULAR IMMUNOLOGY/ CYTOKINE DISCOVERY GROUP

Several positions are available in our cytokine discovery group. The individuals must be highly motivated and have an interest in pursuing novel cytokines using cellular immunological assays, including T cell activation, proliferation, lymphokine production and cytolytic activity. We have openings for:

PhD Staff Scientist (1) With 3-5 years of postdoctoral experience in T cell function studies, as well as in the establishment and maintenance of T cell clones. Experience in molecular biology a plus. **Job Code: 94-C506-S**

PhD Staff Scientist (1) With 3-5 years of postdoctoral experience in immunology and molecular biology with a strong interest in cytokines and cytokine receptor signalling. **Job Code: 94-C503-S**

BS/MS Associate Scientists (2) Openings are available for Associate Scientists who possess the skill sets mentioned above for the Staff Scientists. **Job Code: 94-C507-S/94-C598-S**

BONE AND CONNECTIVE TISSUE

Research Staff This individual will be in charge of in-house animal models of musculoskeletal diseases, running existing animal models, participating in analysis of results, and developing new models to test agents by Discovery Research. Knowledge of animal physiology and anatomy; animal experience; molecularbiology and biochemistry experience; and excellent management/organizational skills are required. An understanding of scientific experimental design needed; surgery experience desired, but not required. Previous experience with models of cartilage repair and osteoarthritis is a plus. DVM or PhD preferred. **Job code: 94-C508-S**

POSTDOCTORAL FELLOW

Microbial Fermentation This research effort involves the development of fermentation processes that maximize the cellular and volumetric productivity of bacteria capable of producing proteins of pharmaceutical interest. An opportunity exists for a microbial physiologist who utilizes knowledge of regulation of energy-yielding pathways, protein chemistry and molecular genetics to enhance the production of recombinant proteins in *Escherichia coli*. Demonstrated proficiency in modern molecular biology is essential. **Job code: 94-A026-S**

For consideration, please send resume, specifying corresponding Job Code, to: Human Resources Department, Genetics Institute, Inc., 87 CambridgePark Drive, Cambridge, MA 02140. Genetics Institute is dedicated to building strength through diversity.

GENETICS INSTITUTE®

Harnessing the Body's Power to Heal™

**ImmunoGen's
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Power To
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ImmunoGen gives you the power to succeed, the flexibility to grow intellectually and the incentive to impact the quality of human life. Through the free exchange of ideas, a long-standing commitment to creativity and an investment in state-of-the-art technology, ImmunoGen develops some of today's most innovative therapeutics in the treatment of cancer and immune-mediated diseases. By joining our supportive team, you will not only gain access to our many resources, but you will also find the power to pursue science that makes a difference.

RESEARCH SCIENTIST - CELL BIOLOGY

We are seeking an experienced scientist for our research program in apoptosis (programmed cell death) and are seeking a creative individual with a strong research background. The successful candidate must have a Ph.D. in Cell Biology, Biochemistry, or a related discipline. Experience in molecular biology would be an asset. Qualified candidates should enjoy the challenge of pursuing exciting new areas of research that may lead to new therapeutics.

ImmunoGen offers excellent salaries and benefits including stock options. For immediate consideration, please send your resume to: Jack Knox, ImmunoGen, Inc., 128 Sidney Street, Cambridge, MA 02139. We are an equal opportunity employer.

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Faculty Position Biology Glendale Community College

Entry level salary range: \$31,944 - \$54,848

Posting # 93940644 Closes: 5:00 p.m. on 6/21/94

Ability to teach General Biology to majors and nonmajors and Human Anatomy and Physiology at the 200 level. Ability to teach Microbiology at the 200 level is helpful. Demonstrated use and/or development of technology in the classroom is preferred. Ability to teach afternoons, evenings and/or weekends. Americans with Disabilities Act Essential Functions for advertised openings are available, upon request, in the District Employment Office.

The required Faculty Application form and a complete set of unofficial copies of transcripts which show degree(s) conferred MUST BE RECEIVED BY THE DISTRICT EMPLOYMENT OFFICE and clocked in by 5:00 p.m. on June 21, 1994. A detailed resume is highly recommended but WILL NOT be considered in lieu of the required application form. Minimum academic requirements and required application forms are available from:

**MARICOPA COMMUNITY COLLEGES
Employment Office
Mon-Thurs, 10:00 a.m. - 5:00 p.m.
Phone: (602) 731-8465**



AA/EOE
Women and minorities are encouraged to apply.



STOCKHOLM UNIVERSITY

Stockholm University invites applications for the position as

Full Professor of Inorganic Chemistry with emphasis on Solid State Chemistry

after the retirement of the present holder, Lars Kihlberg. The position is located within the Department of Inorganic, Physical and Structural Chemistry in the Arrhenius Laboratory. It involves responsibility for the whole field of inorganic chemistry at the undergraduate level while the research and graduate study program should be devoted to solid state chemistry.

Stockholm University is the major university in the capital of Sweden. The city of Stockholm has 1.5 million inhabitants, suburban areas included, and is a major cultural and scientific centre. It enjoys a unique location on the edge of an archipelago of over ten thousand islands.

Applications should be received by 10 June, 1994, at the Registrar, Stockholm University, S-10691 STOCKHOLM, Sweden. Please quote the reference number 611-0946/94.

The following items should be included (all in four copies): 1. Curriculum vitae, including a list of scientific publications; 2. Brief description of scientific achievements as well as teaching and administrative experience, with indications of the most important points (5-10) pages; 3. Copies of certificates and other documents to be considered; 4. All scientific publications (numbered as in the bibliography). Item 1 should reach the University by 10 June, 1994. Items 2-3 and one copy of item 4 should be received by 1 July, 1994. The three additional copies of item 4 are to be sent at a later date directly to the expert members of the search committee.

Informal inquiries can be made to the Dean of the Chemistry Faculty, professor Jozef Kowalewski, phone: +46-8-162376, fax: +46-8-152187, e-mail: JK@PHYSC.SU.SE.

AUSTRALIA PRIZE

The Australia Prize is an international award given by the Australian Government for outstanding achievement in a selected area of science and technology promoting human welfare. The Prize is \$300,000 together with an inscribed medal.

The winner of the 1994 Australia Prize in the field of Sustainable Land Management is Professor Gene E Likens. Professor Likens is the Director of the Institute of Ecosystem Studies at Millbrook, New York.

His groundbreaking work over the past 30 years promoted an holistic understanding of ecosystems and helped lay the foundations of modern ecological science.



Department of

INDUSTRY,

SCIENCE



TECHNOLOGY



Professor Gene E Likens,
the 1994 Australia Prize
winner

The 1995 Australia Prize will be awarded in the field of Remote Sensing. This area of science involves the use of sophisticated airborne or satellite equipment to monitor the earth's characteristics and resources.

Nominations for the 1995 Prize are now being accepted and will close on 31 July 1994. Conditions of award and nomination information can be obtained from:

AUSTRALIA PRIZE SECRETARIAT

GPO BOX 9839, CANBERRA ACT 2601 AUSTRALIA

Phone 61 6 276 2463, Fax 61 6 276 2188

WORLD HEALTH ORGANIZATION

INTERNATIONAL AGENCY FOR RESEARCH ON CANCER



IARC has an opening in its laboratories in Lyons, France for a scientist with a strong internationally competitive research programme in

Molecular Carcinogenesis

The successful applicant should have a degree in veterinary medicine, as well as extensive experience in laboratory animal studies, particularly in the field of experimental tumour induction and molecular pathology. Technical expertise should include the assessment of gene expression and the identification of mutations in transformation-associated genes in histological samples. Experience with the generation and genetic typing of transgenic mice would be an asset.

The incumbent will be expected to head a research Unit, focusing on molecular tumour pathology and to attract external research funds. Responsibilities will include the supervision of the Agency's experimental animal facilities and of the histopathology laboratory. He/she will have to interact with other IARC scientific Unites and with outside colleagues. Previous experience in collaboration at an international level would be highly desirable.

The initial appointment will be for two years, the first being probationary, and is renewable.

The salary level is US\$43,618 p.a. plus a cost of living element which is currently US\$17,971 p.a. for a staff member without dependants, and US\$46,901 p.a. plus a cost of living element of US\$19,323 for a staff member with dependants. Salaries are tax free.

Those interested should write, enclosing a curriculum vitae, to:

Personnel Office
IARC
150, Cours Albert Thomas
69372 Lyon cedex 08, France
Fax No.: (33) 72.73.85.75

Applications from women are encouraged

The Queen's University of Belfast

LECTURESHIPS

School of Biology and Biochemistry

Two lectureships are tenable from 1 June 1994 or such other date(s) as may be agreed, to contribute to undergraduate and postgraduate teaching at various levels, including school-based courses in the Institute of Continuing Education and to supervise BSc honours, MSc and PhD research projects. The lecturers will be expected to maintain active research programmes supported by external funding and to develop collaborative research links where appropriate.

MARINE BIOLOGY

Applicants must have an appropriate primary degree, a PhD or equivalent in a biological subject with a strong research record in marine biology, preferably in marine ecology. The appointee will be expected to contribute to a broad range of marine, environmental and organismic courses and to assist with residential field courses during the Easter vacation and in September for which appropriate experience is essential.

BIOCHEMISTRY/MOLECULAR BIOLOGY

Applicants must have an appropriate primary degree, a PhD or equivalent in a biological/chemical subject and have a strong independent research record related or complementary to one of the main areas of interest in the school. At present these include molecular aspects of RNA viruses, DNA photochemistry, peptide hormones and proteases, breast and ovarian cancer, immunodiagnosics, microbial physiology and biotransformations, molecular parasitology and plant science.

Salary scale: Lecturer Grade A: £13,602 - £18,855 (minimum at age 27: £15,186) with eligibility for USS. Assistance with relocation as appropriate.

Informal enquiries of an academic nature may be directed to Professor S.J. Martin, Director, School of Biology and Biochemistry, telephone (0232) 335786.

Further particulars are available from the Personnel Officer, The Personnel Department, The Queen's University of Belfast, BT7 1NN (telephone (0232) 245133 ext. 3044/3246 or FAX (0232) 324944/310629). Closing date: 10 June 1994.

Committed to an Equal Opportunities policy and selection on merit, the University welcomes applications from all sections of the community. Under its affirmative action programme it particularly welcomes applications from women for academic posts. It reserves the right to interview only those applicants who appear, from the information available, to be the most suitable in terms of experience, qualifications and other requirements of the post advertised.

POSITIONS OPEN

POSTDOCTORAL FELLOWSHIPS IN PLANT SIGNAL TRANSDUCTION

Waksman Institute, Rutgers University

A postdoctoral research position is available immediately to study, at the biochemical, molecular and genetic levels, signal transduction during induction of disease resistance to viral infections of tobacco and *Arabidopsis*. Particular emphasis is being placed on defining the salicylic acid signal transduction pathway(s) (*Plant Cell* 4:359, 1992; *Plant J.* 2:643, 1992; *Plant J.* 4:593, 1993) and characterization of the salicylic acid receptor (*PNAS* 90:9533, 1993; *Science*, 262:1883, 1993).

Applicants should have research experience in protein purification/enzymology or genetics. Send curriculum vitae and a cover letter detailing experience and have sent three letters of recommendation to: **Dr. Daniel Klessig, Waksman Institute, Rutgers University, P.O. Box 759, Piscataway, NJ 08855.**

Rutgers University is an Equal Opportunity/Affirmative Action Employer.

POSTDOCTORAL FELLOWSHIP available immediately to investigate the effects of alcohol on hepatocyte pathology, fibrogenesis, and liver-specific gene regulation. Applicants should have an M.D. or Ph.D. degree, and be citizens or permanent residents of the United States. Please send curriculum vitae and the names and telephone numbers of three references to: **Dr. Esteban Mezey, Professor of Medicine, 921 Ross Research Building, The Johns Hopkins University School of Medicine, 720 Rutland Avenue, Baltimore, MD 21205.**

POSTDOCTORAL FELLOWSHIP

Position available for an M.D. or Ph.D. to study the pathogenesis of virus-induced demyelination as a model of multiple sclerosis. Research projects involve investigations of the immunopathogenesis of Theiler's virus infection and the role of Class I and Class II-MHC-restricted immune responses. Related studies utilize the generation of transgenic mice. A good background in immunology, virology or molecular biology is desirable. Send curriculum vitae to: **Moses Rodriguez, M.D., Department of Immunology, Mayo Clinic, Guggenheim 4th Floor, Rochester, MN 55905.** *Mayo Foundation is an Affirmative Action and Equal Opportunity Educator and Employer.*

POSTDOCTORAL FELLOWSHIP

Position available for an M.D. or Ph.D. to study promotion of remyelination in the central nervous system. Research projects involve investigations of the immunopathogenesis of virus-induced demyelination as a model for multiple sclerosis. Related studies utilize the characterization of monoclonal antibodies that promote remyelination. A good background in glial biology, immunology, or molecular biology is desired. Send curriculum vitae to: **Moses Rodriguez, M.D., Department of Immunology, Mayo Clinic, Guggenheim 4th Floor, Rochester, MN 55905.** *Mayo Foundation is an Affirmative Action and Equal Opportunity Educator and Employer.*

POSTDOCTORAL FELLOWSHIPS, molecular genetics and expression of human genes related to lysosomal and skeletal disorders. Studies include site-directed mutagenesis, developmental gene expression of lysosomal and collagen/extracellular matrix genes. Strong background in gene transfer, molecular biologic techniques, protein biochemistry and/or bone cell biology. Send curriculum vitae and three references to: **Gregory A. Grabowski, M.D., Director, Division of Human Genetics, Children's Hospital Research Foundation, 3333 Burnet Avenue, Cincinnati, OH 45229.**

POSTDOCTORAL/ASSOCIATE RESEARCH SCIENTIST

Position available to study molecular aspects of radioresistance and radiation-induced changes in cell cycle progression in yeast and mammalian systems. Candidate should have a Ph.D. in molecular biology or a related field. Experience with recombinant DNA and yeast preferred but not essential. Send curriculum vitae and names of three references to: **Dr. Howard B. Lieberman, Center for Radiation Research, Columbia University College of Physiology and Surgery, 630 West 168 Street, New York, NY 10032.** *We are an Equal Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

The Molecular Hematology Section of the Department of Hematology at the University of Texas M. D. Anderson Cancer Center is offering a **POSTDOCTORAL FELLOWSHIP** in genetic therapy of human disease using retroviral mediated genetic modification of marrow cells and bone marrow transplantation for the therapy of single gene and multiple gene defects. The fellowship is for three years and will involve vector construction, design of vector transcription units, animal models for *in vivo* selection of genetically modified cells, and evaluation of the phenotype of genetically modified cells. Please write to: **Albert Deisseroth, M.D., Ph.D. at 1515 Holcombe Boulevard, Box 24, Houston, TX 77030.** FAX: (713) 794-4902; Telephone: (713) 792-8750.

POSTDOCTORAL RESEARCH ASSOCIATE

The Department of Pharmacognosy at the University of Mississippi is seeking a Postdoctoral Research Associate. Primary responsibilities include investigation of the mechanisms of action of new antifungal compounds, and the development of new *in vitro* biological assays to detect novel antifungal agents. Qualifications include: Ph.D. in Biochemistry, Molecular/Cellular Biology, Microbiology or other related discipline and experience in enzyme purification and characterization, subcellular fractionation techniques, and microbiological techniques. Experience in determination of mechanism of action of antimicrobial agents and bioaffinity chromatography is strongly preferred. Salary is competitive and based on qualifications and experience. Application deadline: June 1, 1994, or until filled. Start date will be July 1, 1994. Candidates should send curriculum vitae, representative reprints, as well as the names, addresses, and telephone numbers of three references to: **Administrative Manager, School of Pharmacy Business Office, 206W Faser Hall, University of Mississippi, University, MS 38677.** *The University of Mississippi is an Affirmative Action/Equal Opportunity/Americans with Disabilities Act Employer.*

POSTDOCTORAL/RESEARCH ASSOCIATE

We seek an outstanding individual to participate in research projects aimed at elucidating the molecular mechanisms involved in the development and progression of human prostate malignancy. Specific areas of research include identification of tumor suppressor loci, the regulation of Y chromosome encoded genes, and defining the gene expression events associated with prostate cancer progression. Qualified candidates should have a Ph.D. with experience in molecular biology or human molecular genetics. An interest in human prostate cancer and human cancer genetics is essential. Salary is commensurate with level of experience. Interested candidates should send curriculum vitae and statement of research interests to: **James V. Tricoli, Ph.D., c/o M. Sharp, Human Resources Department, Fox Chase Cancer Center, 7701 Burholme Avenue, Philadelphia, PA 19111.** *Equal Opportunity Employer.*

POSTDOCTORAL/RESEARCH ASSOCIATE

A position is available to study the electrogenic Na/H exchanger (NHE) in invertebrates using molecular biology. Regulation of NHE mRNA and protein expression and molecular structure-function relationships will be pursued during summer months at Mount Desert Island Biological Laboratory, Salsbury Cove, Maine, and during the academic year at Lake Forest College, Lake Forest, Illinois. Opportunity to collaborate with energetic undergraduate researchers. Send curriculum vitae and names of three references to: **Dr. David W. Towle, Mount Desert Island Biological Laboratory, Salsbury Cove, ME 04672.** FAX: 207-288-2130.

RESEARCH ASSOCIATE/POSTDOCTORAL POSITION available to study the biochemical-molecular basis of DNA repair and mutation in mammalian cells using various repair deficient mutants. Applicants should have a strong background in biochemistry and molecular biology. We are located in the suburbs just outside of Philadelphia in a newly constructed research center equipped to support state-of-the-art biomedical research. Send curriculum vitae and names of three references to: **Thomas D. Stamato, Ph.D., The Lankenau Medical Research Center, 100 Lancaster Avenue, Wynnewood, PA 19096;** or call (610) 645-2888. *Equal Opportunity Employer.*

POSITIONS OPEN

POSTDOCTORAL ASSOCIATE. Position available for research on structure-function and catalytic mechanism of carbonic anhydrases and superoxide dismutases. Our approach uses kinetic methods and magnetic resonance on site-directed mutants. Send curriculum vitae and names of three references to: **Dr. David N. Silverman, Box 100267 Health Center, University of Florida College of Medicine, Gainesville, FL 32610-0267.** *Equal Employment Opportunity/Affirmative Action Employer.*

RESEARCH ASSOCIATE

Position available immediately for a recent Ph.D. in Cell Biology or Immunology to study tumor immunology and host leukocyte function. Experience in Western blot analysis, electron microscopy, cell culture, immunogold labeling, or leukocyte chemotaxis preferred. Very competitive salary and benefits. Send curriculum vitae and the names, addresses, and telephone numbers of three references to: **Box 49, Science Classified Advertising, 1333 H Street, N.W., Room 814, Washington, DC 20005.**

RESEARCH ASSOCIATE POSITION IN SIGNAL TRANSDUCTION

Study the structure and function of GTP binding proteins and mechanisms of interaction with receptors and effector enzymes in the laboratory of **Dr. Heidi Hamm.** The project involves biochemical, molecular and biophysical approaches to identification of G protein mechanisms. Ph.D. in Biochemistry required. Please send curriculum vitae and names of three references to: **Business Manager, Department of Physiology and Biophysics, M/C 901, University of Illinois College of Medicine, 901 South Wolcott, Chicago, IL 60612.** *An Equal Opportunity/Affirmative Action Employer.*

RESEARCH ASSOCIATE

A search committee chaired by Judy Thomas, Ph.D., has been formed to fill a position in the Division of Surgical Immunology and Transplantation. We are seeking a person with an interest in endothelial cell biology, immunology and a molecular biology background. The primary laboratory interest is in the interactions of the endothelial cell in transplant rejection, both allograft and xenograft. Applicants must have a Master's degree or equivalent. A Ph.D. is preferable. There are 5 Ph.D.-level persons in the division, with whom the individual will interact. Please send curriculum vitae to: **Dr. Carl Haisch, Division of Surgical Immunology and Transplantation, Department of Surgery, East Carolina University, 4S-10 Brody Building, Greenville, NC 27858.** *Federal law requires proper documentation of identity and employability prior to final consideration for this position. East Carolina is an Equal Opportunity/Affirmative Action Employer.*

UNIVERSITY OF MARYLAND School of Medicine, Research Molecular Hematology/Oncology

Department of Pathology invites applicants for the position of **RESEARCH ASSOCIATE.** Three-year appointment supported by a grant to work dependently to study tyrosine kinase signalling in TNF production by glia and also to teach medical immunopathology. Individual with Ph.D. and excellent training, proficient experience in molecular biology of TNF, tyrosine kinase signalling and monoclonal antibody production and glia isolation is sought.

Please forward curriculum vitae to: **Moon Shin, M.D., Professor, c/o Cathy Brown, Department of Pathology, University of Maryland at Baltimore, 10 South Pine Street, Baltimore, MD 21201.**

RESEARCH ASSOCIATE

Research will focus on the regulation of mammalian collagenase activity by biochemical mechanisms and their role in tumor cell growth. Emphasis will be on mechanisms of zymogen activation at the cell surface. Candidate should have a Ph.D. degree in cell or molecular biology with experience in proteinase research and RNA/DNA-based techniques. Send curriculum vitae and three references to: **Dr. Ralph A. Reisfeld, Department of Immunology, The Scripps Research Institute, 10666 North Torrey Pines Road, IMM13, La Jolla, CA 92037.**



NEW OPPORTUNITIES IN NEURONAL CELL BIOLOGY

Wyeth Research (UK) is part of the R&D Division of the Wyeth-Ayerst organisation, a major international pharmaceutical company. Drug discovery activities in the UK are targeted on the CNS with 150 staff dedicated to research into psychiatric disorders.

The discovery research facility at the Taplow site comprises Chemistry, Neuropharmacology, Molecular Pharmacology and Molecular and Cell Biology.

A new Neuronal Cell Biology Section is being

created within the Molecular and Cell Biology Department to establish permanent neuronal cell lines from both rodent and human sources and to define relevant cell phenotypes and responses in support of neuronal cell signalling programmes. The section will also initiate research programmes, in collaboration with other groups within the Company's global CNS effort, directed towards receptor mediated gene expression and/or cell death mechanisms.

THE OPPORTUNITIES

We are currently seeking to recruit the following for this new group:

SECTION LEADER

– an innovative enthusiastic scientist, with at least 8 years post-doctoral experience and an excellent record of research in neuronal cell biology is required to head up the section. A strong interest in neuronal cell signalling systems and/or mechanisms of neurodegeneration will be an advantage.

The Section Leader will be responsible for developing and integrating in house cell biology techniques in the drug discovery process at Wyeth Research (UK) and will therefore require highly developed communication skills and the ability to train others in the associated techniques.

RESEARCH SCIENTIST

– applications are invited from experienced graduates or recently qualified PhDs with practical experience of cell culture techniques, ideally applied to neuronal cells, and a strong interest in signal transduction mechanisms.

The group will initially comprise the Section Leader, three Research Scientists (BSc/MSc/PhD) and a post-doctoral scientist.

In addition to salaries commensurate with the requirements and status of these positions, our benefits package includes a subsidised Company Pension & Life Assurance Scheme, free Medical Insurance and assistance with relocation where appropriate.

To apply, please write with full career details, including current salary, to:

Personnel Manager, Wyeth Research (UK), Huntercombe Lane South, Taplow, Nr. Maidenhead, Berkshire SL6 0PH. Telephone: 0628 604377 ext. 4278. Closing date: 17th June 1994.

Wyeth Research (UK)

RESEARCH UPDATE

Cyanamid employs a commitment to enhancing worldwide crop and livestock production.

At American Cyanamid Company's Agricultural Research Division we have a long-range commitment to discovering ways to increase worldwide crop and livestock production through chemical, biochemical and biological research. This is evidenced by our expanding research budget which has tripled over the last decade.

Research Biologist

We currently seek a Research Biologist to develop a research program focusing on signal transduction pathways in plants. Using the latest technology, you will be responsible for designing novel approaches for the identification of genes and determination of the physiological role of proteins once identified. We require a PhD and postdoctoral experience in molecular biology; experience working with plants or yeasts preferred.

American Cyanamid Company offers an excellent compensation and benefits package which includes 401(k) savings plan, flex-time work schedules and a convenient location one hour from New York City or Philadelphia. To explore this opportunity, forward your resume to: Employment Office, Dept. LS, American Cyanamid Company, Agricultural Research Division, P.O. Box 400, Princeton, NJ 08543-0400. An Equal Opportunity Employer.



NEW JERSEY MEDICAL SCHOOL

PROFESSOR and CHAIRPERSON BIOCHEMISTRY & MOLECULAR BIOLOGY

The UMDNJ - New Jersey Medical School invites nominations and applications for the position of Professor and Chairperson of the Department of Biochemistry and Molecular Biology. The successful candidate will have a nationally recognized record of achievement in research and a strong interest in the development of effective medical and graduate teaching programs. For further information or to apply please send your curriculum vitae to:

Harvey L. Ozer, M.D., Chairman
Biochemistry & Molecular Biology
Search Committee:

c/o Ms. Linda C. Reich
UMDNJ - New Jersey Medical School
Office of the Dean
University Heights

185 South Orange Avenue, MSB-C 662
Newark, New Jersey 07103-2714.

UMDNJ is an Affirmative Action Equal Opportunity Employer M/F/D/V and is a member of the University Health System of New Jersey.

TECHNICAL ENTREPRENEURS Together, We Will Make It Happen

Michigan Biotechnology Institute (MBI) is a private, tax-exempt research and business development organization that specializes in industrial and environmental biotechnology. Grand River Technologies (GRT), our business development subsidiary, finds appropriate commercial outlets for viable technologies. MBI's incubator subsidiary, Bio-Business Incubator of Michigan, provides space and support services so entrepreneurial firms can get their footing and eventually exit to their own facilities. We are currently seeking innovative bio-based technologies and their champions in the following areas:

- Industrial and Chiral Chemicals
- Agricultural Biochemicals
- Food Ingredients
- Biomaterials
- Waste Treatment and Bioremediation

Our unique resources and commitment to the creation of new businesses will support you with:

- A state-of-the-art research and development facility
- Skilled business leadership
- Top-notch scientific and engineering staff
- Access to a 20,000 square-foot pilot plant

In return, you'll be expected to lead the effort in raising funds to fuel the program. You may join MBI as an employee, bring your existing business to our business "incubator" or find a new strategic alliance through GRT.

The next step: tell us why you're the right entrepreneur for us. Send a concise, non-confidential summary of your technology including ownership, your commercialization plan and your resume to:



Dr. J. Gregory Zeikus
President and CEO
Michigan Biotechnology Institute
P.O. Box 27609 • Lansing, MI 48909

MBI is an equal opportunity employer/institute.

The Human Gene Therapy Research Institute at Iowa Methodist Medical Center, located in Des Moines, Iowa, has excellent full time opportunities for the following positions:

STAFF SCIENTIST

This individual will develop and conduct an independent line of research resulting in novel regulated heterologous expression cassette designs and selective tissue tropism strategies for use in advanced recombinant adenovirus gene therapy vectors. These vectors will be applied to the treatment of solid tumors in humans. Qualifications include a Ph.D. in molecular cell biology and a minimum of two years post-doctoral training from a leading academic center. This individual must be expert in a variety of eukaryotic and prokaryotic molecular biologic methods including genomic cloning, mapping of tissue-specific enhancer elements, mapping of inducible promoter elements, complex tissue-specific transgene design, epithelial and neuroglial cell line transformation, and computational molecular biology.

RESEARCH TECHNOLOGIST

This individual will be responsible for the operation of the tissue culture and virus production activities of the BL3 Recombinant Adenovirus Facility. Additional tasks will include junior staff training, SOP development, active participation in the facilities planning process and various administrative duties associated with performance as a senior technologist. Qualifications include 8 years of research technologist experience in industry or academia, with at least 5 years experience as a supervisor in tissue culture/virus production under BL3/GMP conditions. Experience in vaccine production and testing, immunohistochemistry, and basic molecular biological methods is desirable. Salary to commensurate with experience, excellent benefit package available. Submit resume to Human Resources, 1313 High St. Suite 111, Des Moines, IA, 50309; FAX# 515-241-8515.



GENEMEDICINE, INC., an emerging leader in non-viral gene therapy, is developing novel gene medicines, comprised of DNA vectors and vector delivery systems, to treat a broad range of genetic and acquired diseases. The Company is backed by several of the most successful venture capital investors in biotechnology, has strong ties to the laboratories of its scientific founders at Baylor College of Medicine and at UCSF and is located close to the Texas Medical Center - the world's largest medical research facility.

GENEMEDICINE is expanding its research and development programs which, in collaboration with a major pharmaceutical company, include gene therapies for treating inflammatory diseases. We now seek to appoint successful and highly motivated scientists to the following positions:

Director: Exploratory Vector Delivery

We seek to appoint an accomplished scientist to lead a small group of biochemists and peptide chemists responsible for designing, synthesizing and testing novel systems for targeting genes *in vivo*. The successful candidate will have a Ph.D., at least four years of experience within a pharmaceutical/ biotechnology company and have managed a research group.

Scientists: Site-Specific Delivery of Macromolecules

We seek five Ph.D.-level scientists who will be responsible for applying peptide and carbohydrate chemistry to develop technologies for enhancing the cell recognition, entry and processing of DNA expression vectors. Post-doctoral training and evidence of productivity in this area are required.

Scientists: Intracellular Trafficking

We seek both a Ph.D.-level scientist and a fixed-term post-doctoral fellow with at least two years of experience, to work on vesicular trafficking and/or antigen processing. These scientists will determine the cell entry and trafficking of genes. One of the successful candidates will have experience in immunology and the other in the use of electron and confocal microscopy for studying cell trafficking.

Scientist: Pharmacokinetics-Pharmacodynamics

We seek a Ph.D.-level scientist with at least two years of post-Ph.D. experience in the development and application of pharmacokinetic models and the pharmacodynamics of recombinant proteins. Experience in a biotechnology company is desired. This person will be responsible for determining the PK/PD of administered genes and their gene products.

Scientists: Mammalian DNA Expression Vectors and Immune-Cell-Specific Gene Regulation

We seek two Ph.D.-level scientists with at least two years of molecular biology experience who will be responsible for identifying and defining promoters and enhancers that function in human lymphocytes and mononuclear cells.

Scientists: Drug-Controlled Gene Therapy

We seek two Ph.D.-level scientists having at least two years of molecular biology experience to be responsible for a collaborative program with Baylor College of Medicine to develop a gene switch for gene therapy that utilizes steroid-responsive elements and transactivating proteins to control the *in vivo* expression of administered genes.

Scientists: Pharmacology and Animal Models

We seek four Ph.D.-level scientists and one B.S./M.S.-level scientist, each with at least three years of experience, to be responsible for establishing animal models of inflammation, peripheral neuropathy and hemophilia. This group will also be responsible for the evaluation of the pharmacology of novel gene therapy systems.

Histologist

We seek a B.S.-level certified Histologist, Histologist Technician (HT) or a Histotechnologist (HTL), with at least two years of post-training molecular biology experience, to be responsible for preparing conventional fixed and frozen sections, performing histological tests (including *in situ* hybridization and histochemistry) and to further develop the Company's histology program.

Scientist: DNA Purification

We seek a Ph.D.-level scientist with experience in biochemistry, molecular biology (specifically nucleic acid, oligonucleotide, protein or plasmid purification) or a related field, to develop novel methods for preparing and purifying plasmid DNA.

We offer highly competitive compensation packages. For confidential consideration, please send your CV to: GENEMEDICINE, INC., Human Resources, Ref. 694, 8080 North Stadium Drive, Suite 2100, Houston, TX 77054.

GENEMEDICINE, INC.

POSITIONS OPEN

RESEARCH POSITION in the Center for Coastal Studies, Scripps Institution of Oceanography.

Applications are invited from scientists and engineers for appointment in the Research Oceanographer series, at the assistant, associate, or full rank. Fields of interest include, but are not limited to, nearshore hydrodynamics, sediment transport in shallow nearshore waters, and coastal meteorology. At time of appointment, applicant must hold a Ph.D. degree in physical oceanography, coastal engineering, or a related science. Candidates must also demonstrate ability to conduct independent research of high quality in their field. This position will be extramurally funded at the Assistant rank. In this career track, SIO will provide base salary support of 25% on appointment/promotion to the Associate Research rank and 50% on appointment/promotion to the Full Research rank as a supplement to extramural support obtained by the scientist, subject to the availability of funds. Salary and position rank will be determined based on experience and qualifications and based on UC salary scales. Applications are encouraged from scientists with an interest in conducting observational work. The closing date for this position is 30 September 1994. Send a detailed résumé including copies of recent publications, and names of five references to: **Chairman, Research Series Search, 9500 Gilman Drive, CCS-0209, University of California, San Diego, La Jolla, CA 92093-0209. UCSD is an Equal Opportunity/Affirmative Action Employer.**

SCIENTIST—Research hematologist. To work on a challenging sample preparation project. Small, fast-moving company, planning to expand a project in automated cytometry, is looking for a multidisciplinary scientist with at least five years of postdoctoral experience in two or more of the following fields: Microscopic Hematology, FISH, Density Gradients, Enzymology, Cytochemistry, Cytogenetics. A very focused project will lead to future opportunities for more independent product innovation. We offer competitive salaries and benefits. Send letter of interest and résumé to: **Ruth White, Applied Imaging Corporation, 2380 Walsh Avenue, Building B, Santa Clara, CA 95051.**

SENIOR RESEARCH SCIENTIST

The Department of Emergency Medicine, Carolinas Medical Center, is seeking to fill a position with a senior-level research scientist with a primary interest in cardiovascular physiology, pharmacology, or toxicology. Candidates must have a Ph.D., M.D., or both and have a distinguished record of publications and extramural funding. The candidate will be responsible for conducting an active research program and training postdoctoral fellows, residents, and medical students. Applicants should submit curriculum vitae and names, addresses and telephone numbers of three references to: **Marsha Ford, M.D., Division of Medical Toxicology or Richard Raymond, Ph.D., Division of Research, Department of Emergency Medicine, Carolinas Medical Center, P.O. Box 32861, Charlotte, NC 28232-2861; Telephone: 704/355-3181.**

VETERINARY PATHOLOGIST: The Oregon Regional Primate Research Center (ORPRC) has a core staff position for a Veterinary Pathologist at the **ASSISTANT or ASSOCIATE SCIENTIST** level. Candidates must hold a D.V.M. or equivalent degree, be certified or eligible for certification by the American College of Veterinary Pathologists, and have experience with the pathology of nonhuman primates and other laboratory animals. Duties include responsibility for diagnostic pathology service, supervision of pathology and histology laboratories, interaction with the Center's research staff on matters pertaining to pathology, and participation in the Center's research mission. The development of an independent research program or participation in collaborative research is highly desirable. The research activities of the Center include: infectious diseases, neuroscience, and reproductive biology. Joint academic opportunities are available at the nearby Oregon Health Sciences University. Appointment level and salary are commensurate with qualifications. For consideration for this position, please submit a résumé, letter of interest, and the names of three references to: **Dr. Don P. Wolf, Chairman, Veterinary Pathologist Search Committee, Oregon Regional Primate Research Center, 505 NW 185th Avenue, Beaverton, OR 97006.** Applications will be accepted through July 15, 1994, or until a suitable candidate is identified. *The ORPRC is an Equal Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

RESEARCH TECHNOLOGIST I MOLECULAR ONCOLOGY/ GYNECOLOGIC ONCOLOGY

Immediate opening for a Research Technologist I in the Molecular Oncology Laboratory at the University of Nebraska Medical Center. Potential candidates must have B.S. or M.S. degree in biology/biochemistry or chemistry, and have practical knowledge of protein electrophoresis and Western blotting. Experience with monoclonal antibody labeling with radioactive ligands, cancer cell fractionation, cell culture, and tumor growth in nude mice is highly desirable. Salary negotiable, depending on qualifications. Interested candidates should send curriculum vitae with letters of reference to: **Dr. Ewa Rakowicz-Szulczynska; Department of Obstetrics and Gynecology; UNIVERSITY of NEBRASKA MEDICAL CENTER; 600 South 42nd Street; Omaha, NE 68198-3255; or FAX: (402) 559-8112. Affirmative Action/Equal Opportunity Employer.**

NEUROPATHOLOGIST. The Department of Pathology at the University of Chicago Medical Center is seeking a faculty member specializing in Neuropathology. Applicants should be board certified/eligible in AP or AP/NP. The successful applicant is expected to be interested and trained in research related to the nervous system. Additionally, the applicant will have responsibilities in diagnostic neuropathology and teaching of medical students, residents, and graduate students. Opportunities for both independent and collaborative research are available. Academic rank will be based on experience and accomplishments. Salary negotiable. An excellent benefit package is included. Please send curriculum vitae with the names and addresses of three references to: **Godfrey S. Getz, M.D., Ph.D., Chairman, Department of Pathology, MC 3083, The University of Chicago, 5841 South Maryland Avenue, Chicago, IL 60637. An Affirmative Action/Equal Opportunity Employer.**

LAND USE/CONSERVATION RESEARCH SMITHSONIAN INSTITUTION

The Migratory Bird Center at the National Zoo is seeking a person to conduct research emphasizing tropical agro-ecosystem and natural habitat conservation policy issues that impact migratory songbird populations. Incumbent will utilize research to develop "white papers", articles in the professional and popular media, and propose policy alternatives to governments and international funding organizations. Successful applicant will have a relevant M.A. or Ph.D. or combination of appropriate education and experience, and be actively pursuing research and publications in agro-ecosystem issues impacting wildlife conservation. This is a Federal Civil Service position. Starting salary \$35,045 to 42,003. For complete application package call 202-287-3102 (24-hour automated line) press 9 and ask for package #94-3037S. Completed application must be postmarked by 8 July 1994. *Equal Employment Opportunity/Affirmative Action.*

The **JOHNSON SPACE CENTER VISITING SCIENTIST PROGRAM IN SPACE BIOMEDICINE** supports up to six months of on-site research and additional follow-on research at the Visiting Scientist's home institution. Sponsoring laboratories offer research projects in the following discipline areas: (1) Psychological functioning in isolated environments, (2) Neurovestibular function and spatial orientation, (3) Exercise physiology, (4) Radiation biology, (5) Physiology of renal stone formation, (6) Neurohumoral control of cardiovascular function, (7) Microbiology/host-parasite relationships, (8) Nutritional biochemistry. For additional information or application materials, contact: **Barbara Railsback (S), USRA, Division of Space Life Sciences, 3600 Bay Area Boulevard, Houston, TX 77058; 713-244-2000 (Telephone), 713-244-2006 (FAX).**

BIOTECHNOLOGY, PHARMACEUTICAL SEARCH INTERNATIONAL is an executive search firm specializing in placing Biotechnology and Pharmaceutical professionals. We currently have positions in Research and Development, Process Development, QA/QC, Regulatory and Clinical Affairs and Manufacturing. Interested parties please contact: **BPS INTERNATIONAL, 63 Calle de Industrias, Suite 454, San Clemente, CA 92672. Telephone: 714-492-9911, FAX: 714-492-1629.**

POSITIONS OPEN

AFFYMAX RESEARCH INSTITUTE is an innovative venture dedicated to the development of new technologies that will accelerate the process of pharmaceutical discovery.

SCIENTIST (ANTIBODY-PHAGE)

We are seeking a scientist who will be responsible for the engineering of human antibodies displayed on phage and other formats. The projects involve improving antibody affinity and selectivity through mutagenesis and shuffling combined with library screening or selection tools. The antibody engineering program consists of a team of chemists, molecular biologists, molecular pharmacologists and a hydridoma laboratory. We have strong collaborative links with leading academic and industrial groups in the fields of antibody engineering. Relevant publications in this field include: *Science* 245, 1104 (1989); *Science* 252, 659 (1991); *Proc. Natl. Acad. Sci. USA* 88, 58 (1991); *J. Biol. Chem.* 267, 16007 (1992); *J. Amer. Chem. Soc.* 115, 357 (1993); *Gene* 123, 1 (1993); *Proc. Natl. Acad. Sci. USA* 90, 10700 (1993). We require a Ph.D. with a strong background in molecular biology and particular emphasis on antibody engineering. Experience with antibody-phage display is required.

Affymax offers many of the benefits of a world class academic environment and the potential to develop new therapeutics. Please send your résumé to: **Affymax Research Institute, Human Resources Department, Job Code PS242, 3410 Central Expressway, Santa Clara, CA 95051. Equal Opportunity Employer.**

University of California, Riverside Department of Nematology

ASSISTANT EXTENSION NEMATOLOGIST/ ASSISTANT NEMATOLOGIST

Applications are invited for an Assistant Extension Nematologist/Assistant Nematologist. Ph.D. in Nematology, Plant Pathology or related discipline/field required with demonstrated ability to conduct independent research. At least two years of additional training and research experience with plant parasitic nematodes and/or other plant pathogens/pests are desirable. Position is 11-month, 70% extension, 30% research (academic career-track) to establish an innovative, vigorous, and independent research and extension program on alternative/integrated management of nematode pests in diversified agriculture of southern California. Applicants should send curriculum vitae, bibliography, undergraduate and graduate transcript, Ph.D. dissertation summary, reprints and manuscripts in press of research and extension publications, statement of research and extension interests, and have three letters of reference sent to: **Dr. S.D. Van Gundy, Department of Nematology, University of California, Riverside, CA 92521-0415.** Applications will be accepted until September 15, 1994. *The University of California is an Equal Opportunity/Affirmative Action Employer.*

NMR SPECTROSCOPISTS. As part of a major commitment to the development of structural biology at the University of Pennsylvania, the Department of Biochemistry and Biophysics invites applications for tenure-track positions in NMR spectroscopy. Applicants should have demonstrated expertise and accomplishments in modern multidimensional NMR with a strong background in protein and/or nucleic acid structure, dynamics, and function. Please forward curriculum vitae and a statement of background and future scientific intentions, and have 3 letters of recommendation sent, to: **Ms. Caryn Stivelman, Johnson Research Foundation, B501 Richards Building, University of Pennsylvania, Philadelphia, PA 19104-6089.** *The University of Pennsylvania is an Affirmative Action/Equal Opportunity Employer. Applications from women and minorities are encouraged.*

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PROTEIN PURIFICATION SCIENTIST. The successful candidate will be responsible for developing purification processes for recombinant proteins and for scale-up to the pilot plant level for production of clinical grade material. Applicants must have a Ph.D. in biochemistry or biochemical engineering with 2-6 years experience in large-scale purification of recombinant proteins. Experience with membrane proteins and detergents is beneficial, as is familiarity with cGMPs and the ability to develop SOPs. The ideal candidate would also have hands-on experience with purification of recombinant proteins from the baculovirus/insect cell-expression system.

PROTEIN PURIFICATION ASSOCIATE. The successful candidate will scale up recombinant protein recovery and purification processes and produce clinical grade material at the pilot plant level. Applicants must have a B.S. in biochemistry (or a related field) with 1-3 years relevant experience, or an M.S. in the same areas with one year relevant experience. A hands-on background in recombinant protein purification, liquid chromatography, and protein analytical techniques is also required. Large-scale protein purification experience is desirable as is experience with recombinant protein production under cGMPs. Familiarity with the purification of membrane proteins is a plus but not essential.

PROCESS DEVELOPMENT ASSOCIATE II. The successful candidate will have a Bachelor's Degree in biochemistry, chemistry or chemical engineering with 2-3 years experience in cell culture and assay development. The position requires experience with fermentation analytical tools including, ELISA assay, viral plaque assay, nutrient analysis using both enzymatic assays and HPLC, and FPLC purification analysis. Experience with insect cell culture and baculovirus expression using bench-top fermenters is desirable but not essential.

MicroGeneSys, Inc. offers competitive salaries and benefits as well as growth potential as we expand. Please forward your resume in complete confidence to:

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1000 Research Parkway
Meriden, CT 06450-7159

MINORITY INVESTIGATOR WORKSHOP HOW TO SECURE FUNDING FOR HIV/AIDS RESEARCH

A workshop to inform minority investigators of new funding opportunities in AIDS and AIDS-related research in two sessions on September 28, 1994 in Bethesda, Maryland.

Highlights

- The workshop sponsored by the Division of AIDS, National Institute of Allergy and Infectious Diseases, NIH will be held concurrently with the 1994 Annual Meeting of the Laboratory of Tumor Cell Biology, National Cancer Institute, NIH, September 25-31, 1994.
- Details on a future program targeted to underserved minority investigators in AIDS research will be presented. Key feature include collaborative interaction with and travel to laboratories of established AIDS investigators.
- General grantsmanship information from the Division of Extramural Activities, NIAID, will be presented.
- Full support is available to cover travel, accommodations and registration for the Minority Investigator Workshop and the NCI Meeting for qualified applicants.

Qualifications

- Applicants must be members of an underserved minority including African Americans, Hispanics, American Indians or Pacific Islanders
- Applicants should have a minimum of 2 years of postdoctoral experience but must not have received competitive R01-type funding in AIDS research
- Work must be performed at institutions that do not have major AIDS and AIDS-related research programs

Workshop Applications

- For Workshop applications please contact:

Jean Smiley, Ph.D.
Minority Investigator Workshop
HOW TO SECURE FUNDING FOR HIV/AIDS RESEARCH
Technical Resources, Inc.
3202 Tower Oaks, Blvd.
Rockville, MD 20852
Telephone: (301) 230-4773

APPLICATIONS FOR WORKSHOP MUST BE RECEIVED
NO LATER THAN JULY 1, 1994

Techniques for Characterization of Complex Carbohydrates Laboratory Courses

Four courses will be offered at the Complex Carbohydrate Research Center (CCRC) of the University of Georgia. **Course 1** (August 1 - 5, 1994), "Separation and Characterization of Glycoprotein Oligosaccharides", is intended for scientists with little experience in carbohydrate analysis. **Course 2** (August 8 - 12, 1994), "Structural Analysis of Oligosaccharides", is intended for scientists with some experience with glycoconjugates or for those who have completed the first course, and will focus on techniques of composition and linkage analysis. **Course 3** (August 22-26, 1994) "MS and MS/MS Analysis of Glycoconjugates" is intended for scientists with some experience with glycoconjugates and a basic understanding of mass spectrometry. **Course 4** (August 29-September 2, 1994) "Fundamentals of ^1H and ^{13}C " will focus on ^1H and ^{13}C , one- and two-dimensional NMR spectroscopy as applied to carbohydrates. Experience with basic biochemical techniques is a prerequisite for participation in the courses. All courses will consist of hands-on laboratory work, demonstrations and lectures; lab manual including selected analytical techniques and references will be provided. Each course is limited to 10 participants. The cost of registration (including lunch) per course is \$500 for individuals from non-profit institutions, \$1,100 for others. Registration does not include lodging and travel expenses.

The courses are supported jointly by the Department of Energy Plant and Microbial Carbohydrate Center, and the NIH Biomedical Carbohydrate Resource Center of the CCRC. For further information or to apply for the courses contact: Dr. Roberta K. Merkle, Technical Director for Biomedical Carbohydrates, Complex Carbohydrate Research Center, 220 Riverbend Road, The University of Georgia, Athens, Georgia 30602-4712. Phone: 706-542-4402. Facsimile: 706-542-4412.

ANNOUNCEMENTS

THIRD BERKSHIRE NEUROSCIENCE SYMPOSIUM: Genetic Aspects of Neurodegenerative Disease. Jimmy Peak Conference Center, Hancock, Massachusetts. June 20-22, 1994. Speakers include M. Flint Beal, Robert Lazzarini, Martin Chalfie, Pierluigi Gambetti, Robert Brown, Gerard Shellenberg, Jeffrey Rothstein, William Nicklas, Michael Johnston, John Shoffner and others. Contact: Nan Donnelly or Richard Henneberry at the Conte Institute for Environmental Health. Telephone: (413) 499-6100; FAX: (413) 443-1740.

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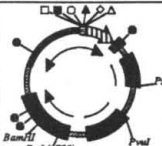
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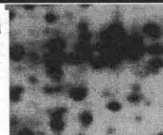
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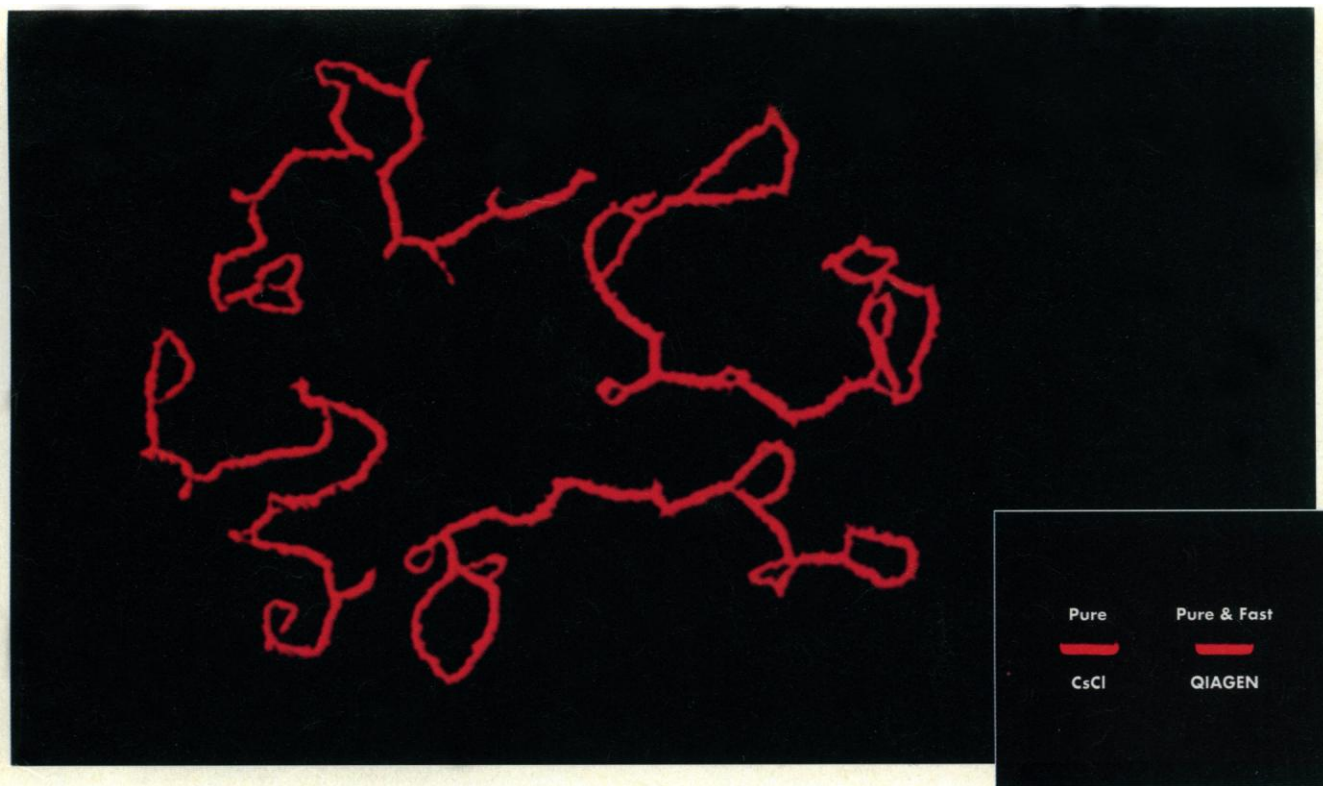
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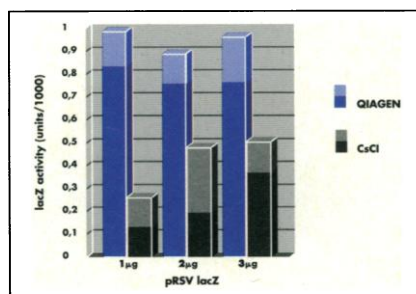


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Comparison of transfection efficiencies. NIH 3T3 cells were transfected with the plasmid pRSVlacZ which was prepared with QIAGEN Plasmid Mega Kit (blue bar) or by CsCl (gray bar). Data from Ehlert et. al. (1993) BioTechniques 14: 546

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Title photo: digitalized reproduction of EM photo of supercoiled DNA prepared with QIAGEN resin.

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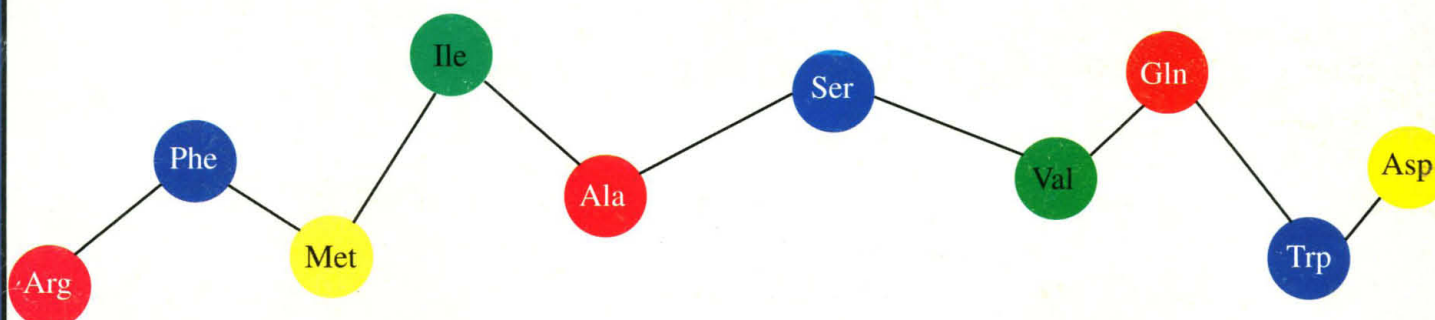
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