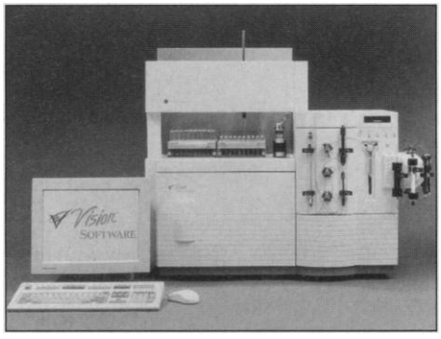
PRODUCTS & MATERIALS

Biomolecule Purification and Analysis

The VISION Workstation chromatography system offers simultaneous biomolecule purification and analysis in a single instrument. Designed to reduce the delays caused by analysis in the development laboratory, the Workstation combines proprietary Perfusion Chromatography technology with novel sample



handling robotics to accelerate the entire biomolecule purification process. The unit allows the user to perform separations of biomolecules, then automatically re-inject the collected fractions for analysis by a variety of analytical techniques. **PerSeptive Biosystems. Circle 139.**

■

Image Analysis Software

GelBase/GelBlot Pro Image Analysis Software is designed for analysis of nucleic acid gels, autoradiographs, protein gels, spots, and blots. It is designed for one-dimensional use with ethidium bromide gels, Coomassie blue– or silver-stained gels, and autoradiographs. Images can be enhanced, zoomed, and printed. Features include a built-in standard library for molecular weight determinations, automatic or manual background subtraction, automatic or manual peak identifications, automatic histogram generation, automatic or manual area and volume calculations, and optical density calculations with calibration standards for polymerase chain reaction work. Results tables include peak number, molecular weight calculations, area, height, position, volume, and amount of sample. Data can be exported to most desktop processing programs. IBM-compatible and Macintosh versions are available. **UVP. Circle 140.**

■

Chromosome Probe

The Chromosome X/Y Cocktail Probe combines in one vial an X alpha satellite and a Y classical satellite probe. The cocktail probe can be used on a variety of samples including peripheral blood, bone marrow, tissue sections, buccal smears, and amniocytes. Applications include sex-mismatch transplant research, sex chromosome counting, and centromere analysis. Results can be obtained in less than an hour. **Oncor. Circle 141.**

■

Biocompatible Sample Extraction Column

BioTrap 500 C18 is a biocompatible sample extraction column enabling repeated direct injections of plasma, serum, milk, supernatants of cell cultures, fermentation broth, and other complex matrices into a high-performance liquid chromatography system without clean-up procedures other than a simple centrifugation. Repeated injections of up to 500 µl plasma can be made directly onto the BioTrap 500 C18 column. Proteins and other macromolecules can be totally removed from the sample before analysis of the drug molecules on the analytical column. Detection methods such as ultraviolet, fluorescence, electrochemical detection and mass spectrometry can be used. **Advanced Separation Technologies. Circle 142.**

■

Vacuum Concentrator

The Eppendorf Model 5301 Vacuum Concentrator is for concentration of DNA/RNA, nucleotides, proteins, and other samples. It has a narrow width (less than 13 inches) and two stackable rotors for up to 96 × 1.5-ml to 2.0-ml

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

or 144 × 0.5-ml microcentrifuge tubes. An automatic vacuum release prevents sample loss due to bumping and foaming. A braking feature allows quick sample access. Aeration mode maximizes evaporation efficiency and prolongs pump life-span by periodically aerating the vacuum line and preventing condensation buildup. The user has a choice of four heating levels (30°C, 45°C, 60°C, and ambient). **Brinkmann Instruments. Circle 143.**

■

Sequence Software and Sequence Database

GeneJockey II is a program for editing, manipulating, and analyzing nucleic acid and protein sequences. It can rapidly scan nucleic acid sequences to select all possible pairs of oligonucleotides suitable for use as primers to direct DNA amplification by polymerase chain reaction. Version 2 of the program includes fast search routines of the Sequence Database. Searches can be performed by browse sequence file, locus or accession number, author, keyword and title indices, and more. The Sequence Database is a separate product that incorporates all the information currently found in the flatfile format of GenBank compressed onto a single CD-ROM. **Biosoft. Circle 144.**

■

Total Protein Staining

ISS Gold-Blot is a colloidal gold reagent for total protein staining on nitrocellulose or polyvinylidine fluoride membranes with sensitivity equal to or exceeding silver-stain sensitivity in polyacrylamide gels. ISS Gold-Blot forms complexes with proteins to yield red-purple bands in only 30 min. It includes a detergent blocking agent for minimal background and ready-to-use stain reagent. **Integrated Separation Systems. Circle 145.**

■

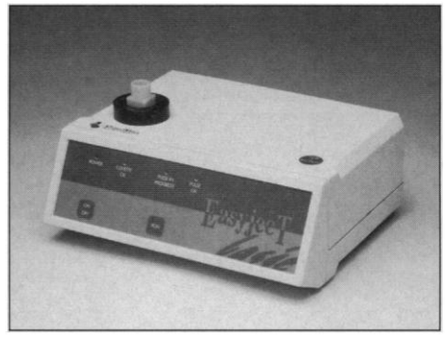
Hybridization and Detection Systems

The MaxSense line of products for specific membrane hybridization and detection has been optimized to provide the best hybridization and washing conditions for background-free, highly sensitive results with nonradioactive probes labeled with biotin, digoxigenin, or fluorescein haptens. The MaxSense BioProbe Hybridization System is designed for use with DNA and RNA probes prepared by nick translation, random primed, or in vitro RNA transcript labeling procedures. The MaxSense OligoProbe Hybridization System is for use with oligonucleotide probes prepared by terminal labeling procedures. The detection systems offer either alkaline phosphatase– or horseradish peroxidase–linked detection reagents for biotin, digoxigenin, and fluorescein haptens. This unification of hybridization and detection reagents makes it simple and straightforward to do multiple detections on a single blot. **Enzo Diagnostics. Circle 146.**

■

Electroporation Systems

The EasyjecT Electroporation Systems provide improved set-up and programming capabilities for precise optimization and reproducibility of transformations. The systems



are remote-control operated and equipped with "Smart Card" reader and recorder memory for simple and safe storage and recall of all programs. The EasyjecT BASIC System provides a completely programmed and optimized system for the transformation of *Escherichia coli* and other Gram-negative bacteria. **Owl Scientific. Circle 147.**

■

Literature

The Water Purification Primer provides a basic guide to the types of contaminants found in water and the types of technologies used to purify water used in the laboratory. Technologies described include distillation, ion exchange, carbon adsorption, microporous membrane filtration, reverse osmosis, ultrafiltration, ultraviolet radiation, and the patented Electrodeionization. **Millipore. Circle 148.**

Wako for Your Life's Research features research and analytical products including antibodies and enzymes, cell culture and signal transduction reagents, molecular biology and microbial detection kits, mammalian transfection products, fluorescent probes and labeling reagents, analytical standards, stains, and other biochemicals. **Wako BioProducts. Circle 149.**

Harlan Sprague Dawley Product Guide offers 240 stocks and strains of laboratory animals, including rats, mice, hamsters, guinea pigs, gerbils, cats, beagles, hounds, and miniature swine. **Harlan Sprague Dawley. Circle 150.**

Look!

The Information You Need On Your Desktop Now.

WebLab™ combines the worlds of experiment, molecular modeling, and the Internet.

WebLab Viewer lets you view and understand chemical information.

It's **FREE**, **EASY TO USE**, and **AVAILABLE NOW** on desktops everywhere.
Make sure that yours is one of them.

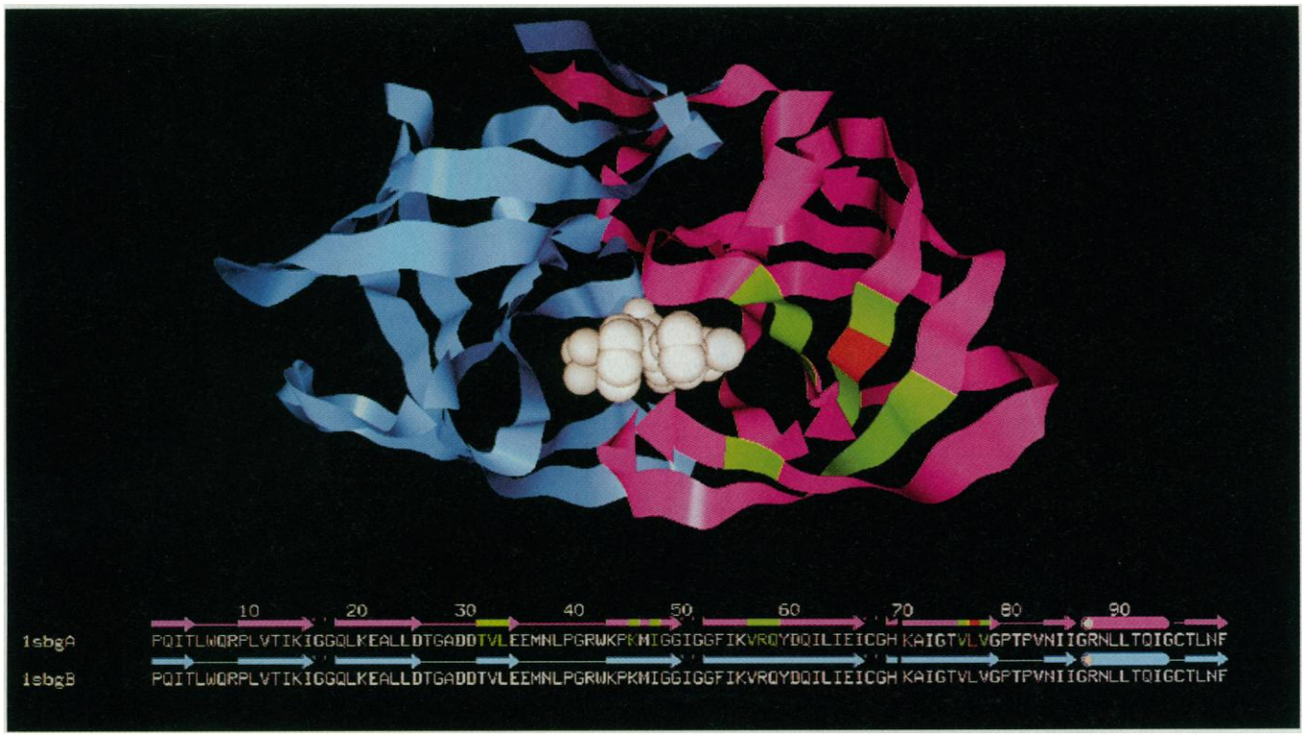
Download MSI's new WebLab Viewer from our homepage

http://www.msi.com

msi molecular simulations

Molecular Simulations Inc. • 9685 Scranton Rd. • San Diego, CA 92121-3752 • (619) 458-9990 • FAX: (619) 458-0136
U.K.: (44) 1223-413300 • France: (33) 1-69-419908 • Germany: (49) 8106-35-93-0
Asia/Pacific: (61) 2-9954-4322 • Japan: (81) 3-3818-6511

Circle No. 31 on Readers' Service Card



Real model. Real time.

Until LOOK* was released, there was no easy way to model your sequence. No quick way to turn, patch, highlight, and just plain visualize your protein. No simple way to target specific and effective mutagenesis experiments.

To help bench biologists harness the power of structure in their experiments, scientists at Molecular Applications Group created a seamless integrated tool kit. LOOK is a loaded toolbox that includes a biologically savvy browser, an electronic notebook, and a painless path between sequence and structure.

LOOK is an invaluable tool to help you plan and interpret your research. You can search on-line databases, align your sequences, and see the shape of your protein in minutes.

That's why we called it LOOK. Simple and direct. It's the original software to help supercharge biological research.

This fall it gets even better. You can get the basic LOOK package on a Power Mac* and bring rapid structural insight right to your workbench. Plus, we've got a brand-new Windows NT* version under development.

Visit our web site for a fully functional demo of the cutting edge software that's slashing gene-to-drug time. And while you're there, you can e-mail us to request an on-site demonstration, right at your bench... and let us show you just how easy it is to build a model of your sequence. In real time.

*LOOk is a registered trademark of Molecular Applications Group
Macintosh is a registered trademark of Apple Computer
Windows NT is a registered trademark of Microsoft

mag™

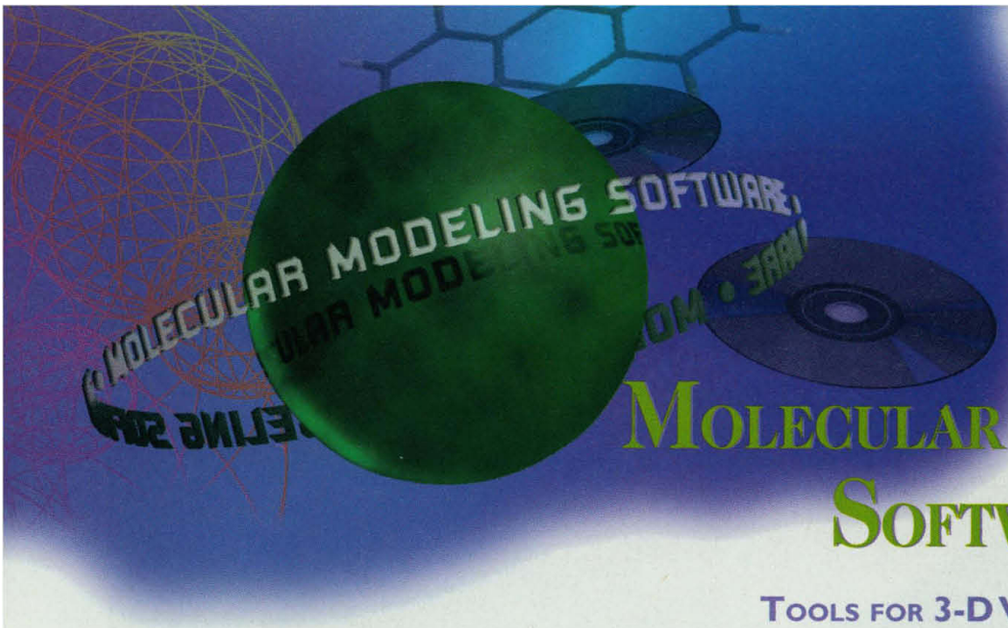
Molecular Applications Group

Toolmaker for the Biologist

http://www.mag.com

607 Hansen Way, Building One,
Palo Alto, CA 94303-1110
800-229-7382 415-846-3570

Circle No. 36 on Readers' Service Card



Molecular Modeling Software

Tools for 3-D Visualization

Molecular Modeling software focuses on programs that enable researchers to visualize and analyze the structures and interactions of molecules. Computer programs such as these have become important research tools in the fields of combinatorial chemistry and drug design.

Computers have become almost indispensable in the study of the 3-D structure of biological molecules, particularly proteins. Today, with the assistance of sophisticated molecular modeling and computational chemistry software packages, scientists can gain insight into the structures of macromolecules and their interactions. Advances in the field of X-ray crystallography have made it possible to view and analyze the atomic structure of large numbers of proteins, subsequently opening up a wealth of possibilities in the fields of rational and computer-aided drug design. One of the most promising areas in medicinal research these days, explains Michael Cory, a synthetic chemist who manages the Computational Chemistry Group at GlaxoWellcome, is in receptor-based drug design. "When there is a known structure of a receptor protein or nucleic acid that you can crystallize, you're then able to model that system with any degree of precision you're willing to dedicate your computing resources to."

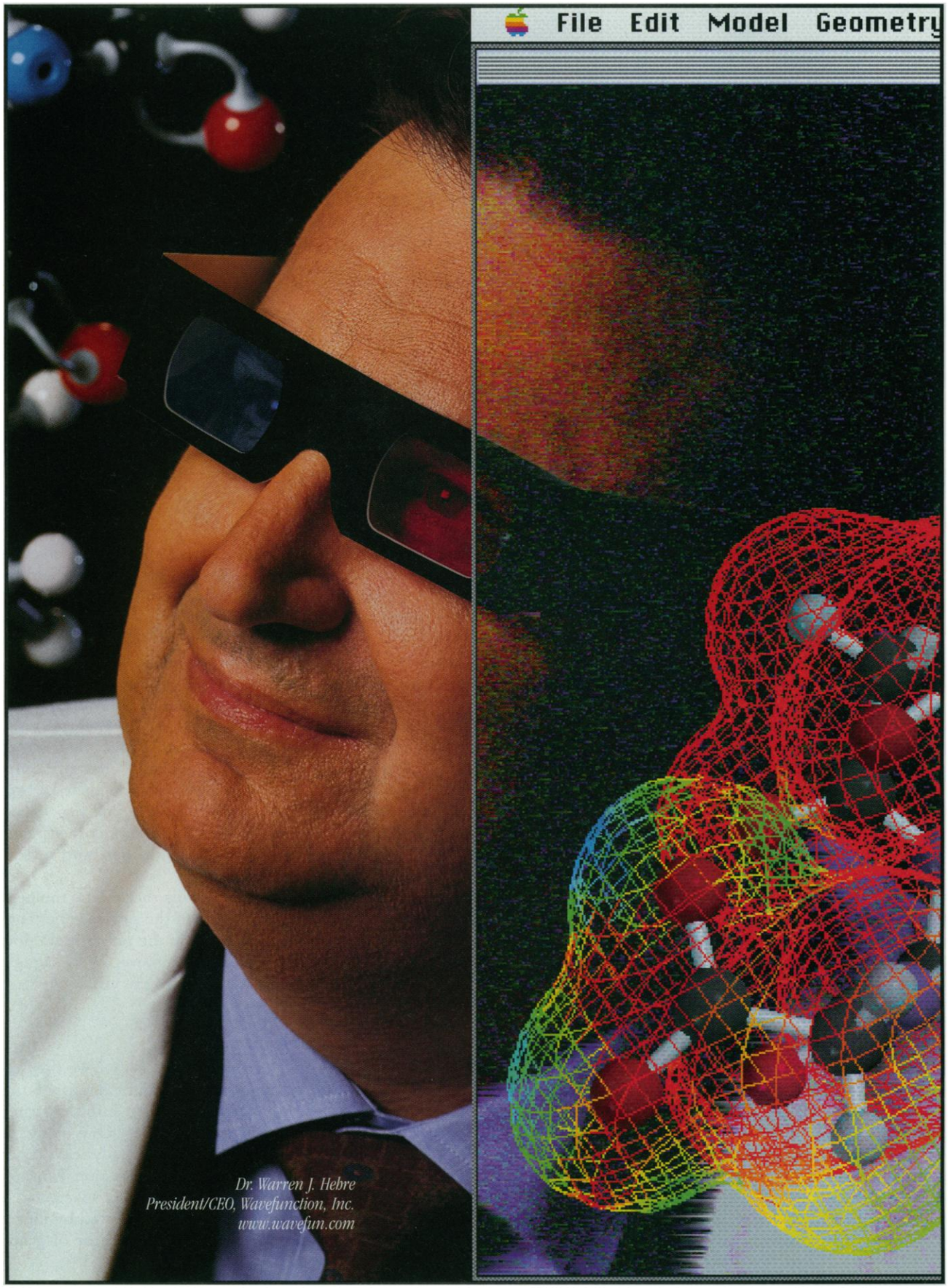
Researchers can take existing structures or protein-homology-built structures, dock libraries of known molecules (or specifically-designed molecules) one at a time into the receptor sites as they are revealed in the crystal structure, and compute approximate energies of interaction. "We can take large databases and order the molecules and say these are the most likely to give you activity," explains Cory. "And once we get a lead on a new protein, we can then take those docked molecules, get crystal structures of the molecules bound to the receptor, and use them to develop new product molecules."

Perhaps the most notable development in this field today are HIV protease inhibitors, believed by many to be the most promising approach to the treatment of HIV infection and AIDS. "These drugs were developed with extensive use of computer-assisted drug design," says Cory.

A protease is an enzyme that hydrolyzes peptide bonds. When the HIV virus genome is replicated in the mammalian cell, the virus infects the DNA. The virus genes get inserted into the mammalian DNA in the human cells, and a protein is made that represents the viral protein. That protein is a polyprotein — a long string of pieces that needs to be broken up into small proteins. The protease enzyme processes the polyprotein at specific sites, giving rise to the other proteins, thus allowing the virus to mature, bud out, and infect the next cell.

"The protease inhibitors are drugs that mimic the peptide sites, the cleavage sites, and bind to the protease better than the polyprotein," explains Cory. "So the polyprotein doesn't get processed while these drugs sit in there. By blocking that processing, they block the maturing of the virus."

Long before chemists arrived at the point where they could envision, let alone build, such inhibitor drugs, countless researchers have had to contribute insight into the structure and interactions of proteins and enzymes. One of the early steps researchers undertake today in this analytical process is to create 3-D pictures of the molecules in question. Most of the familiar depictions of DNA winding through space, and proteins and enzymes coming together, are created by means of X-ray crystallography. Michael Pique, director of graphics



TO ARRIVE AT THE TRUTH, HANG A LEFT AT INNOVATION.

Then meet the challenges that have never been met.

Test the ideas that have never been tested.

Explore the parts that have never been explored.

See the sides that have never been seen.

AND FIND IT

on a Macintosh.

That's how Dr. Warren Hehre found it. By looking a little farther, digging a little deeper and creating a whole new way to visualize molecular modeling with an Apple Macintosh personal computer. In fact, Dr. Hehre founded his company, Wavefunction, with the vision of bringing computational modeling to the chemical masses. His acclaimed application, MacSpartan, was specifically designed to maximize the awesome capabilities of the Power Macintosh computer and the PowerPC chip, delivering workstation-level performance to any chemist's desk. So now you can construct organic molecules using simple, graphical builders. Display complex 3-D graphics. Create vibration animation. Test your ideas. And share results with a simple cut and paste. In other words, explore, probe, analyze and discover more easily than has ever been possible before. And that's the real truth.

To find out more, visit us at www.sed.apple.com

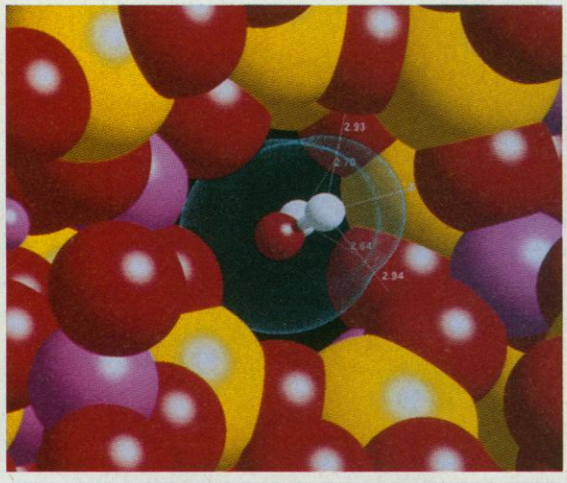
Molecular Modeling Software

development in the department of molecular biology at The Scripps Research Institute, explains that it can take years before a researcher gets hold of the roughly "ten thousand numbers" that describe the shape of a protein molecule. These would be x, y, and z coordinates for a typical protein, which may contain 3,000 atoms.

Of course, the first step in this process is getting enough pure protein for the analysis, says Pique, who has developed a light weight molecular display program called Flex. Nowadays, this is often done by either making or finding the DNA that gives the sequence of the protein and getting a bacteria or eucaryote, like a yeast, to overexpress that protein. Then the researcher will take a drop and crystallize it. Each of these steps is a worthwhile accomplishment in itself. Once a crystal is formed, the researcher very carefully mounts it in a glass tube containing more of the solution from which it came. X-rays are then beamed through it.

"It's heartbreaking to go back and read the old papers about this," explains Pique. "They knew it ought to be possible to do this. They talk about how they take their crystal, and they carefully dry it before putting it in the X-ray machine. You just wish you could have told them, 'No, no, no, leave that part out. Keep it wet!'"

If all goes well, what results is a piece of film that looks something like a "kaleidoscope view of a snowstorm." It is a picture comprised of many spots of different sizes and densities, with an overall symmetry. After merging scores of different images of the snowstorm — collected by rotating the crystal to create a certain redundancy — the researcher might be able to begin to make out the crystal structure. Because the spots are not in color — they show intensity but not the phase — the analyst often has to retrieve information lost during the X-ray procedure through the use of different techniques. One method is to make use of crystals soaked in heavy atoms, such as mercury or gold, which act as landmarks within the structure. Another is a technique called *molecular replacement.*



Hydrous corderite obtained from the optimization of this complex unit cell using the CASTEP quantum mechanics code.
Molecular Simulations, Inc.

This can be done if the protein in question is similar to a known structure. In this case, hoping to find something similar, the analyst will search for the protein whose structure is known within the unknown crystal. "It's like passing around a little template to find 'Waldo,'" explains Pique. "Of course, it's a six-dimensional search because there's translation and rotation." So, by moving this template around, if 'Waldo' hasn't moved his arms too much, the researcher may be able to pick him up in the crystal. "It's not guaranteed but it's become fairly routine."

All this work, if successful, culminates in an electron density map of the molecule in question: a cube of numbers, often 64 x 64 x 64, with the numbers ranging from, say, 0 to 100. This map can be imagined as a cloud in space with clumps where the big numbers are. That's where the electrons are, and, by extension, the atoms. "You get a picture that looks like a piece of coral sitting in space, with high spots and low spots and curves and branches going out," says Pique, "and the challenge is to try and fit what we know about the molecule into this electron density map."

This used to be done by hand in the 1960s and 1970s. Modelers would trace the density map onto clear plastic sheets and put them together. (It could have been like looking through a fish tank with many lines running through it.) By eye, these modelers would try to identify the clusters and strands and turns.

With the electron density map, it's possible to filter the image in such a way that only density spots within or above a given tolerance will be displayed. With protein and DNA the density inside the protein is higher than the density of the substance outside, which is typically water. This technique may produce a basket weave or wire frame picture of the molecule.

At this point, "getting an overview is hard," explains Pique. "Usually people are lost for a while." Initially, they look for landmarks — a helix, say, or a big, heavy residue that stands out — or better still, a metal like copper or zinc. A pair of sulfurs can act as a lighthouse to get a fitting started. Following along the chain, the modeler tries to piece together the chains of amino acids, while maintaining a good 3-D geometry.

Explains Pique: "Computer software helps with the rules, but it's still up to the scientist to say, for example, 'I see a

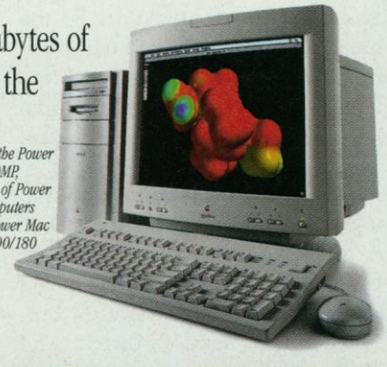
THE JOURNEY TO TRUTH NOW HAS A SHORTCUT.

Vision, meet reality. Introducing the new family of Power Macintosh computers. More power. More speed. More freedom. More Macintosh. The easiest, most powerful way yet to unleash and communicate your ideas. And, on average, 50% faster than just a year ago.*

In fact, the new Power Macintosh 9500/180MP features the performance of not one, but two RISC-based PowerPC 604e processors running at 180 MHz, providing the muscle needed to execute the computing-intensive tasks you need to get done—from 3-D graphics to molecular modeling to simulations.

We've built it with an internal 8x-speed CD-ROM drive, 2 gigabytes of hard disk space, 6 PCI slots, an upgradable processor as well as all the software you need to get up and running on the Internet.

It all happens faster on a Power Mac. Which means you can spend more time exploring your ideas, and less time waiting for your computer to catch up. Enjoy the ride.



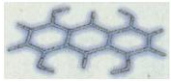
In addition to the Power Mac 9500/180MP, the new family of Power Macintosh computers includes the Power Mac 9500/200, 8500/180 and 7600/132.

For more information on Power Macintosh, visit us at www.sed.apple.com

Molecular Modeling Software

lump here. It's attached to a metal. According to the sequence, there's a histidine. We know from chemical studies that the histidine is bound to the metal, so I think that's probably histadine 43. And then maybe next to it we'll see something that has a ring on it, and we'll look at the sequence and see that 42 is a glycine and 44 is a phenylalanine, so we'll decide that that's the direction the chain goes.'"

Of course, by the time the scientist has gotten to the point where he's fitting the protein, he's often been living with it for two or three years. "He's on intimate terms with all of its residues and chains," says Pique.

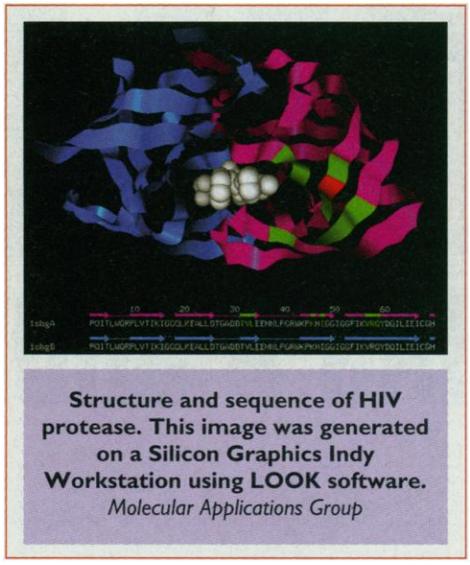


THE PROLIFERATION OF protein information through these techniques has made structure visualization and prediction and homology modeling accessible to experts in computational chemistry as well as bench chemists, educators, and students interested in gaining a basic understanding of molecular structure and interactions. Examples of companies that have developed broad-based molecular modeling and combinatorial software packages for a wide range of applications are HyperCube, Molecular Applications Group, and Chemical Design.

"There's not much question in my mind that every chemist could use modeling or visualization in some fashion. It's not the purview of the professional molecular modeler. It's a universal kind of tool for chemists."

That's Neil Ostlund, a computational chemist-cum-computer architect and founder of HyperCube, which produces HyperChem, a Unix- or Windows-based modular program that integrates molecular mechanics, semi-empirical and *ab initio* quantum mechanics, and molecular dynamics simulations with a set of visualization and manipulation tools. "HyperChem allows you to draw or build any molecular system interactively on the screen, visualize that molecular system in various ways, and perform a variety of computational chemistry calculations on the block molecules that are part of that system," explains Ostlund.

HyperChem's "open architecture" allows users to extend the program with other modules for specific applications including HyperNMR, which is used for the prediction of one-dimensional NMR spectra, and ChemPlus, which handles RMS fit, molecular presentation, sequence editing, crystal and sugar building, QSAR (quantitative structure-activity relationships), and conformational searching. An upcoming release of HyperChem will include a chemist's developer's kit to make it easier for users to interface with any Windows package or with custom-designed software.



Structure and sequence of HIV protease. This image was generated on a Silicon Graphics Indy Workstation using LOOK software.
Molecular Applications Group

Ostlund sees HyperChem as a generic program best suited for teaching purposes. "Our top application is educational use," he explains. "Even in the drug companies that have our software, it is mainly used by people who want to teach themselves about modeling. It's so easy to use — we get high school students using it who sit down and say, 'This is fantastic!'"

In fact, HyperCube has released an inexpensive version of its software called HyperChem Lite, designed specifically for researchers, educators, and students.

Molecular Applications Group (MAG) was founded in 1990 by Stanford University Professor Michael Levitt. Levitt had developed MACIMDAD (Interactive Molecular Design and Display for the MAC), an easy-to-use molecular visualization program, as a teaching tool at a time when much of the visualization software was command line-driven or needed to be run on powerful workstations. For many without access to these resources, or without programming backgrounds, MACIMDAD offered an opportunity to be able to sit down and visualize and dissect protein structure. Before long, Levitt's colleagues at Stanford were asking for copies of MACIMDAD for use in their classes.

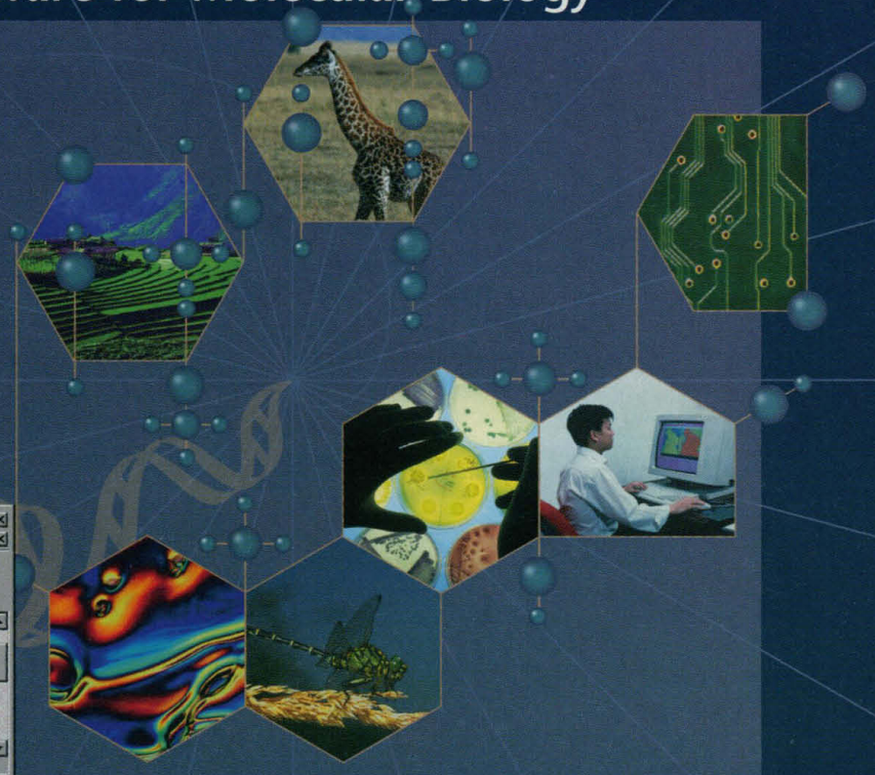
In 1994, MAG released LOOK, a second-generation product, which has at its core two algorithms to allow bench biologists to model protein structures themselves: Levitt's homology modeling algorithm SegMod and a site-directed mutant modeling algorithm developed by Chris Lee. LOOK, which runs on Silicon Graphics workstations and supports client-server environments for PC and MAC front ends, integrates molecular visualization and modeling on the protein structure side with protein sequence analysis functionality. It includes an electronic notebook that can be cross-referenced and hyperlinked to structure data.

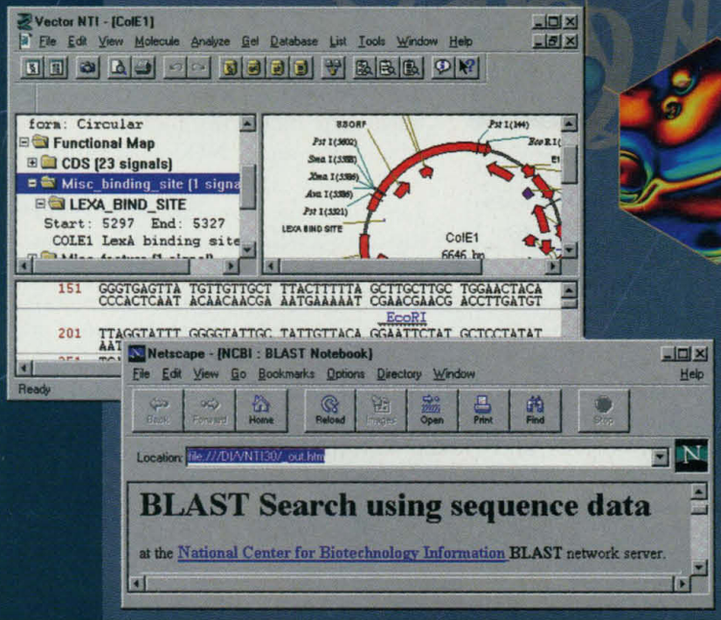
"Our focus is on ease of use and interrelating information," explains Charlene Son, director of marketing for MAG. "For example, we have made homology

Vector NTI

The Best Software for Molecular Biology

- PCR
- Cloning
- Internet Design
- ORFs Motifs
- Graphics
- Electrophoresis
- DNA Oligos





Do your entire cloning experiments on a computer

Organize your molecular biology data using our professional database

Download Vector NTI Demo: http://www.informaxinc.com

Bonus: FREE GenBank Viewer on our Web Site

InforMax

InforMax, Inc.
444 North Frederick Avenue, Suite 308
Gaithersburg, MD 20877 USA
(800) 357-3114 or (301) 216-0586 • Fax (301) 216-0087
informax@informaxinc.com • http://www.informaxinc.com

Problem Solving • Consulting • Software Development • System Integration

Circle No. 33 on Readers' Service Card

Molecular Modeling Software

modeling as simple as pressing a button. As a user, all I need to do is build a sequence alignment containing a template structure."

Scientists can model the structure of a protein based on another known structure, for example, a Protein Data Bank structure. Based on a user's sequence alignment, LOOK automatically builds the structure through a matching method, applying the folding information from the known structure to the new model. This approach produces accurate results in five to fifteen minutes, explains Son.

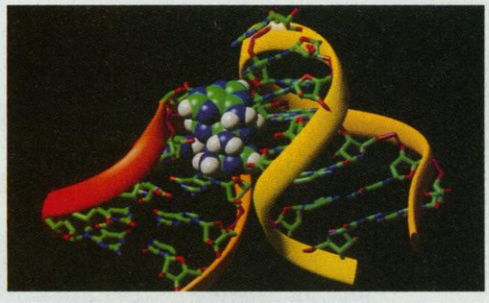
"If you want to model a protein structure or build a homology model," she adds, "with many programs you'll spend a lot of time altering parameters and making manual manipulations to the structure as it's being built. It's incredibly time consuming and often requires someone who is an expert modeler or computational chemist."

With LOOK, explains Son, "a molecular biologist or a bench chemist can handle many of their modeling and molecular visualization needs by themselves, without having to look over the shoulder of an expert modeler. Molecular biologists and bench chemists can take advantage of structural information to drive their experiments."

LOOK allows scientists to easily interrelate sequence and structure depictions of data. A protein structure and the sequence for that structure can be displayed simultaneously, providing representations that complement each other. "If you click on one part of the structure you can immediately see where you are in your sequence and vice versa. That direct connection can be very powerful."

If a user clicks on a central residue in a protein image, the corresponding sequence data will be highlighted as well as the structural neighbors. "A lot of times you'll see structural contacts that are 50 or 100 residues downstream if you look at the linear sequence," explains Son, "but they're actually right on top of each other."

Finally, by creating a hyperlink to the electronic notebook, the scientist can move down the line from structure to sequence to notes. "Say you have your structure, and you've highlighted the critical binding site and have it in a certain orientation," explains Son. "You can then highlight notebook text relating to that image, and it will connect to that depiction. You can build a historical lab notebook to use for later reference and to share with your colleagues."



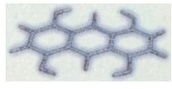
This view highlights GAAA tetraloop involved in interactions with the RNA helix using CPK rendering within Insight II.
Molecular Simulations, Inc.

Earlier this year, Chem-X, a modular software system developed by Chemical Design for use by specialists and general users in new product research, won *Scientific Computing & Automation Magazine's* Readers' Choice Award for chemistry software. Chem-X was initially developed in the 1980s as a molecular modeling tool. In the 1990s, chemical database software which was fully integrated with the computational tools was added. Recent developments for combinatorial chemistry enable Chem-X to integrate library registration, diversity analysis and library design, lead generation and optimization, robotics programming, and biological data management.

Chemical Design offers a range of entry-level systems, including Chem-X/Draw, Chem-X/Model, Chem-X/Base, and, more recently, Chem-X/Diverse, any of which can be enhanced by further standard modules, such as ChemProtein, ChemStat, or ChemQM. "Chem-X can grow by adding new functionality as you need it," explains Judith Bandy, technical writer at Chemical Design. "From simply drawing molecules on the screen and analyzing their properties, you can build an integrated software system for drug discovery that uses databases for selecting molecules to test, allows you to screen by a particular receptor site, and can use combinatorial chemistry to design new libraries."

Chem-X is available under a common user interface on a range of hardware platforms including PC, Macintosh, and UNIX workstations.

Recently, the focus at Chemical Design has been modified to providing software for combinatorial chemistry that is aimed at pharmaceutical organizations interested in accelerating drug discovery. "With the need to increase dramatically the number of new molecules that can be considered for activity testing, Chemical Design has been working with leading pharmaceutical organizations to develop software for combinatorial chemistry," says Bandy. "The result is an integrated information management system for exploiting, and not simply archiving, chemical and biological data."



LAST SUMMER, TWO OF THE largest computer-aided molecular design companies, BIOSYM and Molecular Simulations Inc. (MSI), merged to form a new company, known simply as MSI, which is today the largest vendor of computational chemistry software, supporting 3,500 commercial, academic, and government research and development sites in numerous industries, including pharmaceuticals, chemicals and biotechnology. MSI offers a wide range of software pack-

Technology Applications for Molecular Research

As a complete discovery research partner, Tripos provides chemical libraries, software, and services:

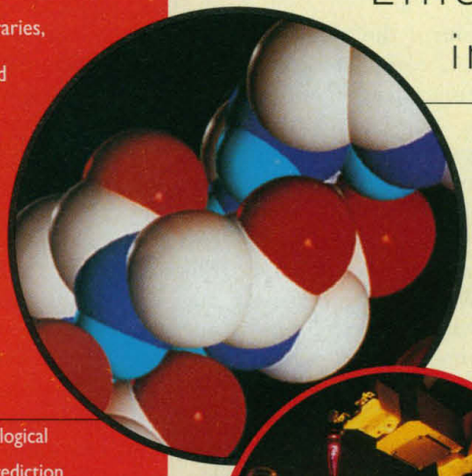
- pharmacological activity prediction
- pharmaceutical design
- combinatorial library design and selection
- 3D chemical database searching
- protein structure analysis
- desktop molecular design
- diverse chemical libraries

By delivering a range of powerful next generation tools that are easily accessible by your research team, new ideas and information can be explored quickly.

The challenges of today's R&D process are great. Budget constraints, complex problems, data overload, and the need to deliver answers quickly combine to form a volatile environment.

TRIPOS

Efficiency and Quality in Discovery Research



Tripos is addressing the needs of researchers by delivering a complete set of discovery research tools and services including diverse chemical compound libraries, software, and services. These products are built on our scientific expertise in molecular informatics and will play a critical role in your R&D success.

Chemical Libraries Help Target Better Answers Tripos is using its unique scientific expertise in chemical diversity to design and synthesize an optimally diverse library of drug-like compounds for your high-throughput screening program. They form a novel collection of chemicals not available from other sources. Tripos improves the chances for new product discovery and increases the efficiency of your research.

But it doesn't stop there. Our Accelerated Discovery Services group is dedicated to developing comprehensive programs for the development of therapeutic compounds of clinical relevance.

Your Research Partner Tripos is committed to your success. Call us today to find out how we can accelerate your research.

Tripos

phone: 800-323-2960 fax: 314-647-9241 e-mail: info@tripos.com web site: http://www.webcom.com/~tripos2/

Circle No. 46 on Readers' Service Card

Molecular Modeling Software

ages for molecular modeling and computational chemistry, including Cerius2, Insight II, Quanta, and Catalyst.

Cerius2, for example, combines tools for building and visualizing models of molecular structure with a wide range of computational algorithms. "Cerius2 provides a set of modules, each of which has a specific application focus," explains Michael Stapleton, a chemist and MSI's vice president of product marketing. "If I wanted to correlate the activities of a range of drugs and predict activities of new drugs, there's a whole suite of tools in the QSAR module to do that. If I wanted to predict the bulk particle shape of a drug molecule or a pigment or a dye, I'd use the morphology module. To determine the structure of a small molecule or an inorganic catalyst, I would use the X-ray diffraction module. If I wanted to predict the crystal structure of a drug, *ab initio*, without any experimental data, I would use the polymorph predictor."

MSI has a focus on molecular modeling to the "downstream end" of the pharmaceutical industry — the formulation and development end — explains Stapleton. "Typically these chemical engineers and chemists have already been delivered the drug molecule, and they've got to prepare the most effective way of delivering it to people as rapidly as possible.

"Right now, it's driven experimentally," he adds, "but more pharmaceutical companies are starting to use our sort of software to speed up knowledge acquisition in that area."

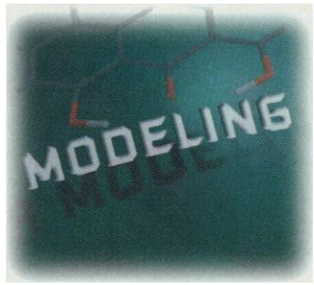
Pascal Toma, a crystallographer and senior research chemist in the analytical research department of Merck & Co., explains that where modeling software helps him most is in analyzing the morphology of drugs. "We grow crystals, load them into the computer, and calculate the powder patterns to confirm whether this drug is the same form in the bulk product as the crystals that are grown," he explains.

Ken Morris, a principal scientist in the chemistry department at Bristol Myers Products, says he relies on molecular modeling software principally to "make sure that the material that we have is what we think we have," and to solve problems in the determination of drug dosage forms.

"You want to control the shape so that they flow better, compact better, and allow for better mixing and content uniformity," he adds.

Morris uses software for morphology prediction, simulation of powder X-ray patterns from crystal structures, refining of powder X-ray defraction patterns to compare the purity of phases, and powder indexing. "We're trying to bring the level of our powder diffraction program up to the state-of-the-art where we'll be able to index and really know the cell dimensions without actually having to solve the crystal structure each time. That would be really nice.

"There are people who can do this stuff without the software," he adds. "But I'm not one of them. I wouldn't be able to do the more theoretical and resource-intensive calculations that I do now and carry out my other experimental functions without these programs."



Many of today's modeling programs are extremely easy to use, explains Morris. "Whether you understand the concepts or not you can use the software," he says. "But they're not a substitute for understanding the concepts. On the other hand, if you understand the concepts, [using the software means] you don't have to grind through all the calculations every time you want to do them."

John Holland, senior product manager at Oxford Molecular, identifies two distinct types of users of molecular modeling software: the computational chemist who works mostly with a computer; and the bench chemist working in a wet lab who needs to do some modeling to generate ideas. For the latter, Oxford Molecular offers a line of software tools under the name CAChe (the capital letters stand for computer-aided chemistry).

"CAChe is designed to allow the bench chemist to ask detailed questions of high-end scientific products without having to understand the technical details of what those scientific products are," says Holland. CAChe, which runs on Macintosh, Power Macintosh, and Windows platforms and can access high-end computational tools mounted on a Silicon Graphics or IBM RS6000 server, may be used to predict and visualize many molecular properties.

"The chemist can enter a structure and ask of the program, 'Show me the UV or IR spectra, or the NMR (nuclear magnetic resonance) shifts,'" explains Holland. "The chemist doesn't care whether he needs to perform *ab initio* quantum mechanics or semi-empirical quantum mechanics or run a force field program. The software has a built-in database of intelligence, so the parameters that the program needs to generate that information have been entered by a specialist who knows the best values."

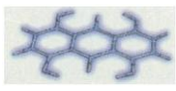
Where the big changes are occurring today, explains Holland, are in combinatorial chemistry with the introduction of synthetic robots capable of building large numbers of compounds. One of the traditional goals of molecular modeling has been to investigate molecular properties to try to predict the most useful drugs to build. Historically, a problem affecting the interaction of modelers and chemists was that the modelers were able to predict many more compounds than the chemists could build.

Today, "synthetic robots can now probably make as many compounds as

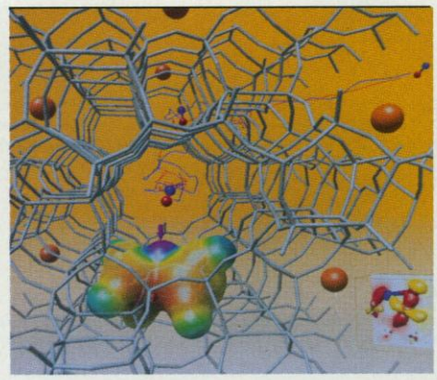
modelers can model, if not more," says Holland. "The technology of modeling has been turned around from looking at individual molecules and making accurate detailed descriptions of them to the study of libraries, in the same way that chemistry is changing to look at libraries of compounds."

The upshot of this is that it is becoming just as important, or perhaps more important, to be able to study molecules as a set and make predictions about the set than it is about individual molecules. "The problem that the molecular modeler faces," adds Holland, "is not so much trying to design new drugs from individual compounds; it's perhaps now more to guide the synthesis people to help them decide which subset of their 'virtual library' they're actually going to build."

Typically when researchers want to build a library to screen against all possible targets, they usually begin by trying to make the library as diverse as possible within a manageable size. How to measure molecular diversity is, itself, a complex task. Recently, Oxford Molecular redesigned its QSAR software, called TSAR, which was formerly aimed at studying problems involving up to about a thousand molecules where all these molecules could be investigated in detail. "We're transforming it into a program capable of dealing with hundreds of thousands or millions of molecules, a program that is limited only by your machine," explains Holland. "And we're building up a spreadsheet interface that will allow you to look at the subsetting problem on a number of levels."



EVERY PHARMACEUTICAL company has as one of its main assets a proprietary database of the chemicals they have made and tested over time. The leading company providing database software and information management software to these companies is MDL Information Systems. "Molecular modeling tools are design tools," explains Steven Goldby, MDL's chief executive officer. "We represent the information feed into that design process.



An interesting new class of automotive exhaust catalysts is based on dispersed copper cations in ZSM-5 ziolites.
Molecular Simulations, Inc.

"If you look at the HIV protease inhibitors," he adds, "that was a project that was tailor-made for the application of computational chemistry. Part of the protease enzyme had been isolated, and its structure was known. So people could use software and databases to design and select compounds that would preferentially interact with the enzyme."

People came up with hypotheses as to what sort of structures would bind with the protease. "They did searches of 3-D databases using MDL software," explains Goldby, "and defined chemicals they already had which would have that structure. They tested those chemicals and then began a process of refinement that involved molecular modeling tools as well as the traditional techniques of medicinal chemistry."

MDL's client-server system for database management, ISIS (which stands for Integrated Scientific Information System), incorporates a series of packages for creating chemical graphics; managing project data consisting of molecules and reactions; and accessing relational, chemical, reaction, and 2-D and 3-D structure databases. ISIS clients are available on Macintosh and Windows and Silicon Graphics workstations; servers run on Digital OpenVMS, IBM Research Systems 6000, and Silicon Graphics workstations.

Using ISIS, explains Goldby, a researcher who believes that a particular portion of a chemical structure is responsible for a given activity would be able to do a search for all chemicals that the company had made and tested in the past or had been reported in the literature which had that substructure as part of it. A new package called Project Library, which runs on Macintosh and Windows desktop computers, is designed to help researchers manage project chemical and biological data generated by combinatorial chemical processes.

In the coming years, pharmaceutical and biotechnology companies will continue to develop new techniques for searching through structure databases, looking for candidate molecules with a given shape and set of properties to act as possible receptors for particular targets. An important task will be to develop better representational storage and search techniques. One of the great challenges in representing 3-D properties with numbers is coming up with mathematical representations that are efficient to use. "If you need so many numbers to represent your 3-D situation that you can't handle them, it doesn't help very much," explains Michael Cory. "Now, if we can develop improved methodologies for representing molecules in 3-D and better visual patterning techniques for multiple molecules, we would be very much further ahead. The challenge is really that the volume of numbers to manage is so much greater than ever before."

-David Bornstein

DAVID BORNSTEIN IS A JOURNALIST WHO SPECIALIZES IN TECHNOLOGY, FINANCE, AND ECONOMIC DEVELOPMENT REPORTING.

ANIMAL HEALTH CENTRAL RESEARCH

"Deliver a pipeline of innovative, value added products..."

...is part of the mission statement of Animal Health Central Research Pfizer Inc., a research-based global R&D organization that employs more than 300 of the industry's most respected scientists. Our commitment to excellence consists of redefining the future by discovering and developing a new generation of animal health care products that bear the mark of innovation. Our belief that the greatest breakthroughs in our industry are yet to be discovered ensures exceptional challenges for our multidisciplinary team of scientists. If you share our belief, consider a professional career with us in one of the following positions:

Pathologist

Manage all aspects of clinical pathology for projects using biotherapeutics and gene therapy to control small animal diseases. Will also analyze complex biological pathways and disease pathogenesis to develop assays, reagents and tools for evaluating new vaccine candidates. Requires a D.V.M., Board Certification and two years of experience in pathology or veterinary internal medicine.

Clinical Research Investigator

Develop animal disease models, participate in the design and implementation of experiments, and conduct and interpret clinical evaluations. Requires a D.V.M., post graduate training and related experience in academia or commercial research.

Senior Research Scientists (4)

Four leaders are needed to provide supervision and hands-on expertise in each respective area as listed below. Successful candidates will have experience working with multi-disciplinary research teams, excellent communication skills and a strong publication record.

- Design and develop purification and characterization processes for native and recombinant proteins and develop appropriate analytical techniques to monitor the processes. Requires a Ph.D. in Biochemistry with directly related experience in protein isolation and analytical methodologies. Experience in purification of glycoproteins and carbohydrate biochemistry is desired.
- Design, conduct, and evaluate experiments in parasite immunology, T-cell cytokines and molecular parasitology. Requires a Ph.D. in Immunology or related discipline with post doctoral training using molecular and cellular biological skills for studying host parasite interactions. Additional experience in parasitic protozoan animal models and molecular manipulation of parasites is desired.
- Conduct research designed to identify and characterize protective antigens for veterinary diseases induced by *Mycoplasma spp.* Requires a Ph.D. in Microbiology or related discipline with post doctoral training in molecular pathogenesis of *Mycoplasma spp.* Work with M. hyopneumoniae employing molecular genetic techniques is desired.
- Conduct research designed to identify and characterize protective antigens for veterinary diseases induced by pathogenic spirochetes. Requires a Ph.D. in Microbiology or related discipline with post doctoral experience in molecular pathogenesis of spirochetes. Work with *Leptospira spp.* employing molecular biological techniques is desired.

Research Scientists (7)

Seven scientists are needed to provide guidance and expertise to project teams in each of the respective research areas listed below.

- Design and conduct experiments in B-cell biology with particular emphasis in mucosal immunity and protective memory responses. Requires Ph.D. in cell biology or related discipline with post doctoral training in molecular manipulation of B-cell genomes. Training in antibody therapies and protective memory responses desired.
- Utilize molecular and general virological methodologies to eluciate the function of viral genes appropriate for virus vaccines for use in animals. Requires a Ph.D. in Virology or related discipline and post doctoral training in molecular virology. Understanding of animal virus diseases to include pathogenesis, immunology and epidemiology is desireable.
- Conduct research on the molecular biology of gene identification, cloning and expression, develop new expression technologies, and evaluate immunogenecity of potential vaccine candidates. Requires a Ph.D. in either Virology/Molecular Biology/Cell Biology or Microbiology with post doctoral experience in developing expression systems and applying the systems to solve the research problems.
- Develop animal disease models and provide support to discovery projects in veterinary biologicals for livestock or companion animals. Will initiate the design and implementation of animal experiments, conduct clinical evaluations and interpret results, and generate appropriate reports. Requires a D.V.M. with graduate training in clinical veterinary medicine and experience in livestock or companion animal research. (Two opportunities exist, one for livestock, the other for companion animals.)
- Design and conduct experiments to elucidate protective immune responses and disease pathogenesis in response to viral pathogens. Requires a Ph.D. in Viral Immunology or directly related discipline with post doctoral experience in molecular manipulation.
- Develop expression systems for use in virus vectors, eukaryote cells and DNA vaccines using contemporary molecular biological approaches. Requires a Ph.D. in Virology/Molecular Biology/Cell Biology or Microbiology with experience in expression systems desired.

Scientist

Optimize cell lines necessary for maximum virus or protein yields. Requires a B.S. in Biology or related life science with experience in culturing and optimizing of mammalian cells. Production and optimization of modified cell lines is desirable.

As a contributing member to our staff, you can enjoy excellent compensation and benefits, a uniquely supportive and challenging environment, with significant opportunities for professional development. Our scenic shoreline location offers easy access to the many cultural, educational, recreational, and life-style advantages of New England. Please submit resume for electronic scanning (i.e., no italics, bullets, bold print, underlines, nor staples), in confidence to: **Employee Resources, AD# 1159, Pfizer Central Research, Eastern Point Road, Groton, CT 06340.**

Pfizer is committed to the principle of workforce diversity.
We are an equal opportunity employer M/F/D/V.

Pfizer

Bring Science to life.

SCIENCE'S
next wave
http://sci.aaas.org/nextwave

A Daring Science Career: Start Your Own Company

As a graduate student at the University of California, Berkeley, Lee Jensen never imagined he would leave academic research to start his own company. "I envisioned myself living and dying as a scientist," he says. "I used to joke that scientists shouldn't be going out and starting companies." Now the joke has come full circle. In 1992, following a 3-year postdoc at Stanford University and academic research stints at Berkeley and the University of California, San Francisco, Jensen started Vitadata Corp. to provide information and telecommunications technology services to the biomedical research community.

This is the sixth in a series of pages in *Science* magazine linked to features appearing on *Science*'s Next Wave, the AAAS/*Science* Web project for young scientists. The story and Web feature both highlight starting a high-tech company as a career move.

Jensen is one of many entrepreneurial-minded scientists who are striking out on their own and starting small companies in areas ranging from software development to biotechnology. These visionary scientists find that the world of start-ups is filled with challenges that they didn't learn how to handle at the lab bench: raising money, hiring a star management team, and forming corporate alliances. The risk of failure is great and the pressure and workload are intense—but the rewards, in terms of money and independence, can be equally great.

What drives certain scientists to take on these risks? For some, it is a logical calculation about the course they want to take. Spiros Jamas, for example, got his Sc.D. in carbohydrate chemistry from the Massachusetts Institute of Technology in 1987. In 1988, following a 1-year postdoc, he founded AlphaBeta Technologies Inc. Jamas says he has always been "inclined in an entrepreneurial direction," and he began talking with venture capitalists even as a graduate student. "I wasn't really attracted to going to work for a large company, and I didn't want to go into academia," says Jamas. Consequently, starting his own company seemed the logical next step.

Others, like William Hunter, chief scientific officer of Angiotech Pharmaceuticals Inc. (formerly Angiogenesis Technologies Inc.), find themselves almost by chance becoming entrepreneurs. Hunter received his Ms.Sc. in 1989 while a medical student at the University of British Columbia. The focus of his research was angiogenesis. In 1991, while still a medical student, he was asked to give a lecture during grand rounds on the topic of his Ms.Sc. research. One of the scientists in the audience, interventional radiologist Lindsay Machan, was struck by the way Hunter's research fit neatly with Machan's own.

Hunter and Machan approached Hunter's former supervisor, Larry Arsenault, and asked him to join them. The result: In 1992, when Hunter graduated from medical school, he founded Angiotech with Arsenault and Machan. Hunter, who always thought he would end up in academic medicine, "learned the ropes" by talking to venture capitalists. "It was difficult," he says. "I had to pretend I was older and more experienced than I really was."

Whether scientific entrepreneurs take the calculating or the serendipitous route, they quickly learn one important lesson: Find out when and where to find help. "You need to know what you don't know so you can ask people," says Hunter. "You have to be careful you don't start thinking, 'Wow! Now I'm an entrepreneur,' and you start to become seduced by your own press clippings." Ken Kelley, president, CEO, and founder of Intrabiotics Pharmaceuticals, agrees. "If you don't have experience starting a company, you need to find someone who does. Finding good people," says Kelley, "with the right skills" is extremely important.

Finding the right people, of course, can become a problem only after the would-be entrepreneur has found enough financial backing to begin hiring. Barry Toyonaga, president, CEO, and founder of Ontogen, started his company when he "walked into the San Francisco Main Branch of the Bank of America with a $100.00 check." After that he rented a small office, a desk, a computer, a printer, a fax machine, a filing cabinet, and a telephone. With his new place of business established, Toyonaga began traveling around the country looking for capital. "It's very important to establish a sense of commitment and conviction," says Toyonaga. "You can't be shy. Without being too egotistical you have to be able to look someone in the eye and say—this is our vision and this is our plan."

To young scientists with a bright idea, the idea of approaching potential investors may seem daunting. What do potential investors look for? According to Russell Hirsch, a general partner with the Mayfield fund, a venture capital firm in Silicon Valley, venture capitalists ask a variety of questions before financing a small start-up. For example, what is the potential market, is the core technology proprietary, and what is the quality and completeness of the management team? Hirsch emphasizes, "These questions need to be answered to fund something as a business, but you don't need the precise answers to these to approach a venture capital firm. If the idea is good we'll work with the person to evaluate it, and if it looks like it'll work we'll help develop it."

With the stress and high risk involved, the entrepreneurial life is not for everyone. Despite these drawbacks most entrepreneurs wouldn't give up the life they have chosen. In fact, many scientists who take the plunge find they prefer the entrepreneurial lifestyle to that of life in the lab. They enjoy the fast pace and pressure. "Starting a company," says Jensen, "is more challenging than anything I did in the laboratory." They enjoy hiring creative scientists, a star management team, and creating a positive corporate culture—all of which shape the science of a company. Young scientists with an adventuresome spirit may find taking that bright idea they have been thinking about since their second year of graduate school and building a company can be one of the most exhilarating experiences they've ever had.

–Nicole Ruediger

Nicole Ruediger is a young scientist living in Florida who is considering a range of career options.

For more information on starting your own science-based company, please go to *Science*'s Next Wave, on the World Wide Web at http://sci.aaas.org/nextwave, and look under the "New Niches" heading on the home page. There you will find the stories of Role Models who have already started their own high-tech firms, along with Resources that will help you find out more about how to begin that complex process yourself.

SCIENCE

DISPLAY CLASSIFIED ADVERTISEMENTS

Call for rate and deadline information on display classified advertisements.
Email: science_displayads@aaas.org

Bethany Ritchey
Recruitment Display Advertising
Telephone: (202) 326-6541
FAX: (202) 289-6742
Email: science_displayads@aaas.org

Janis Crowley
Recruitment Advertising Manager
Telephone: (212) 496-7704
FAX: (202) 289-6742

Debbie Cummings
European Recruitment Advertising
Telephone: +44 (0) 1223 302067
FAX: +44 (0) 1223 576208

For **GLOBAL CAREER OPPORTUNITY** display advertisements, turn to pages 1442-1443.

See SCIENCE Classified Ads on-line at ***http://www.sciencemag.org***

LINE CLASSIFIED ADVERTISEMENTS

How to Submit a Line Classified Ad: Submit double-spaced typewritten copy. Do not include any abbreviations. SCIENCE will edit and typeset ads according to SCIENCE guidelines. Include billing information and desired publication date. Available categories: Positions Open, Meetings, Announcements, Courses and Training, Services. SCIENCE cannot provide proofs of typeset line ads. Line advertisements are not commissionable.

Estimates: SCIENCE will provide a cost estimate for line ads. This is an approximate cost only. Allow for variation between estimated lines and actual typeset lines and resulting final cost. Purchase orders must allow for some degree of flexibility and/or adjustment.

For line advertising deadlines, call Eric Banks. Telephone: (202) 326-6555; FAX: (202) 289-6742. Email: science_classifieds@aaas.org

Credit Cards: SCIENCE accepts American Express, MasterCard and VISA. Discount does not apply to credit cards.
Cancellations: Deadline for cancellation is Tuesday, 10 days prior to issue date.
Discounts: A 3% cash discount is granted to all prepaid ads.
Ads from Outside the U.S.: A discount of $30 will be offered to advertisers making payment in U.S. dollars by checks drawn on U.S. banks. Contact Debbie Cummings. Telephone: +44(0) 1223 302067; FAX: +44(0) 1223 576208.

SCIENCE Global Career Network: Unless otherwise instructed, every classified advertisement submitted for publication in SCIENCE is automatically posted on SCIENCE's on-line classified advertising service, SCIENCE Global Career Network, at no additional charge.
SCIENCE Global Career Network address:
http://www.sciencemag.org

Mail, FAX or Email materials to:
SCIENCE Classified Advertising
1200 New York Avenue, N.W., Room 911
Washington, DC 20005
FAX: 202-289-6742
Email: science_classifieds@aaas.org (please include your telephone number in Email)

SCIENCE reserves the right, at its discretion, to edit or decline to publish advertisements submitted to it.

POSITIONS OPEN

CHAIRPERSON, DEPARTMENT OF BIOLOGICAL SCIENCES

The University of Alabama invites applications and nominations for the position of **CHAIR** of the Department of Biological Sciences in the College of Arts and Sciences. The faculty (28 members) has two areas of primary research focus: ecology/systematics, with emphasis on freshwater systems, and molecular biology, with emphasis on development. The Ph.D. and M.S. degree programs enroll approximatley 70 graduate students. The Department offers specialized programs of undergraduate study in molecular biology, ecology and systematics, preprofessional areas (medicine, dentistry, and optometry), marine science, and microbiology for 470 majors and has a substantial commitment to non-majors. The faculty seeks a distinguished scientist with a Ph.D. or equivalent degree and an outstanding record of significant scientific and administrative accomplishments. The candidate should demonstrate exceptional leadership skills, including the ability to work well with faculty having diverse interests, students, and administrators. The candidate would be expected to strengthen existing areas of excellence, mentor faculty, promote faculty contract and grant activity, develop interdisciplinary research, and organize strong instructional programs. The position will start August 15, 1997. Applications will be accepted until the position is filled; however, review of applications will begin November 1, 1996. Applicants should send a detailed curriculum vitae, a statement of administrative philosophy, an outline of current and future research and instructional interests, and the names, addresses, and telephone numbers of at least three references to: **Alvin L. Winters, Ph.D., Chairperson Search Committee, Department of Biological Sciences, Box 870344, The University of Alabama, Tuscaloosa, AL 35487-0344. Telephone: 205-348-1019; FAX: 205-348-1786; Email: AWINTERS@BIOLOGY.AS.UA.EDU.** *The University of Alabama is an Equal Opportunity/Affirmative Action Employer.*

UNIVERSITY OF NEVADA, LAS VEGAS DEAN OF THE COLLEGE OF SCIENCES

The University of Nevada, Las Vegas is seeking an outstanding individual to become the Dean of the College of Sciences. The Dean is the chief administrative officer of the College, reporting directly to the Provost. Candidates should describe their experience relative to: a doctorate in an appropriate field; experience commensurate with tenure and senior rank; established research record including external funding; teaching/ mentoring experience; and, leadership and management experience, including conflict resolution and interpersonal skills. Letters of nomination or application, containing a curriculum vitae, a statement of administrative experience and philosophy, and the names, addresses, and telephone numbers of three references should be sent to: **Chair of the Search Committee, William R. Wells, Dean, Howard R. Hughes College of Engineering, University of Nevada, Las Vegas, Box 454005, Las Vegas, NV 89154-4005** prior to November 1, 1996. *University of Nevada, Las Vegas is an Equal Opportunity/Affirmative Action Employer. Women and minorities are encouraged to apply.*

CO-DIRECTOR OF CARDIAC CYTOKINE LABORATORY Assistant or Associate Professor Level

The Department of Medicine, Baylor College of Medicine, invites applicants with hands-on experience in molecular biology, biochemistry, and cell biology, and who are able to supervise postdoctoral fellows in these areas. Candidates should possess a Ph.D., M.D., or M.D., Ph.D. degree and demonstrate an ability to publish. Tenure status will be determined by qualifications. Salary and benefits competitive. Send letter of interest and curriculum vitae to: **Douglas L. Mann, M.D., Cardiology Research (151C), Houston VAMC, 2002 Holcombe Boulevard, Houston, TX 77030.** *Affirmative Action/ Equal Opportunity/Equal Access Employer.*

FIELD ECOLOGIST sought to fill a temporary position emphasizing undergraduate research and teaching of general ecology, environmental science, and an advanced course. Opportunity to teach a distance learning course exists. Ph.D. required. Preferred start date is January 6, 1997. Salary up to $35,000 per annum, funded through June 1998. Consult: **http://www.western.edu/bio.** Submit curriculum vitae, statement of teaching philosophy, transcripts, and names of three references to: **Thornton Visiting Professor Search Committee, Biology Program, Western State College, Gunnison, CO 81231.** Review of applications will begin October 1, 1996. *An Equal Opportunity Employer.*

POSITIONS OPEN

SUPERVISORY FISHERY BIOLOGIST TWO POSITIONS

The Conservation and Utilization Division of NOAA's National Marine Fisheries Service, Northeast Fisheries Science Center seeks quantitatively oriented biologists and ecologists to conduct and supervise research on the biology, ecology and population dynamics of marine finfish, invertebrate and marine mammal species. Two positions are open:

CHIEF, Protected Species Branch
Woods Hole Laboratory, Woods Hole, Massachusetts
CHIEF, Population Biology Branch
Woods Hole Laboratory, Woods Hole, Massachusetts

Both positions are at the GS-14 level ($61,348-$79,754 per annum).

Applicants should possess a Ph.D. and should be experienced in supervision of relevant research programs; strong analytic skills are also necessary. The Division performs research and stock assessments that provide the scientific basis for management of fishery resources and marine mammal stocks in the Northeast.

Applicants must be qualified United States citizens; NOAA is an Equal Opportunity/Affirmative Action Employer. For application package(s) call or write the **Office of Personnel Management, Raleigh Service Center, 4407 Bland Road, Suite 200, Raleigh, NC 27609. Telephone: 919-790-2822,** by September 30. Ask for one or more of the following: Announcement No. AR0365 (Protected Species); and AR0369 (Population Biology). For additional information about the positions, contact: **Ms. Kathryn McArthur, NOAA, 200 World Trade Center, Norfolk, VA 23510. Telephone: 804-441-6348.**

MINNESOTA LANDSCAPE ARBORETUM ENDOWED LAND-GRANT CHAIR FOR RESEARCH

The University of Minnesota has established an **ENDOWED CHAIR** to support research pertinent to the genetic improvement, production, use, or maintenance of woody perennial landscape plants. The Minnesota Landscape Arboretum is an ideal setting for such research. Chair-holders, whose research will necessarily be of mutual interest to themselves and the Arboretum, will carry out a signficant portion of their work at the Arboretum and make use of the unique biological, human, and physical resources of the Arboretum, the Department of Horticultural Science, and other units of the University of Minnesota. Earnings from the endowment can be used as salary for the chair-holder (such as sabbatical supplemental salary), or for support of the chair-holder's project. Proposals are requested for filling this endowed chair. Proposals must be joint projects with a faculty member of the University of Minnesota. Projects can be from three months to one year in duration, with possible renewal.

For a more detailed description or to apply for this Chair, please submit by November 15, 1996, a description of your research proposal, a letter of support from the collaborating Minnesota faculty member, a copy of your curriculum vitae, and names and addresses of two additional references to: **John Carter, Department of Horticultural Science, University of Minnesota, St. Paul, MN 55108. Telephone: 612-624-4966.** *The University of Minnesota is an Equal Opportunity Educator and Employer.*

CHEMISTRY FACULTY POSITIONS

As a part of a continued expansion program, the School of Chemistry and Biochemistry of the Georgia Institute of Technology seeks to fill **TENURE-TRACK FACULTY POSITIONS** in structural biochemistry and bioorganic chemistry. Candidates who can take full advantage of state-of-the-art high-field NMR spectrometers are especially solicited.

Preference will be given to applications at the junior level, but applications from outstanding individuals with established research programs will be considered. *Georgia Tech is committed to diversity in its faculty and students and encourages applications from women and minority candidates.*

Candidates at the entry level should send an application letter, indicating research areas and teaching interests, curriculum vitae, and a summary of research plans. They should also request graduate transcripts and three letters of reference. All materials and requests for information should be directed to: **Chairman, Faculty Search Committee, School of Chemistry and Biochemistry, Georgia Institute of Technology, Atlanta, GA 30332-0400.**

We will begin evaluating applications October 15, 1996. Additional applications will be considered until the positions are filled. *Georgia Tech is an Equal Education/Employment Opportunity Institution.*

Howard Hughes Medical Institute

Predoctoral Fellowships in Biological Sciences

1997 Competition

80 fellowships will be awarded by the Howard Hughes Medical Institute for study toward a Ph.D. or Sc.D. degree in the biological sciences listed below. Awards, based on an international competition, focus on research directed to understanding basic biological processes and disease mechanisms. Fellowships may be held at academic or research institutions with appropriate degree programs.

Fellowship Terms

- Full-time study toward the Ph.D. or Sc.D.
- Up to five years of support possible
- $15,000 annual stipend, effective June 1997
- $15,000 annual cost-of-education allowance, effective June 1997

Eligible Fields of Study

biochemistry
biophysics
biostatistics
cell biology
developmental biology
epidemiology
genetics
immunology
mathematical and computational biology
microbiology
molecular biology
neuroscience
pharmacology
physiology
structural biology
virology

Eligibility

- Beginning graduate study (prior study toward an M.P.H. or a medical degree does not rule out eligibility)
  - college seniors
  - first year graduate students
  - medical students and physicians (M.D., D.O., D.D.S., or D.V.M.) not past the first year of a Ph.D. or Sc.D. degree program
- Not in a funded M.D./Ph.D. program
- No citizenship requirements for application; U.S. citizens may study abroad, but others must study in the United States

Schedule

Application deadline: November 15, 1996
Awards announced: early April 1997
Fellowships start: June 1997–January 1998

1997 Program Announcements, Eligibility Guidelines, and Applications

Hughes Fellowship Program
The Fellowship Office
National Research Council
2101 Constitution Avenue
Washington, DC 20418, United States of America
Telephone (202) 334-2872
Fax (202) 334-3419
E-mail <infofell@nas.edu>
http://www.nas.edu/fo/index.html

The Howard Hughes Medical Institute, an Equal Opportunity Employer, welcomes applications from all qualified candidates and encourages women and members of minority groups to apply.

DEAN

College of Natural and Mathematical Sciences

Towson State University

Applications and nominations are invited for the position of Dean of the College of Natural and Mathematical Sciences at Towson State University. The dean may assume office early in 1997, but no later than July 1, 1997. The dean is responsible for providing leadership for the Departments of Biological Sciences, Chemistry, Computer and Information Sciences, Mathematics and Physics and for outreach to the community. Undergraduate programs are offered in each department; master's programs are offered in biological sciences and computer sciences.

A successful candidate will have a Ph.D. in a natural or mathematical science with a proven record in

- Leadership and academic administration
- Teaching excellence and familiarity with current technologies
- Scholarship
- External funding

An application should include a detailed resume, two letters of reference, addresses and telephone numbers of up to three additional references, and a one to two page statement of the applicant's perception of the role of the Dean of the College at a public, comprehensive university. Nominations will be accepted until September 27, 1996. Applications must be completed by October 11, 1996. Correspondence should be sent to:

Dr. Nordulf Debye
Search Committee Chair for
Dean of the College of Natural
and Mathematical Sciences
Office of the Provost
Towson State University
8000 York Road
Towson, Maryland 21252-7097

Towson State University, with an enrollment of 15,000 students, is located on 318 rolling acres in a northern suburb of Baltimore, close to the varied educational, cultural, industrial, and recreational opportunities available in the Baltimore-Washington area. TSU, the second largest school in the University of Maryland System, enrolls and graduates more undergraduate students from the region than any other institution. **http://www.towson.edu.**

Towson State University is an equal opportunity/affirmative action employer and has a strong institutional commitment to diversity. Women, minorities, persons with disabilities, and veterans are encouraged to apply.

Assistant Professor
Neurobiology

Rider University

Fall, 1997: Tenure-track position at assistant professor level. Rider University Biology faculty incorporate research experience in the curriculum and seek a colleague committed to the value of undergrad ed. He/she is expected to establish an active research program that incorporates undergraduates in investigating problems in vertebrate systems at the cellular/molecular level.

Teaching duties may include vertebrate physiology, neurobiology, and an advanced course in his/her specialty. Participation in new interdisciplinary Biopsychology program is expected. Post-doctoral experience required. Send cover letter, curriculum vita, copies of transcripts, and three letters of recommendation by November 30, 1996 to: **Dr. James Riggs, Neurobiologist Search Committee Chair, Biology Dept., Rider University, 2083 Lawrenceville Rd., Lawrenceville, NJ 08648.** Questions and requests for additional information may be sent to Riggs@enigma.rider.edu

Visit Rider University on the Internet: http://www.rider.edu

Rider University is an equal opportunity/affirmative action employer and does not discriminate on the basis of age, race, sex, disability, sexual orientation, national origin, religion, or any other non-job related criteria.

NEUREX CORPORATION, a rapidly growing biopharmaceutical company in the San Francisco Bay Area, is currently conducting projects aimed at discovering drugs to treat a variety of neurological disorders.

PHARMACOKINETICS/ TOXICOLOGY

The Department of Pharmacology seeks a Scientist to design, monitor/conduct, and evaluate both internal and external Safety Assessment, Pharmacokinetic, and ADME studies of proprietary compounds. Ideal candidate will possess a Pharm.D. or Ph.D. in Pharmacology and have advanced training in Pharmacokinetics and Toxicology. A minimum of 3 years post-doctoral experience is required; pharmaceutical industry experience preferred. Excellent communication and interpersonal skills are a must.

Neurex offers a competitive salary and benefits package, including stock options. For consideration, send your resume and references to: Human Resources/Job: SB-1, Neurex Corporation, 3760 Haven Avenue, Menlo Park, CA 94025-1012. We are an equal opportunity employer.

NEUREX

Pharmaceutical

Be at the forefront

...of drug development research with the DuPont Merck Pharmaceutical Company. We are focused on meeting unmet medical needs through the discovery and development of innovative compounds leading to novel pharmaceuticals. The Inflammatory Disease Research group is seeking individuals to join its enzymology and animal pharmacology teams conducting drug discovery research in Arthritis. We have immediate openings at our facilities for the following:

Staff Scientist-
Animal
Pharmacology
The ideal candidate will have an MS in Animal Pharmacology, Immunology or Cell Biology with a working knowledge of the development and characterization of animal models of inflammation. The candidate will also have the ability to work closely with scientists from other disciplines and lead a team in characterizing and running relevant animal models. Desired technical skills include animal handling and surgery, immunohistochemistry, in situ hybridization, immunoassay of biological fluids, and flow cytometry. **(Code: SS-AP)**

Staff Scientist-
Biochemistry/
Enzymology
The ideal candidate will hold a BS/MS degree in Biochemistry with demonstrated expertise in protein purification and characterization, enzyme assay development, kinetic analysis, and biophysical techniques used to study protein/protein interactions. Fluency in computer use related to data analysis, graphics, data management, slide presentations, word processing, and literature searching is also essential. The successful candidate will work with a senior investigator as part of a larger team in enzyme targeted drug discovery with responsibilities for experimental design, data analysis and reporting results to senior management. **(Code: S-BE)**

The DuPont Merck Pharmaceutical Company can offer you an excellent compensation and benefits package including a 401K plan as well as excellent working conditions and challenging assignments. Please send a letter of introduction and resume indicating code to: The DuPont Merck Pharmaceutical Company, Human Resources-**(Code)**,Maple Run 2282, P.O. Box 80722, Wilmington, DE 19880-0722. An equal opportunity employer M/F/D/V.

DU PONT
MERCK

The DuPont Merck Pharmaceutical Company
Merging Strengths...Emerging Opportunities.

DRUG METABOLISM

Right now, an ever growing number of the pharmaceutical industry's most respected research scientists are making history at Pfizer's Central Research Division in Groton, Connecticut. Backed up by the unparalleled financial and technical resources of a progressive Fortune 100 multinational company, these professionals are pioneering the development of a new generation of pharmaceutical and healthcare products. Already, their findings have contributed immeasurably to the fields of drug discovery and the development of human and animal health products. And while their work has radically improved the quality of life for millions around the world, much remains to be done.

Research Scientists, PhD

You will interact in a project area with a multidisciplinary team including chemists, biologists and clinicians where pharmacokinetics and drug metabolism input is essential to the discovery and development of new drugs. Additionally, you will work with some of the most advanced equipment and support systems available.

Qualified candidates will have a Ph.D. or equivalent degree in chemistry, biochemistry, or a related field in the biological sciences and superior interpersonal and oral/written communication skills. Experience in pharmacokinetics, drug metabolism, analytical chemistry, chromatographic methods, and *in vitro* metabolism studies would be an asset. Practical experience with bioanalytical methods and biotransformation of drugs is highly desirable. **Ad# 1163**

THE FUTURE IS EVERYTHING YOU CAN IMAGINE...

AT PFIZER

Research Assistants, BS/MS

You will participate in drug discovery and development by investigating the pharmacokinetics and *in vivo* and *in vitro* metabolism of new pharmaceutical candidates. Advanced analytical and biochemical techniques will be used in your research. Requires a BS/MS in biological or chemical science. Revelant experience in the development of quantitative analytical methods for drugs in biological matrices, pharmacokinetics, metabolite isolation and identification, and electronic data handling is highly desirable. **Ad# 1164**

As a contributing member of our staff, you will enjoy an excellent compensation package, a uniquely supportive environment and significant opportunities for professional development. Our scenic, shoreline location offers easy access to the many cultural, educational, recreational, and life-style advantages of New England. Please submit resume suitable for electronic scanning (i.e., eliminate italics, bullets, bolds, underlines and staples) indicating Ad#___ to: Employee Resources, Pfizer Central Research, Eastern Point Road, Groton, CT 06340.

Pfizer is committed to the principle of workforce diversity.

An Equal Opportunity Employer M/F/D/V

Pfizer

Central Research
Bringing science to life.

Faculty Position in Biophysics
University of California, Los Angeles

The Departments of Physics and Astronomy, Chemistry and Biochemistry and the Jules Stein Eye Institute invite applications for a senior faculty position in experimental biophysics. Exceptionally well-qualified junior applicants will also be considered for appointment at the assistant or associate professor level. Applicants should have a demonstrated ability to pursue an independent research program that involves collaboration with biochemists and molecular biologists. We are particularly interested in biophysicists with expertise in advanced probes such as optical methods, force microscopy, magnetic resonance, x-ray scattering, and the use of genetic manipulation. However, highly qualified individuals with interests in other areas of biophysics will be considered.

This search is being conducted jointly by the Physics and Astronomy, Chemistry and Biochemistry Departments of UCLA in collaboration with the Jules Stein Eye Institute of the UCLA Medical School, which has active biophysics-related research programs that include protein-folding, electron spin resonance, signal processing within cells, and molecular mechanisms of membrane transduction. The successful applicant would establish an affiliation with JSEI, ranging from an informal research collaboration to a joint faculty appointment, and would be expected to stimulate a biophysics teaching program.

Applicants should send a resume, a research statement, and names of at least three references to **F. V. Coroniti, Chair, Department of Physics and Astronomy, University of California, Los Angeles, CA 90095-1547.** For full consideration, applications should be received by September 15, 1996. *The University of California is an affirmative action/equal opportunity employer.*

HEAD OF DIVISION OF PEDIATRIC ONCOLOGY/HEMATOLOGY
UNIVERSITY OF MINNESOTA

The University of Minnesota Department of Pediatrics and the new Cancer Center is seeking outstanding candidates for the position of Head of the Division of Pediatric Oncology/Hematology. Candidates should be nationally recognized for leadership and research achievements in oncology.

The rank of this position will be at the level of Associate Professor with tenure, or Professor with tenure, dependent on training, experience, and accomplishments. Essential qualifications include a doctoral degree (M.D., Ph.D., or equivalent), and an established record of achievement in research as reflected in publication record and external grant support. The candidate should have demonstrated the organizational skills necessary to lead an academic program which includes clinical activities, research, and the teaching of residents, postgraduate fellows, graduate students, and other health professionals. Active participation and assignment of laboratory research space in the University of Minnesota Cancer Center is anticipated. In addition, opportunities exist for close collaboration with the divisions of pediatric bone marrow transplantation and pediatric epidemiology/clinical research, and with community pediatric oncologists/hematologists.

Qualifications for tenured Associate Professor include professional distinction in research (clinical, translational, or basic) and demonstrated effectiveness in teaching. Qualifications for tenured Professor include a national reputation in research and evidence of leadership.

Last date for receipt of applications is November 15. Applicants should submit a letter of application and CV to:

John H. Kersey, M.D., Chair, Search Committee
University of Minnesota Cancer Center
Box 86 UMHC
420 Delaware Street, SE
Minneapolis, MN 55455

The University of Minnesota is an equal opportunity educator and employer.

DIRECTOR OF LICENSING

A rare opportunity currently exists at IGEN, Inc. for an ambitious commercially aware Licensing Affairs Executive to join a medium size diagnostics and pharmaceutical business that is committed to planned expansion. IGEN and its related companies are developing innovative technology for diagnostic systems, cancer therapies, and gene therapy.

The ideal candidate for this position will have gained significant licensing experience in blue chip biotech/pharmaceutical companies. Responsible for all the licensing activities of the company, you will work with a small group of well qualified professionals in a dynamic, entrepreneurial environment. You must have the business acumen and technical skills to pursue the best opportunities with evidence of a proven track record of success. Solid leadership skills and the ability to embrace change in this fast paced climate will form the foundation of an exciting career for this key executive.

If you have a Ph.D., the above qualifications, the ability to think globally, coordinate many tasks, and thrive on challenge, please mail or fax your resume and complete salary history to:

IGEN, Inc.
16020 Industrial Drive
Gaithersburg, MD 20877
Fax: 301-947-6998
Attn: Human Resources/HS.

THE OHIO STATE UNIVERSITY

DEAN OF THE COLLEGE OF ENGINEERING

The Ohio State University invites applications and nominations for the position of Dean of the College of Engineering, including the Austin E. Knowlton School of Architecture. The position will be available July 1, 1997.

The College of Engineering comprises a distinguished 250-person faculty serving 5,000 undergraduates and 1,600 graduate students in 10 academic units. The Dean of Engineering oversees a total budget of $86M, including one of the largest engineering research budgets among public institutions in the United States, and has the support of 35,000 College of Engineering alumni.

We are seeking a candidate with demonstrated leadership and vision to shape engineering education into the next century. The candidate should be a strong advocate for collaborative and broad-based engineering involvement with science and other disciplines, strongly committed to serving student needs, and a distinguished engineer or applied scientist with an international reputation in research and manifested expertise in organizational management, communication, and leadership. As a key member of the university leadership, the Dean is expected to contribute to the broad academic and cultural missions of the entire university.

The Search Committee will begin reviewing dossiers on December 1, 1996, and will continue to receive and review applications until the Dean is selected. Applicants should send a letter expressing their interest and qualifications, a curriculum vitae, and the names, addresses, and telephone numbers of three references to: **Prof. L.-S. Fan, Chair, Search Committee for the Dean of the College of Engineering, The Ohio State University, 140 W. 19th Avenue, Columbus, OH 43210.**

The Ohio State University is an Equal Opportunity, Affirmative Action Employer. Qualified women, minorities, Vietnam-era veterans, disabled veterans, and individuals with disabilities are encouraged to apply.

The Power of Positive Medicine

AutoImmune, Inc. of Lexington, Massachusetts is developing orally administered proteins which may be useful treatments for autoimmune diseases such as Multiple Sclerosis and Rheumatoid Athritis. The company is now conducting Phase II and Phase III studies of its lead products.

The Immunology Department has openings for scientists with experience in immunology, cell biology, tissue culture, bioassays, ELISAs, and in vivo immune response models. The team is involved in the analysis of oral tolerance in the treatment of autoimmune disease in both animal models and human clinical trials.

IMMUNOASSAY DEVELOPMENT SCIENTIST

Responsibilities include developing novel assays to assess the clinical immune response to oral tolerogens used in the treatment of autoimmune disease. Qualifications for the position include a Ph.D. degree in Immunology and 0-2 years' postdoctoral experience in cellular immunology pertinent to investigating HLA-restricted protein antigen-specific T cell responses. Experience in both in vitro and in vivo murine and in vitro human systems is essential. (Job Code 205-IAD/S)

CLINICAL TRIAL SUPPORT SCIENTISTS

Responsibilities include involvement in running in vitro cell culture and ELISA assays of human samples supporting ongoing clinical trials of oral tolerance therapy. These hands-on positions interact with a highly trained technical support staff.

Qualifications for the immunologist/biologist position include a Ph.D./M.D. with post-doctoral experience running human biological assays. Strong written and impeccable record keeping skills are required. (Job Code 205-CTS/S)

Please send resumes to: ***Human Resources, AutoImmune Inc., 128 Spring Street, Lexington, MA 02173. No phone calls please.*** *We are an Equal Opportunity Employer. We do not discriminate on the basis of race, religion, color, sex, age, national origin, or disability.*

Company information available at http://www.autoimmuneinc.com

AUTOIMMUNE

University of California, at Berkeley

Professor of Microbiology (with emphasis on bacterial pathobiology)

Joint Appointment in the Department of Molecular and Cell Biology and the School of Public Health

The Division of Biochemistry and Molecular Biology of the Department of Molecular and Cell Biology and the School of Public Health invites applications for a tenure-level faculty position. Applicants must have a Ph.D. and/or an M.D. degree and a minimum of 4 years of teaching and research experience. Candidates must have an outstanding level of achievement and expertise in prokaryotic genetics and the application of modern molecular and cell biology approaches to dissection of prokaryote-eukaryote cell interactions. The candidate is expected to maintain an active and ongoing research program concerning the molecular and cellular bases of bacterial pathogenesis in humans. Duties will include developing and teaching undergraduate and graduate level courses in addition to directing graduate student research. Candidates should initially provide a statement of interest and qualifications, a summary of research objectives, and a detailed curriculum vitae, and arrange to have at least three letters of reference sent directly to:

Chair, Search Committee for Professor of Bacterial Pathobiology, Program in Infectious Diseases, Division of Public Health Biology and Epidemiology, School of Public Health, 19 Earl Warren Hall, University of California, Berkeley, CA 94720.

Closing Date: Postmarked prior to November 1, 1996.

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

Washington
WASHINGTON UNIVERSITY IN ST LOUIS
School of Medicine

ASSISTANT PROFESSOR
Developmental Biologist

The Department of Molecular Biology and Pharmacology at Washington University School of Medicine is recruiting an individual at the level of Assistant Professor on the tenure track. We are seeking an outstanding scientist working in the area of neurobiology. Special emphasis will be given to systems where genetic tools can be used to address fundamental questions regarding development of the nervous system. Our faculty utilize a broad range of organisms including yeast, *C. elegans*, *Drosophila*, and mice to investigate cell fate specification, pattern formation, proliferation, differentiation, migration, and death (http://pharmdec.wustl.edu).

Applicants should forward a curriculum vitae, a short summary of research plans, and three letters of recommendation by Dec. 1, 1996 to:

Search Committee(c/o Jeffrey I. Gordon,Head)
Department of Molecular Biology and Pharmacology
Washington University School of Medicine
660 South Euclid Avenue, Box 8103
St. Louis, Missouri 63110

Washington University is an Affirmative Action/Equal Opportunity Employer committed to increasing the representation of women and minority groups on its faculty.

Research Opportunities

Onyx Pharmaceuticals is a dynamic young company engaged in the development of therapeutics for cancer and other diseases associated with abnormal cell growth. We are currently seeking qualified candidates for the following opportunities:

Scientist

Preclinical Development

The successful candidate will direct the activities of a multi-disciplinary team developing replicating viruses for the therapy of cancer; provide expertise and leadership in the *in vitro* and *in vivo* evaluation of the anti-tumor efficacy of new viruses; study viral distribution and excretion; conduct pharmacokinetics and exploratory toxicity studies; and determine the immune responses to new viruses. Requires a Ph.D. in pharmacology, virology, immunology or related discipline; 5-8 years' experience in oncology/virology animal models; and outstanding supervisory & written/verbal communication skills. Knowledge of and experience in pharmacokinetics/biodistribution & immunology desirable. (Job# 96-30-PT)

Research Associate

Molecular Virology

The successful candidate will work on projects focusing on construction of recombinant adenoviruses for use in cancer therapy. Involves the use of routine molecular biological techniques including plasmid DNA isolation, PCR, restriction analyses, and mammalian cell transformations. Basic virological techniques will also be used. Requires a BS in biology or biochemistry with a minimum of 2 years of laboratory experience. Previous experience in molecular biology is essential; cell culture/virology experience is desirable. (Job# 96-29-PT)

To apply, please send/fax resume to: **ONYX Pharmaceuticals, (Attn: Job#), 3031 Research Dr., Richmond, CA 94806**. Fax: (510) 222-9387 or e-mail to denise@onyx-pharm.com. *EOE*

ONYX
PHARMACEUTICALS

Microbial Evolutionary Biologist

Tenure-track position at Assistant Professor level to begin September 1997; Ph.D. and postdoctoral experience required. The Biology Department at Western Washington University invites applications from those with expertise in microbial evolutionary relations. We are especially interested in those studying microbe/host interactions; prokaryotic/eukaryotic co-evolution; and prokaryotic diversity. Teaching responsibilities could include the initial course in cell biology, microbiology, evolution, and advanced courses in the specific area of expertise. The successful applicant will be expected to maintain an active research program involving advanced undergraduate and graduate (M.S.) students, and to seek extramural funding. The department is committed to excellence in undergraduate teaching, with research playing an important role in the educational process. Applicants should submit a curriculum vitae, concise statements of interests and accomplishments in both teaching and research, a transcript or list of science coursework, and the names, addresses, phone numbers and e-mail addresses of four references to: **June Ross, Search Committee Chair, Department of Biology MS-9160, Western Washington University, Bellingham, WA 98225; Phone (360) 650-3634; WA ST TTY RELAY #1-800-833-6388; Fax (360) 650-3148; e-mail rossjrp@henson.cc.wwu.edu. Further information at http://www.wwu.edu/~biology.html**

We will begin reviewing applications on 1 November 1996, and the position will remain open until filled. *An affirmative action/equal opportunity employer.*

Insect Ecologist

Tenure-track position at Assistant Professor level to begin September 1997; Ph.D. and postdoctoral experience required. The Biology Department at Western Washington University invites applications from insect ecologists with expertise in nontidal wetlands or aquatic entomology. Teaching responsibilities will include introductory animal biology, entomology, ecology, and advanced courses in the specific area of expertise. The successful applicant will be expected to maintain an active research program involving advanced undergraduate and graduate (M.S.) students, and to seek extramural funding. The department is committed to excellence in undergraduate teaching, with research playing an important role in the educational process. Applicants should submit a curriculum vitae, concise statements of interests and accomplishments in both teaching and research, a transcript or list of science coursework, and the names, addresses, phone numbers, and e-mail addresses of four references to: **Roger Anderson, Search Committee Chair, Department of Biology MS-9160, Western Washington University, Bellingham, WA 98225; Phone (360) 650-3140; WA ST TTY RELAY #1-800-833-6388; Fax (360) 650-3148; e-mail anderson@biol.wwu.edu. Further information at http://www.wwu.edu/~biology.html**

We will begin reviewing applications on 14 October 1996, and the position will remain open until filled. *An affirmative action/equal opportunity employer.*

Public Health Service • National Institutes of Health
Baltimore, Maryland

CHIEF, LABORATORY OF GENETICS
NATIONAL INSTITUTE ON AGING

THE POSITION: National Institute on Aging (NIA), one of the world's largest and most comprehensive institutions in aging research, is initiating a new intramural laboratory to study genetics and aging and invites applicants for a tenured position as the chief of the laboratory. The qualified candidate must have an M.D. and/or Ph.D. and have experience in the study of genetics. This senior scientist will independently initiate a creative research program on identifying genes affecting the biology of cells in the aging process. The NIA continues to focus on aging as an intrinsic biological feature of cells and evaluates the role in aging of possesses such as telomere length maintenance, mitochondrial DNA damage, accumulation of somatic mutations, and alterations in DNA repair mechanisms. In addition, the study of aging based upon novel approaches such as genomics is to be encouraged in this new research program. Interactions with the nascent Center for Inherited Disease Research of the National Center for Human Genome Research may be developed. The applicant should have a track-record of independent peer-reviewed research in the study of genetics and should possess qualifications that demonstrate competence in management and leadership ability. The NIA's intramural program on genetics is located on the campus of the Johns Hopkins Bayview Medical Center in Baltimore, Maryland.

HOW TO APPLY: Applicants should send curriculum vitae, bibliography, names, address and telephone numbers of three references and a 100-word overview of a proposed program for the laboratory to:

NATIONAL INSTITUTE ON AGING, GERONTOLOGY RESEARCH CENTER
ATTN: KAREN MABEN, PERSONNEL OFFICE, BOX 26
4940 EASTERN AVENUE, BALTIMORE, MARYLAND 21224-2735

Applications must be postmarked by October 25, 1996.

Selection for this position will be based solely on merit, with no discrimination for non merit reasons such as race, color, religion, sex, national origin, politics, marital status, physical or mental disability, age, sexual orientation, or membership or non-membership in an employee organization. NIH is an Equal Opportunity Employer.

Department of Health and Human Services • Public Health Service
National Institutes of Health • National Institute on Aging

CHIEF, LABORATORY OF BIOLOGICAL CHEMISTRY

The Intramural Research Program of the National Institute on Aging (NIA), Baltimore, Maryland invites nominations and applications for the position of Chief, Laboratory of Biological Chemistry. This is a Civil Service Position. Starting salary commensurate with qualifications and experience. Candidates may be eligible for Physicians' Compara-bility Allowance up to $20,000 per year. Alternatively, candidates may be eligible for appointment in the Commissioned Corps of the U.S. Public Health Service as well as the Senior Biomedical Research Service.

The Chief of the Laboratory of Biological Chemistry will be responsible for conducting and coordinating research on basic mechanisms of aging, on response of cells to damaging environmental agents, on factors involved in cellular senescence and proliferation, on age associated diseases and disabilities.

The Chief of the Laboratory of Biological Chemistry is responsible for a sizable intramural research laboratory with at least five other independent tenured and tenure track senior investigators. The current members of the laboratory maintain research efforts in angiogenesis, alterations in tumor cell growth in aged animals, cartilage biology, bone biology, mitochondrial function, and the biochemistry of neurodegenerative diseases. The ideal candidate will have demonstrated an interest in the study of aging and/or age-related diseases or "process" and a proven record of excellence in laboratory research.

Applicants must have a Doctoral Degree with a record of outstanding scientific accomplishments in the field of Biological Chemistry and Cell Biology. In addition, applicants should possess qualifications that demonstrate competence in executive level management and leadership ability.

Applicants should send a current curriculum vitae and bibliography to:

GERONTOLOGY RESEARCH CENTER, NATIONAL INSTITUTE ON AGING
ATTN: KAREN MABEN. PERSONNEL OFFICE, BOX 26
4940 EASTERN AVENUE, BALTIMORE, MARYLAND 21224

Applications must be postmarked by October 25, 1996

NIH is an Equal Opportunity Employer

NATIONAL UNIVERSITY OF SINGAPORE
BIOSCIENCE CENTRE

The Bioscience Centre is an initiative of the Economic Development Board of Singapore that conducts multidisciplinary research on bioactive compounds. The Centre has the following career opportunities for highly motivated individuals:

RESEARCH ASSOCIATE/FELLOW

Ph.D. or equivalent research experience in an area relevant to the mission of the Bioscience Centre. Candidates with experience in marine microbiology, pharmacology, drug-discovery and/or screening, combinatorial chemistry, mass and/or NMR spectroscopy or patch clamp technology are also welcomed to apply. Candidates are encouraged to submit an outline of their research interests and a general research proposal consistent with the mission of the Centre.

POSTDOCTORAL FELLOW

Ph.D. in biochemistry, preferably with experience in protein chemistry, radio-labeling and receptor-binding studies. The successful candidate will work on structure-function and mechanism of antiplatelet phospholipase A_2. Experience with platelet aggregation and/or venom chemistry will have an added advantage.

The appointments will be for a period of two (2) years in the first instance, with the possibility of extension.

An attractive remuneration package which will be commensurate with qualifications and experience and the level of appointment will be offered to the right candidates.

For more details, you may contact **Dr. John Foo** and **Dr. R. Manjunatha Kini** at their respective e-mail addresses: **bscgen1@nus.sg** and **bsckinim@nus.sg** or via fax at **+65 779 2486.**

Qualified applicants are invited to submit their applications with a detailed resume, including the names and addresses of three (3) referees, to:

Director
Bioscience Centre
Faculty of Science
National University of Singapore
10 Kent Ridge Crescent
Singapore 119260

KUWAIT UNIVERSITY
FACULTY OF SCIENCE
STATE OF KUWAIT

The Faculty of Science at Kuwait University seeks qualified candidates in botany and microbiology (microbial genetics—molecular genetics of eukaryotic microorganisms, plant fine structure and anatomy, phycology—sea weeds, plant physiology—growth hormones and regulators, and plant taxonomy) with a strong commitment to high quality teaching and research, for appointment at the positions of Professor and Associate Professor.

Required Qualifications: Ph.D. or its equivalent in the required area; research experience and publications; university teaching experience; excellent knowledge of English.

Kuwait University Offers: Tax free salary: Approximate salary ranges: Professor—KD 1070-1230; Associate Professor—KD 875-1035 (1 KD = $3.50 US approx.). Contracts effective from September 1997 for a two year initial period.

Applications: Application forms and Conditions of Service may be obtained from: **Kuwait University Office, 3500 International Drive, NW, Washington, DC 20008. Tel. (202) 363-8050.**

Photocopies of passport pages for self and accompanying dependents, of all personal data and passport details; non-returnable copies of all transcripts and documentation must accompany the application. Applications should be sent by express mail/courier service to: **The Dean, Faculty of Science, Kuwait University, P.O. Box 3989, Safat 13060, Kuwait; Fax: (965) 483-6127; E-mail: sinno@kuco1.kuniv.edu.kw.**

Associate or Full Professorships in Dentistry
Faculty of Dentistry
KUWAIT UNIVERSITY

The Faculty of Dentistry, Kuwait University, is a newly established faculty which is planning to admit students to its undergraduate program in 1998. Together with the Faculty of Medicine, the Faculty of Pharmacy, and the Faculty of Allied Health Sciences and Nursing, the Faculty of Dentistry is a part of the Health Sciences Center. It now invites applications for **five** full-time faculty positions in

Pedodontics and Orthodontics
Oral and Maxillofacial Surgery with Oral Diagnostic Radiology
Conservative Dentistry with Endodontics
Periodontics with Dental Public Health
Prosthetic Dentistry

The successful applicants will be participating in the development of the faculty. They will be teaching at both the undergraduate and the postgraduate levels and will be required to establish research programs within the Health Sciences Centre. Therefore, applicants should be board certified specialists (or equivalent) in conservative dentistry, in oral and maxillofacial surgery, in pedodontics or orthodontics, in periodontics or in prosthetic dentistry. Research experience at the doctorate level is required. Applicants should also have teaching experience within their speciality.

Rank and salary will be commensurate with experience and qualifications. Appointments are subject to contract.

Kuwait University offers:

- 12 month tax free salary
- 2 month paid summer vacation
- Other benefits include: housing and furniture allowance, annual air tickets for appointee, spouse, and 3 children up to the age of 18, free national health medical care, free tuition for dependent children under the age of 18 up to high school in accordance with Kuwait University regulations; paid mid-term holidays and summer vacations, and end of service gratuity equal to one month of basic salary for each year of service.
- Financial support for research through competitive awards system.

Letters of application accompanied by a complete curriculum vitae and the names and addresses, telephone and fax numbers, and E-MAIL addresses of three referees should be submitted no later than 30 September 1997, to:

Dr. Basil Al-Nakib
Vice President
Health Sciences Centre, Kuwait University
P.O. Box 24923, Safat 13110
Kuwait

FRONTIER RESEARCH PROGRAM
RIKEN
POSTDOCTORAL POSITIONS
LABORATORY FOR NEURONAL CIRCUIT DEVELOPMENT

The government-funded Frontier Research Program at the Institute for Physical and Chemical Research (RIKEN) is a leading international neuroscience research center located near Tokyo, Japan. The new Laboratory for Neuronal Circuit Development is currently searching for team members to establish a vigorous group focused on the cellular mechanisms of activity-dependent plasticity and development in the mammalian CNS.

Positions and funding for up to five years will be available beginning January 1997 to study multiple levels of neuronal function in visual circuitry. Our approach spans synaptic transmission in brain slices, extracellular physiology in intact preparations, behavioral analyses in awake animals, and neuroanatomical tract-tracing.

Prospective candidates should have a Ph.D. degree with a background in electrophysiology, *in vivo/in vitro*, or chronic recording of behavioral states.

Please send curriculum vitae and a list of two references to: **Takao Kurt Hensch, UCSF Department of Physiology, 513 Parnassus Avenue., S-762, San Francisco, CA 94143-0444, USA. Fax: 1-415-665-8157; E-mail: hensch@phy.ucsf.edu.**

Postdoctoral Research Associateship Awards

at the EPA's Mid-Continent Ecology Division *of the* National Health and Environmental Effects Research Laboratory, Duluth, MN

Competitive research Associateship awards, sponsored by the National Research Council, will be offered for on-site research at the USEPA facility in Duluth, MN. Ongoing research at this facility addresses hypotheses in ecotoxicology and freshwater ecology that are designed to reduce uncertainties in ecological effect characterization.

Research opportunities are available in:

- **Toxic Mechanisms and Toxicokinetics:**
  a) Phase I and II Xenobiotic Metabolism Studies in Fish/linkage with Fish Physiologically-based Models; and **b)** Fish Neurotoxicological, Neurodevelopmental and Behavioral Investigations.
- **Ecological Toxicology:**
  a) Developmental and Reproductive Biology of Fish and/or Amphibians, **b)** Computational Chemistry and/or QSAR for Effects on Endocrine Systems of Aquatic Organisms, and **c)** Chemical Bioavailability: Influence of Speciation and Environmental Partitioning on Bioaccumulation and Toxicity
- **Watershed and Ecosystem Characterization (Stream and/or Wetland Emphasis):**
  a) Modeling Wetland/Watershed Interactions; and **b)** Stressor-effect Linkages at Ecosystem, Community or Population Study Levels.

For further information, send letter on or before October 11, specifying interest in one of the above research areas to:

NRC Postdoctoral Program
USEPA, MED-Duluth, 6201 Congdon Blvd.
Duluth, MN 55804

Awards include a competitive stipend, support for relocation, travel to professional meetings and health insurance. Duration of each award is one year renewable to a maximum of three. Application deadline is January 15 for research to begin on or after May 15, 1997.

Application materials may be obtained from:

NRC NAS NAE IOM **THE NATIONAL RESEARCH COUNCIL**
Associateship Programs [TJ2114/TX]
2101 Constitution Avenue NW, Washington, DC 20418
FAX: (202) 334-2759 EMAIL: rap@nas.edu

Global Career Opportunities

研究世界三極体制の一翼を担う国際感覚豊かな 研究・開発スタッフを募集します。

世界のバイエルが「研究世界三極体制」を計画。ドイツ・アメリカに次いで京都に中央研究所が開設され、その一翼を担う。ここではアレルギー・自己免疫疾患分野を担当。ドイツ・アメリカの研究所と頻繁に交流を行いながら、医薬品の質的向上と新薬創製をめざす。

研　究　職
次の分野に関わる研究者で、Ph.Dまたは同等の知識・経験のある方。ポスドク経験者歓迎。
- ●アレルギー分野
- ●自己免疫疾患分野
- ●薬物動態学分野
- ●化学分野：免疫・アレルギー関連研究者 歓迎
  - ・有機合成化学（天然物合成 歓迎）
  - ・コンピュータによる薬物デザイン（Molecular Modeling）
- ●研究企画 コーディネーター（企業での研究経験のある方）

開　発　職
次の職務の経験者。MD. Ph.D 歓迎。
- ●臨床薬理
- ●医薬品の薬効試験の統計解析
- ●臨床開発（未経験者可）

応募資格：Bilingual (Japanese & English)　入社時期は相談に応じます。
応募方法：Curriculum Vitae (J&E) is required.
論文リスト・主要論文を添付の上、下記［問合せ先］宛に送付下さい。
希望職種明記のこと。
選考方法：1次　書類選考　2次　面接他
勤 務 地：●研究職／関西学研都市（近鉄奈良駅より車10分）●開発職／新大阪

◆海外留学生セミナー
会　　場：●ボストン（10月末）　●東京／大阪（12月～1月）
応募資格：上記の研究・開発職関連分野に興味のある方で、1997年内に日本以外の大学を卒業予定の方。Bilingual(J&E)必須。修士以上及びポスドク歓迎。
申込方法：上記の応募方法と同じ。論文のない方は研究概要でも可。日・英必要
選考方法、勤務地も上記と同じです。

Bayer BAYER **1998年入社希望の方の問合せ歓迎**

【問合せ先】大阪市淀川区宮原3-5-36 新大阪第2森ビル
バイエル薬品（株）リクルーティング Ⓢ係 〒532
TEL06(398)1145 担当／野本 コレクトコールをご利用下さい。

バイエル薬品株式会社

Bayer is an Equal Opportunity /Affirmative Action Employer.
http : // www.upunet.or.jp/ bayer/

Global Career Opportunities

NATIONAL UNIVERSITY OF SINGAPORE
Lee Kuan Yew Postdoctoral Fellowship

Applications are invited for the **Lee Kuan Yew Postdoctoral Fellowship** from candidates with excellent academic records and proven research ability who have obtained their Ph.D. degrees in the last few years.

The Fellowship will be tenable for 3 years in the first instance, with possible extension for 2 further years. It will be held concurrently with the candidate's appointment as a research staff member in one of the following Faculties/ Institutes:

Faculty of Engineering
Faculty of Medicine
Faculty of Science
Institute of Systems Science
Institute of Molecular Agrobiology
Institute of Molecular and Cell Biology
Institute of Microelectronics
Data Storage Institute

Under the Fellowship, a tax-free stipend of US$1,500 per month will be provided. This will be in addition to the following terms of appointment normally provided to a research staff member:

- Gross annual salary ranges from S$52,000 to S$74,300 (the commencing salary will depend on the appointee's qualifications and experience). In addition, a 13th month Annual Allowance and an Annual Variable Component may be payable at year end, under the flexible wage system applicable to staff on normal contracts.
- Leave and medical benefits will be provided. Depending on the type of contract offered, other benefits may include: provident fund benefits or an end-of-contract gratuity, a settling-in allowance, subsidized housing, education allowance for up to three children subject to a maximum of S$16,425 per annum per child, and passage assistance and baggage allowance for the transportation of personal effects to Singapore.

(US$1.00=S$1.39 approximately)

All academic staff will be given a networked personal computer (Pentium or Macintosh Power PC) with access to a Cray supercomputer, UNIX hosts, departmental laser printers, a wide spectrum of software, on-line library catalogue, CD-ROM databases, Teleview, INtv, and Internet.

Applicants for the Fellowship should send their detailed curriculum vitae and list of publications to:

The Director
Personnel Department
National University of Singapore
10 Kent Ridge Crescent
Singapore 119260
or Telefax: (65) 778 3948

Closing Date: **30 September 1996**
Only shortlisted candidates will be notified.

Wayne State University

DEPARTMENT OF CHEMISTRY FACULTY POSITIONS

Wayne State University Department of Chemistry invites applications for **FACULTY POSITIONS** in organic and physical chemistry. The positions are tenure-track or tenured. Outstanding candidates at all levels are encouraged to apply. Appointments are expected for the fall term of 1997. We encourage applicants whose research interests are in multidisciplinary as well as in traditional areas. Appointees are expected to establish a strong, visible research program and maintain a commitment to excellence in undergraduate and graduate teaching. Postdoctoral experience is preferred. Applicants should send a complete résumé, a statement of research plans, and arrange to have three letters of recommendation sent to: **Professor C. R. Johnson, Chair, Faculty Search Committee, Department of Chemistry, Wayne State University, Detroit, MI 48202.** The deadline for receipt of applications is October 18, 1996. *Wayne State University is an Equal Opportunity/Affirmative Action Employer. Women and minority candidates are encouraged to apply.*

FACULTY POSITION
Division of Basic Sciences
Fred Hutchinson Cancer Research Center

The Division of Basic Sciences of the Fred Hutchinson Cancer Research Center (FHCRC) is soliciting applications to fill an open faculty position at the **JUNIOR FACULTY** level. Applicants with outstanding accomplishments in any field of molecular, cellular, and/or developmental biology will be considered. Candidates should send a curriculum vitae, a concise statement of their research plans, and three letters of reference to:

Faculty Search Committee
Fred Hutchinson Cancer Research Center
Division of Basic Sciences
Mailstop: B1-030
1124 Columbia Street
Seattle, WA 98104

Application deadline: October 31, 1996.

FHCRC is an Equal Opportunity Employer committed to workforce diversity.

CHAIRED POSITION
MATERIAL/POLYMER CHEMISTRY

The School of Chemistry and Biochemistry of the Georgia Institute of Technology announces the opening of a search for an endowed chair in chemistry. Successful candidates will have achieved international recognition and demonstrated leadership in interdisciplinary research involving polymer chemistry. Particularly relevant areas are electronic materials and/or biomaterials. Interested candidates should send a letter of application, current curriculum vitae, and the names of at least three references to: **Chairman, Faculty Search Committee, School of Chemistry and Biochemistry, Georgia Institute of Technology, Atlanta, GA 30332-0400.** Nominations of potential candidates are also solicited. Applications will be evaluated as they are received, and the search will remain open until the position is filled. *Applications from the underrepresented groups are particularly encouraged. Georgia Tech is an Affirmative Action/Equal Opportunity Employer.*

FACULTY POSITION: The Salt Lake Geriatric Research, Education, and Clinical Center (GRECC) and the University of Utah School of Medicine are seeking applicants to join our ongoing research program in the Basic Biology of Aging. Candidates must have a Ph.D. and/or M.D. with at least two years of postdoctoral training and research experience in the effects of aging on the endocrine, immune, or nervous system. Full-time appointment will be made in the GRECC and the Department of Internal Medicine. Faculty rank is dependent upon qualifications of the applicant. Salt Lake City is well situated for a variety of outdoor activities, offers low-cost living expenses, and possesses a rich and diverse array of cultural opportunities including theater, a major symphony orchestra, opera, chamber music, and musical theater. Send curriculum vitae and bibliography to: **HRMD (05C), Attn Pruett, VA Medical Center, Salt Lake City, UT 84148. Call GRECC, 801-584-2522** for more information. Recruitment is ongoing until a suitable candidate is identified. *Affirmative Action/Equal Opportunity Employers.*

POSITIONS OPEN

TWO FACULTY POSITIONS
DEPARTMENT OF BIOLOGY
Indiana University, Bloomington

Molecular Biology/Biochemistry: The Department of Biology invites applications for a **FACULTY POSITION** in the area of molecular biology and biochemistry. We seek candidates working on any systems(s), prokaryotic or eukaryotic.

Developmental Biology: The Department of Biology invites applications for a **FACULTY POSITION** in the area of developmental biology. We seek candidates studying developmental mechanisms in a eukaryotic system and taking a genetic, cell biological, and/or evolutionary approach.

For both positions we seek candidates with strong records of research accomplishment, and both positions may be filled **AT ANY RANK**, from Assistant to Full Professor. Successful candidates will be expected to pursue vigorous, independent research programs and to contribute to the department's teaching.

Applications should include a curriculum vitae and a statement of research plans. Candidates at the Assistant Professor level should also arrange to have three or more letters of recommendation forwarded to the search committee. Applications received by November 1, 1996, will be assured of consideration. Applications for the molecular position should be sent to the **Molecular Search Committee, Department of Biology, Indiana University, Bloomington, IN 47405,** while applications for the development position should be sent to the **Development Search Committee at the same address.**

For more information about the department, see our home page: **http://www.bio.indiana.edu.** *Indiana University is an Affirmative Action/Equal Opportunity Employer, and strongly encourages women and members of minority groups to apply.*

FACULTY POSITION
DEPARTMENT OF PHYSIOLOGY AND BIOPHYSICS
UNIVERSITY OF ARKANSAS FOR MEDICAL SCIENCES

The Department of Physiology and Biophysics invites applications for a full-time **TENURE-TRACK FACULTY POSITION**. Research areas of interest to the department include but are not limited to molecular endocrinology, membrane biophysics, neurobiology, and signal transduction. Applications are encouraged from individuals who use cellular or molecular approaches. The successful candidate is expected to develop a vigorous independent research program and participate in the education of medical students and graduate students. Competitive startup funds and new laboratory space will be provided. Appointment will be at the rank of Assistant Professor, Associate Professor, or Full Professor, commensurate with the experience and accomplishments of the candidate. Candidates should submit curriculum vitae, statement of research interests, and the names and addresses of three individuals who may be contacted for letters of reference to:

Michael L. Jennings, Ph.D., Chairman
Department of Physiology and Biophysics
University of Arkansas for Medical Sciences
4301 West Markham Street, Mail Slot 505
Little Rock, AR 72205

In order to receive full consideration by the search committee, applications should be received no later than October 15, 1996.

The University of Arkansas is an Equal Opportunity Employer and welcomes applications from women and minority group members.

UNIVERSITY OF CALIFORNIA, LOS ANGELES
INORGANIC FACULTY POSITION

The Department of Chemistry and Biochemistry of the University of California, Los Angeles intends to make a **TENURE-TRACK FACULTY** appointment in inorganic chemistry at the **ASSISTANT PROFESSOR** level. Applicants with interests in any area of inorganic chemistry will be considered. Candidates must give evidence of potential distinction in scholarship and teaching. Applicants should provide a curriculum vitae, a description of proposed research not exceeding four pages, and should arrange for letters of recommendation from three professional references. Applications should be completed no later than 15 November 1996 and directed to: **Chair, Inorganic Search Committee, Department of Chemistry and Biochemistry, University of California, Los Angeles, CA 90095-1569.** *The University of California is an Equal Opportunity Employer.*

POSITIONS OPEN

FACULTY POSITIONS IN PHYSIOLOGY
University of North Carolina at Chapel Hill

The Department of Physiology at the University of North Carolina at Chapel Hill invites applications for two tenure-track faculty positions at the **ASSISTANT PROFESSOR** level from candidates with a Ph.D., M.D. or the equivalent degree and at least two years of postdoctoral experience. Appointment at higher rank will also be considered. We seek individuals who will establish vigorous research programs investigating physiological processes at the molecular and cellular levels and participate effectively in the department's graduate and medical student teaching programs. Applications from all physiological disciplines will be considered, but for one position, preference will be given to individuals whose research interests complement existing programs in endocrine/gastrointestinal physiology and/or cardiovascular/renal physiology. For information about the department, see our website at **http://www.med.unc.edu/wrkunits/2depts/physiolo**. Send a complete curriculum vitae, a brief description of research interests, and the names, addresses, and telephone numbers of three references to: **Physiology Search Committee, Department of Physiology, CB 7545, University of North Carolina, Chapel Hill, NC 27599-7545.** *University of North Carolina, Chapel Hill is an Affirmative Action/Equal Opportunity Employer. Minorities and women are especially encouraged to apply.*

THE UNIVERSITY OF TEXAS SOUTHWESTERN MEDICAL CENTER AT DALLAS
Assistant/Associate/Professor

The Department of Biochemistry at the University of Texas Southwestern Medical Center announces an initiative to establish a broadly based research program in chemistry at the interface with biology/medicine commensurate with its international standing in other fields. Applications are invited for 12-month, tenure-track positions at the **ASSISTANT PROFESSOR** level, although more senior ranks will be considered. Candidates should hold a Ph.D. degree in chemistry with demonstrated productivity in the total synthesis of biologically active molecules or characterization of natural and synthetic products. The selected individual is expected to develop an independent research program at the frontiers of synthetic organic and natural products chemistry. U.T. Southwestern has an outstanding faculty including four Nobel Laureates and 10 members of the National Academy of Sciences. The Biochemistry Department offers an excellent intellectual environment for interdisciplinary research, generous start-up support, and participation in graduate level teaching. See: **http://www.swmed.edu** for additional information concerning U.T. Southwestern and its faculty. Applicants should submit a curriculum vitae, brief statement of research interests, and the names of three references by October 31, 1996, to: **Professor J. R. Falck, Department of Biochemistry, University of Texas Southwestern, 5323 Harry Hines Boulevard, Dallas, TX 75235-9038.** *The University of Texas Southwestern Medical Center is an Affirmative Action/Equal Opportunity Employer. Women and minority candidates are encouraged to apply.*

HARVARD UNIVERSITY
ASSISTANT PROFESSOR
Molecular and Cellular Biology (MCB)

The Department of Molecular and Cellular Biology (MCB) has an opening for an **ASSISTANT PROFESSOR** (entry-level) starting September 1997. Our department includes a broad range of fields in molecular biology, cellular biology, developmental biology, structural biology, neurobiology, and molecular genetics. We are particularly, although not exclusively, interested in candidates specializing in research at the interface between chemistry and biology. Applications should include a curriculum vitae, reprints of publications, and a statement of present and future research plans (one to three pages). Complete applications and three letters of recommendation, solicited by the applicant, should be received no later than October 1, 1996 by: **MCB Search Committee, Harvard University, 7 Divinity Avenue, Cambridge, MA 02138. Telephone: 617-495-2327.** *Harvard University is an Affirmative Action/Equal Opportunity Employer. We strongly encourage applications from women and minority groups.*

OPPORTUNITIES IN SCIENCE, PUBLIC HEALTH

The American Medical Association, the nation's most influential physician member organization, seeks dedicated individuals to impart vision and action while representing the AMA in one of the following roles:

DIRECTOR

Division of Drugs & Technology Standards

This position will manage the division and provide leadership in biomedical research and clinical science (incl. medical technology and therapeutics). Responsibilities: develop/implement strategic directions in these areas, assist with policy development and determine medical practice standards, track and interpret scientific advances, and serve as advocate for biomedical science and clinical research. Requires a doctoral degree (MD pref.) in a health science field and 10+ yrs. related exp. to include clinical research and/or academic or government background. Strong administrative and presentation skills necessary; exp. with funding development highly desired. (**Code 2872-SDB**).

PROJECT DIRECTOR/SENIOR SCIENTIST

Biomedical Science and Clinical Research

This new position will establish credible advocacy for biomedical science and clinical research, enhance relationships with research and professional organizations, and help develop a new physician education project in medical genetics. Other responsibilities include generating reports and assisting with policy development. Requires a doctorate in a health science field with at least 3 yrs. exp. in research, human genetics, academic or government service. Strong presentation skills important. (**Code: 3263-SZA**)

SCIENTISTS

Department of Drug Policy

Two positions are available. Position #1 requires expertise in the areas of immunology, virology, infectious disease therapy, and biotechnology products. Position #2 requires expertise in the areas of general pharmacology and physiology. Both positions will write scientific reports and plan/implement activities to inform physician members, staff and the public on subjects regarding areas of expertise. For both, we require a doctorate in a biomedical science, postdoctoral exp., and a willingness to cover broad areas of biomedical science. Success in obtaining grant funding is desirable. (**Codes: Position#1 3265-SDB; Position #2 3263-SDB**).

All positions require exceptional analytical, writing, interpersonal and organizational skills and record of publication.

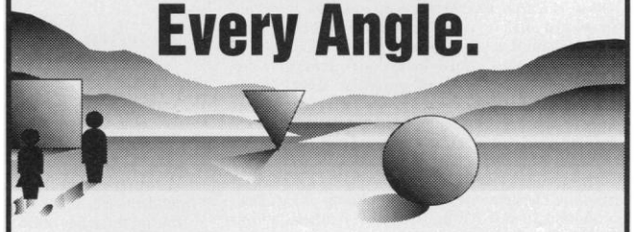
We offer a competitive salary and comprehensive benefits. If you're ready to join a leader the in medical community, please forward or e-mail resume and salary history to: **Carol Sprague, Div. of Placement, Dept. CES-(insert position code), AMA, 515 N. State, Chgo., IL 60610. FAX: 312/464-5871. E-mail: placement@ama-assn.org** EOE.

American Medical Association

Physicians dedicated to the health of America

515 North State Street
Chicago, Illinois 60610

We're Looking At The Future From Every Angle.



Imagine the environment where your expertise is continually challenged, where your ideas fuel the generation of new technologies. At GEO-CENTERS, INC., we supply all the support you'll need to create real-world solutions to scientific, engineering and technical problems. And while our philosophy is grounded in the pursuit of imagination and creativity, our market — responsive services and sound business practices — has established us as one of the 500 fastest growing companies in America. Take advantage of our strength to heighten your success.

Immunology (Code 2388)

Candidate needed to develop immunological-based biosensor technologies. Individual should possess a broad scientific background with a Ph.D. in immunochemistry or a related field, as well as have demonstrated laboratory experience in sensor applications.

Bioanalytical Chemistry (Code 2389)

Bachelor's and/or Master's level individual to support current biosensor R&D efforts. Candidates should possess a broad scientific background with a degree in chemistry or a related field, as well as demonstrated laboratory experience in analytical, bio and/or organic chemistry.

Biosensor Hardware Development (Code 2390)

Candidate needed to assist in the development of a fluid cell and micro-mechanical sensing mechanism for a magnetic particle based biosensor technology. Individual should possess a Ph.D. in physical chemistry, applied physics,engineering or related field and have direct experience in several of the following: micro-mechanical devices/micro-instrumentation, low-noise and lock-in electronics, corrosion and fouling, magnetics, and biosensor technology.

Biosensor Design (Code 2391)

Candidate needed to assist in the development of a magnetic particle sensing system for a micro-fabricated biosensor system. Individual should possess a Ph.D. in applied physics, physical chemistry, engineering or related field and have direct experience in several of the following: MRAM, GMR materials and devices, micro-fabrication, magnetic materials, magnetic field detection, electronic design, computer modeling of magnetic fields, scientific instrumentation design, and biosensor technology.

GEO-CENTERS, INC. offers a highly competitive salary, generous benefits and relocation assistance. U.S. CITIZENSHIP OR GREEN CARD IS REQUIRED. Applicants selected may be subject to a security investigation and must meet eligibility requirements for access to classified information. Candidates should forward their resume, salary requirements and references to: **GEO-CENTERS, INC., 10903 Indian Head Highway, Fort Washington, MD 20744, Attn: Deborah Hall-Greene/Code _____.**

GEO-CENTERS, INC. is an Equal Opportunity/Affirmative Action Employer. (Principals only - No phone calls please.)

GEO-CENTERS, INC.

Tomorrow's Technologies, Today's Applications.

IMMUNOLOGY FACULTY POSITIONS

The Department of Microbiology and Immunology invites applications for two tenure-track positions (**ASSISTANT PROFESSORS**). We are seeking investigators whose research interests are directed to molecular and/or cellular analyses of contemporary problems in immunology. Candidates will be expected to develop high quality, extramurally funded independent research programs with long-term growth potential. Teaching responsibilities, which emphasize quality rather than quantity, include medical, dental, and graduate students. The Department offers a high quality, interactive intellectual environment with strong extramural research support.

The Department maintains a Molecular Resource Center within the Department featuring state-of-the-art facilities for oligonucleotide synthesis, peptide synthesis, monoclonal antibody production, DNA sequencing, and flow cytometry. Funds for the initiation of research programs will be available and salaries will be highly competitive.

The review of applications will begin on September 16, 1996 and will continue until the positions are filled. Applications should consist of curriculum vitae, copies of several recent publications, a brief statement of future research goals, and three letters of reference to be sent to:

Dr. Terrance G. Cooper
Department of Microbiology and Immunology
The University of Tennessee, Memphis
858 Madison Avenue, Room 801
Memphis, TN 38163

Detailed information about the Department may be obtained from the World Wide Web home page **http://microbiology.utmem.edu**. *The University of Tennessee, Memphis is an Equal Employment Opportunity/Affirmative Action/Title VI/Title IX/Section 504/ADA/ADEA Employer.*

ASSISTANT PROFESSOR IN CELL BIOLOGY DEPARTMENT OF ENVIRONMENTAL HEALTH

The Department of Environmental Health at the Harvard School of Public Health invites applications for a faculty appointment in the Physiology Program. The successful candidate will have promise of independent original research and demonstrated technical and teaching skills. We particularly welcome applicants with research interests in such areas as: macrophage biology, cell and molecular biology of lung diseases, drug delivery to and through the lungs, and the deposition, fate, and effects of inhaled particles and fibers. A working knowledge of laser scanning confocal microscopy and other techniques of cell biology is preferred.

The successful candidate will be expected to teach graduate students and postgraduates and to develop an independent research program that complements current research areas in the Physiology Program. The candidate will also serve as the director of a Biomedical Imaging Laboratory including a laser scanning confocal microscope.

Applicants should send a statement of current and future research interests, curriculum vitae, and the names of three references to:

Dr. Claire Doerschuk, Chair
ad hoc Search Committee
Harvard School of Public Health
Department of Environmental Health
665 Huntington Avenue
Building I Room 305
Boston, MA 02115-6021

Harvard University is committed to increasing the number of women and minorities in its faculty and encourages applications from such candidates.

BIOCHEMIST/MOLECULAR BIOLOGIST DEPARTMENT OF BIOLOGICAL SCIENCES STANFORD UNIVERSITY

We invite applications for a tenure-track position at the **ASSISTANT PROFESSOR** level (or **TENURED ASSOCIATE/FULL PROFESSOR** level) from candidates working in the broad area of functional aspects of the interactions of proteins with nucleic acids in key cellular processes. Please submit a curriculum vitae, FAX number, Email address, description of current and future research interests, and statement of teaching experience and goals to: **Professor Philip C. Hanawalt, Department of Biological Sciences, Stanford University, Stanford, CA 94350-5020 USA.** The application deadline is November 1, 1996. Please provide the names, addresses, Email, FAX and telephone numbers of three referees, but do not ask them to send a letter of recommendation. *Applications from women and members of minority groups are strongly encouraged.*

ASSISTANT PROFESSOR (TWO TENURE-TRACK POSITIONS) Environmental Pathology/Pathobiology Brown University

The Department of Pathology and Laboratory Medicine at Brown University is seeking two experimental pathologists for three-year renewable tenure-track, campus-based positions as **ASSISTANT PROFESSOR** of Medical Science. The successful candidates are expected to develop an independent research program, supported by external funds, involving the study of basic mechanisms of disease pathogenesis. Preference will be given to candidates with past research experience in environmental pathology (broadly defined). Duties include teaching, training, and advising undergraduate, graduate, and medical students. Candidates should have an M.D. and/or Ph.D. degree and a minimum of two years of postdoctoral or residency research training in pathobiology. Send curriculum vitae, recent reprints, a description of career objectives and research plans, and three letters of reference to: **Dr. Kim Boekelheide, Search Committee Chair, Department of Pathology and Laboratory Medicine, Brown University, Box G-B518, Providence, RI 02912.** *Women and minority groups are encouraged to apply. Brown University is an Equal Opportunity/Affirmative Action Employer.* Applications received by October 15, 1996, will be given full consideration.

MOLECULAR GENETICS

The Department of Biological Sciences in the Faculty of Science at the University of Alberta invites applications for a full-time tenure-track position in molecular genetics of eukaryotes. We seek applicants who will add to our existing research strengths in areas such as development, gene regulation, or DNA replication and repair. However, other areas will also be considered, and preference will be given to those using yeast as a model system. The effective date of employment will be July 1, 1997. The appointment will be made at the level of **ASSISTANT PROFESSOR** (salary range: $39,230 to $55,526), and candidates must have a Ph.D. and postdoctoral research experience. *In accordance with Canadian immigration requirements, priority will be given to Canadian citizens and permanent residents of Canada.* Candidates should forward a curriculum vitae, list of publications, brief statement of research and teaching interests, and the names of three referees to: **Dr. S. E. Jensen, Department of Biological Sciences, CW405 Biological Sciences Building, University of Alberta, Edmonton, Alberta, Canada T6G 2E9. Email: susan.jensen@ualberta.ca**. For additional information about the Department see: **http://www.biology.ualberta.ca/** Closing date: October 31, 1996. *The University of Alberta is committed to the principle of equity in employment. As an employer we welcome diversity in the workplace and encourage applications from all qualified women and men, including Aboriginal peoples, persons with disabilities, and members of visible minorities.*

PLANT ECOLOGIST

Tenure-track position starting July 1997 at the **ASSISTANT PROFESSOR** level. Qualifications we seek include 1) the Ph.D. plus combined teaching and research strengths and a commitment to research with undergraduates; 2) experience and facility in field and laboratory studies; 3) broad interests in pure, applied and evolutionary ecology. Teaching responsibilities in our 11-member biology department will include lecture and laboratories in an evolution-centered introductory course having Mendelian genetics and ecology as components; an elective course in one's specialty; and likely involvement in the college's interdisciplinary environmental studies program. Enrolling 1,800 students, Franklin and Marshall is a coeducational liberal arts college with a strong science tradition emphasizing faculty and undergraduate research. Most biology majors continue their training in graduate or professional schools. *The College is committed to cultural pluralism through the hiring of minorities and women (Equal Opportunity Employer/Affirmative Action).* Send curriculum vitae plus statements of teaching and research approaches by October 10, and arrange for graduate and undergraduate transcripts plus three reference letters to be sent to: **Chair, Ecology Search Committee, Department of Biology, Franklin and Marshall College, Lancaster, PA 17604-3003. Telephone: 717-291-4118; FAX: 717-399-4548; Email: c_elmer@acad.fandm.edu.**

FACULTY POSITION Department of Bacteriology College of Agricultural and Life Sciences University of Wisconsin–Madison

The Department of Bacteriology at the University of Wisconsin–Madison invites applications for a tenure-track faculty position at the **ASSISTANT PROFESSOR** level. The department is most interested in persons employing modern molecular, computational, or genomic science tools to address the interactions of microbes and their environments. These include the nature of microbial communities, host-microbe interactions, and unique metabolic abilities or their transfer among microorganisms. Candidates should have a Ph.D. degree in microbiology or related discipline and postdoctoral experience. The successful candidate will be expected to establish a dynamic and extramurally funded research program and to participate actively in undergraduate and graduate teaching, training, and advising. The University of Wisconsin–Madison provides an excellent research environment, and maintains a student population of superior caliber. This position represents an outstanding academic research opportunity for a junior investigator. Salary, fringe benefits, and start-up packages are nationally competitive and are commensurate with qualifications and experience. Please send a detailed curriculum vitae, including research accomplishments and interests; a statement of future plans; a list of publications; representative reprints; a list of potential teaching interests or relevant experience; and three letters of recommendation to: **Search Committee Chair, Department of Bacteriology, University of Wisconsin–Madison, 1550 Linden Drive, Madison, WI 53706-1567.** The application deadline is October 1, 1996. *The University of Wisconsin–Madison is an Equal Opportunity/Affirmative Action Employer. Women and minorities are strongly encouraged to apply.*

Transplantation Biology—Three Positions: The Department of Pathology/Microbiology, University of Nebraska Medical Center, Omaha, Nebraska, invites applications to fill three positions in transplantation biology: 1) Faculty position at the **ASSISTANT** or **ASSOCIATE PROFESSOR** level for Ph.D. scientist with expertise in the harvest, processing, purging, culture, and freezing of bone marrow and peripheral blood progenitor cells for transplantation. The successful candidate will be expected to develop/maintain an independent and externally funded research program, to participate in medical and graduate student teaching, and to contribute both technical expertise and methods development to the clinical Cell Processing Laboratory, including the movement of new assays from the research lab to clinical application; 2) Faculty position at the **INSTRUCTOR-ASSISTANT PROFESSOR** level for Ph.D. scientist with interests in stem cell transplantation, gene therapy and hematopoietic development and regulation; 3) **POSTDOCTORAL RESEARCH ASSOCIATE or JUNIOR FACULTY POSITION** to study the immunoregulation of host-tumor interactions during stem cell therapy. Experience in flow cytometry, immunoregulation and molecular immunology is required. UNMC is a major autologous and allogenic bone marrow and peripheral stem cell transplantation center, and also participates in research of non-hematopoietic cellular grafts, including islet cells, hepatocytes, and chondrocytes. Salary and start-up funds competitive and commensurate with experience. Send application with curriculum vitae, outline of research interests, and the names of at least three references to: **Samuel M. Cohen, M.D., Ph.D., Chair, Department of Pathology/Microbiology, 600 South 42nd Street, Omaha, NE 68198-3135.** *University of Nebraska Medical Center is an Equal Opportunity/Affirmative Action Employer.*

FACULTY POSITIONS

Department of Physiology, New York Medical College, seeks applicants for two tenure-track positions at the rank of **ASSISTANT, ASSOCIATE** or **FULL PROFESSOR**. Applicants should have significant postdoctoral research accomplishments and demonstrated ability to attract extramural funding. Successful candidates will be expected to establish independent research programs, interact with a group of researchers from a broad spectrum of disciplines related to physiology, and participate in medical and graduate student teaching. Applicants with an interest in 1) neurobiology and 2) cell and molecular biology are preferred. Salary commensurate with qualifications. Send curriculum vitae, bibliography, description of future plans, and names of references to: **Gabor Kaley, Ph.D., Professor and Chairman, Department of Physiology, New York Medical College, Valhalla, NY 10595. Telephone: 914-993-4089.** *Equal Opportunity Employer.*

Career Opportunities
STATE UNIVERSITY OF NEW YORK AT STONY BROOK

Several outstanding career opportunities are currently available at the University at Stony Brook.

Faculty Positions

Chemistry/ D. Hanson/zip=3400: seeking outstanding candidates for several faculty appointments at any level in the Department of Chemistry starting Spring 1997. Preference given to candidates in the fields of bio-organic/medicinal chemistry, polymer/materials chemistry and physical chemistry. Applicants should have a record of achievement in research and commitment to teaching. Please include a statement of research interests.

Postdoctoral, Research Scientist and Graduate Student Opportunities

Chemistry/N. Sampson/zip=3400/Postdoctoral Scientist: Design and synthesis of peptide mimetics of fertilin to investigate membrane fusion and signaling in mammalian fertilization.

Chemistry/S. McN. Sieburth /zip=3400/Postdoctoral or Research Scientist Design and synthesis of biologically active small molecules: new methods for synthesis, protease inhibitors, SAR.

Chemistry/B. Chu /zip=3400/Postdoctoral or Research Scientist: DNA capillary gel electrophoresis with FRAP microscopy. Experience in light scattering, synchrotron SAXS,SANS and rheometry desirable.

Physiology & Biophysics/ S. McLaughlin/zip=8661/Postdoctoral Research Associate: Signal transduction, membrane biophysics, reversible sequestration of PIP2, membrane-protein interactions of MARCKS, Src, PLC; fluorescence, electrostatics. For details: http://physiology.pnb.sunysb.edu/mclaughlin.htm

Dermatology/R. Clark/zip=8165/Postdoctoral Fellow: Needed to delineate signal transduction pathways leading to cell motility. Techniques include cell motility assay, cellular pharmacology, oligonucleotide antisense design and cell transfection, immunoprecipitation, enzyme assays, western blots, immunocytochemistry.

Physics/C. Jacobsen/zip=3800/Biological cryo x-ray microscopy; exploit powerful new tool with chemical sensitivity at 50 nm resolution. Select research area, in collaboration with an area biology lab. *See Q. Rev. Biophys* 28,33 (1995) and *J. Micros.Soc.* Am. 2,53 (1996). Salary will be in the upper $20K range, depending on experience.

Genetics & Microbiology/P. Apostle/zip=5222/Cancer Cell Biology: Graduate and postdoctoral training in the Dept. of Molecular Genetics and Microbiology in research laboratories studying signal transduction, regulation of cell proliferation, oncogenes and tumor suppresser genes, and apoptosis.

Oral Biology & Pathology/M. Simon/zip=5215/Postdoctoral Fellow: to carry out research on lipogenesis and its regulation in sebocytes and the sebaceous gland. Ph.D. and a minimum of two years experience in lipid biochemistry and/or enzymology required.

Biochemistry and Cell Biology/V. Citovsky/zip=5215/Postdoctoral Fellow: Study of plant nuclear import and transport through intercellular connections, the plasmodesmata. Characterize *Arabidopsis* mutants resistant to systemic spread of plant viruses. Experience in molecular biology and genetics is required.

To apply: Send curriculum vitae and three letters of reference to: University at Stony Brook, Att: Faculty name /department/4 digit zip code (from above), Stony Brook, NY 11794. If applying to more than one faculty member, please submit separate applications.

Center for Biotechnology

The Center nurtures cooperative research among academic and industry scientists to accelerate basic discovery and the rapid transfer of new technologies to the marketplace. University at Stony Brook is an Equal Opportunity Employer. Female and minority applicants are encouraged to apply.

STONY BROOK
STATE UNIVERSITY OF NEW YORK

Opportunities With A Biopharmaceutical Leader

NABI is a top-tier biopharmaceutical company focused on the development, manufacturing, and commercialization of products that prevent and treat autoimmune and infectious disease and related complications through the activation and targeting of the human immune system. We currently have the following exceptional opportunities available at our Rockville, MD, facilities.

Process Development Scientist

We are seeking an individual with problem solving abilities to develop bacterial strains (bacterial clinical isolates and recombinant *E. coli*) and upstream processes (fermentation and harvest) for polysaccharide and protein antigens. Specific responsibilities will include strain development and characterization as well as the design and scale-up of GMP operations such as fermentation, filtration, and centrifugation. The position will also lead the manufacture of early stage clinical materials and participate in the transfer of technology to manufacturing personnel. An advanced degree in microbiology or biochemistry (M.S./Ph.D.) is desired along with the demonstrated ability to develop GMP processes in an industrial environment (3-5 years). Well-developed communication and interpersonal skills are also required.

We offer an excellent compensation and benefits package. For immediate consideration, please fax your resume to **(301) 770-3097** or forward your resume to:

Human Resources
NABI
12280 Wilkins Avenue
Rockville, MD
20852

NABI® The Quality Source

To learn more about opportunities with NABI, please see our ads on the Monster Board • **http://www.monster.com**

Equal Opportunity Employer M/F

We're looking for entrepreneurial vision and the skills to implement it.

These are pivotal roles in our Applied Genomics Business, and a chance to be part of the strong commitment that's creating breakthroughs in biotechnology at AxCell Biosciences Corporation. You will help us capitalize on our successful past and prepare us for a bold future developing innovative new products.

GENERAL MANAGER

Reporting to the Board of Directors, you'll be the CEO of our Applied Genomics Business Unit, providing vision, direction and leadership. This involves responsibility for business plan development; orchestrating presentations to potential investors, pharmaceutical companies and representing AxCell at appropriate industry and investment community-sponsored meetings. You will also direct staff recruitment/organization and all operations.

A minimum of BA/BS required, with advanced degree a plus. 7-10 years of general management experience, preferably with startup experience in the biotechnology industry. Business development expertise required.

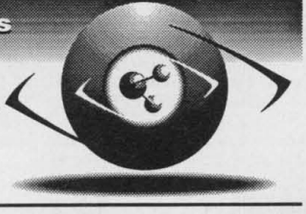
VICE PRESIDENT, Research & Development

Reporting to the General Manager, you'll be the hands-on resource that brings the vision to life, and responsible for the scientific research in Applied Genomics. Duties include participation in developing a business plan; staff recruitment and organizing/directing the scientific mission; and providing key technical support in presentations to potential investors, and pharmaceutical companies at industry sponsored scientific symposia.

MD, MD/Ph.D., Ph.D. or equivalent with Molecular Biology background required. At least 10 years of post-doctoral experience, with 3-5 years in the biotechnology industry either in a startup, or established pharmaceutical company, is essential. Management experience is also necessary.

We offer competitive salaries and substantial equity participation. For confidential consideration, send resume and cover letter to:

AxCell Biosciences Corporation
c/o Box 68, SCIENCE
1200 New York Ave, N.W.
Washington, D.C. 20005



Equal Opportunity Employer M/F/D/V

POSITIONS OPEN

ASSISTANT PROFESSOR STRUCTURAL MOLECULAR BIOLOGIST/BIOCHEMIST
University of Illinois at Chicago (UIC)

The Laboratory for Molecular Biology (LMB) of the Department of Biological Sciences at the University of Illinois at Chicago invites applicants for a faculty position at the level of **ASSISTANT PROFESSOR** beginning September 1997.

Candidates with a research program addressing biological problems from a structural perspective are sought. Successful candidates will be expected to pursue a vigorous independent research program and to contribute to the department's undergraduate and graduate teaching effort. New X-ray crystallography and NMR facilities have recently been installed on campus. LMB facilities are located in the new Molecular Biology Research Building, which also houses molecular biologists from other departments.

Applications should include a curriculum vitae and a summary of research plans. In addition, candidates should arrange to have at least three letters of recommendation forwarded to the search committee. For fullest consideration, applications should be received by November 1, 1996. Send application and letters of reference to:

Chairman
Search Committee for Structural Biologist
University of Illinois at Chicago
M/C 567
Laboratory for Molecular Biology
900 S. Ashland Avenue
Chicago, IL 60607

University of Illinois at Chicago is an Affirmative Action/Equal Opportunity Employer.

FACULTY POSITION MICROBIOLOGY
Southern Illinois University at Carbondale

Applications are invited for a tenure-track position in the Department of Microbiology at the level of **ASSISTANT PROFESSOR** commencing January 1, 1997. In addition to establishing a strong research program, teaching microbiology to both graduate and undergraduate students is expected. The applicant must hold an earned doctorate in microbiology or a related field and must have postdoctoral research experience. The applicant must display evidence of research accomplishments in microbiology and the ability to establish an independently funded research program in microbiology. Preference will be given to a microbiologist who works on the genetic regulation of bacterial viruses, genetic regulation of environmentally important microorganisms, or the molecular phylogeny of environmentally important microorganisms. Salary, research facilities, and start-up funds will be competitive. Applications will be accepted until October 1, 1996, or until the position is filled. Applicants should send a letter of application, a brief proposed research plan, curriculum vitae, and the names of three professional referees to: **Dr. John Martinko, Chair, Department of Microbiology, Southern Illinois University at Carbondale, Carbondale, IL 62901-6508.** *Southern Illinois University at Carbondale is an Equal Opportunity/Affirmative Action Employer.*

THE UNIVERSITY OF TEXAS SOUTHWESTERN MEDICAL CENTER AT DALLAS
Assistant Professor in Protein NMR Spectroscopy

The Department of Biochemistry at the University of Texas Southwestern Medical Center invites applications for a tenure-track **ASSISTANT PROFESSOR** position in protein NMR spectroscopy. U.T. Southwestern offers a stimulating environment for interdisciplinary research in biochemistry, molecular and structural biology. Applicants should have a Ph.D. and/or M.D. degree and demonstrated experience in multidimensional NMR spectroscopy. The successful applicant will be expected to develop an independent research program in the fields of protein structure and/or protein folding, and to participate in graduate education. Applications including a curriculum vitae, a brief statement of research plans, and the names of three references should be submitted by November 1, 1996, to: **Chair of the NMR Search Committee, Department of Biochemistry, University of Texas Southwestern Medical Center, 5323 Harry Hines Boulevard, Dallas, TX 75235-9038.** *The University of Texas Southwestern Medical Center is an Affirmative Action/Equal Opportunity Employer. Women and minority candidates are encouraged to apply.*

SWARTHMORE

EVOLUTIONARY BIOLOGIST

The Department of Biology at Swarthmore College invites applications for a tenure-track appointment at the **ASSISTANT PROFESSOR** level, to begin September 1997. We seek an evolutionary biologist who is committed to combining teaching and research at a small liberal arts college. Teaching responsibilities include a broadly based intermediate-level course in evolution, an advanced seminar in a major area within evolutionary biology, and participation in the Department's introductory biology sequence. The successful candidate will be expected to establish an active research program that will provide opportunities for undergraduate participation. A Ph.D. is required; postdoctoral research experience and teaching experience are desirable. Interested individuals should submit a curriculum vitae along with statements of teaching and research interests, and arrange to have three letters of recommendation sent by October 15, 1996, to: **Dr. Rachel Merz, Department of Biology, Swarthmore College, Swarthmore, PA 19081-1397.**

Swarthmore College is an Equal Opportunity Educator and Employer and specifically invites and encourages applications from women and minorities.

CENTER OF MARINE BIOTECHNOLOGY UNIVERSITY OF MARYLAND BIOTECHNOLOGY INSTITUTE

Applications are sought for a tenure-track faculty position at the level of **ASSISTANT** to **FULL PROFESSOR** in the area of fish or marine invertebrate transgenics and gene transfer technology. Applicants should have a Ph.D. or equivalent degree with relevant postdoctoral experience and strong research experience in one or more of the following: vectors and methods to be used for gene transfer in shellfish/finfish embryos, stability and expression of the transgenes, and molecular, physiological and endocrine aspects of the transgenic animals. Preference will be given to individuals using transgenic technology to investigate regulation of gene expression in the context of fish development, growth, reproduction, immunology, or nutrition. The successful candidate will be expected to maintain a strong independent, extramurally funded research program, as well as participate in multidisciplinary research on different aspects of finfish/shellfish molecular biology and biotechnology.

Applicants should provide a curriculum vitae, a summary of research accomplishments and proposed research, and the names and addresses of at least three references by November 25, 1996 to: **Chairman, Search Committee for Transgenic Research, Center of Marine Biotechnology, University of Maryland Biotechnology Institute, Suite 236, Columbus Center, 701 East Pratt Street, Baltimore, MD 21202.** *Women, minorities, veterans, and candidates with disabilities are encouraged to apply. The University of Maryland is an Equal Opportunity/Affirmative Action Employer.*

TWO POSITIONS IN LIMNOLOGY/ AQUATIC ECOLOGY

University of Alberta—The Department of Biological Sciences in the Faculty of Science invites applications for two tenure-track positions, one at the level of **ASSISTANT PROFESSOR** and one at **ASSOCIATE PROFESSOR**. Aquatic science is a focus of research strength in the Department of Biological Sciences, and we seek applicants specializing in aquatic chemistry, biology, geochemistry or biogeochemistry, or in stream or wetland ecology who will add to this strength. The effective date of employment will be July 1, 1997. *In accordance with Canadian Immigration requirements, priority will be given to Canadian citizens and permanent residents of Canada.* Candidates must have a Ph.D. and postdoctoral research experience, and they should forward a curriculum vitae, list of publications, brief statement of research and teaching interests, and the names of three referees to: **Dr. S. E. Jensen, Chair, Department of Biological Sciences, CW405 Biological Sciences Building, University of Alberta, Edmonton, Alberta, Canada T6G 2E9. Email: susan.jensen@ualberta.ca.** For additional information about the Department see: **http://www.biology.ualberta.ca/** Closing date: November 30, 1996. *The University of Alberta is committed to the principle of equity in employment. As an employer we welcome diversity in the workplace and encourage applications from all qualified women and men, including Aboriginal peoples, persons with disabilities, and members of visible minorities.*

CREIGHTON UNIVERSITY

The Department of Atmospheric Sciences at Creighton University has an entry level, tenure-track opening at the **ASSISTANT PROFESSOR** level. The department is seeking an experienced individual who is committed to full-time (nine hours per semester) teaching/advising graduates and undergraduates. The successful candidate must possess a Ph.D. in atmospheric sciences or a closely related field; exceptional teachers are highly encouraged to apply. Candidates are desired who have a background including: remote sensing of the atmosphere and earth's surface; meteorological/hydrological forecasting technique development using radar or satellite data sets; air pollution assessment and abatement applications; or experience with GIS applications in the interdisciplinary aspects of global change, monitoring, or processes. Candidate participation is encouraged in the interdisciplinary aspects of the Creighton Institute of Environmental Science. Interested parties should submit a curriculum vitae, official transcripts of all undergraduate/graduate work, three letters of recommendation, and all supporting materials to: **Dr. Arthur V. Douglas, Chair, Atmospheric Sciences Department, Creighton University, 2500 California Plaza, Omaha, NE 68178.** All materials, including letters of recommendation, must be received by October 7, 1996. *Creighton University is a Jesuit, Catholic institution that encourages applications from qualified individuals of all backgrounds who believe they can contribute to the distinctive educational tradition of the University. Creighton University is an Equal Opportunity/Affirmative Action Employer. EQ/AAE.*

FACULTY POSITION, VIROLOGY BOSTON UNIVERSITY SCHOOL OF MEDICINE

The Department of Microbiology is recruiting faculty with an interest in retrovirology. Applications in any area of retrovirology will be considered, but we are particularly interested in applications from individuals studying viral assembly and structure and/or viral protein processing. We are seeking candidates with a strong research record with a commitment to developing independent, innovative research programs, and who have interest in graduate and medical education. Applications at any faculty rank will be considered, although preference will be given to candidates at the **ASSISTANT PROFESSOR** level. Interested individuals should submit applications by November 1, 1996, including curriculum vitae, a summary of research accomplishments and future research plans, and the names of three persons who can provide letters of recommendation to: **Ronald B. Corley, Ph.D., Department of Microbiology, Boston University School of Medicine, 80 East Concord Street, Boston, MA 02118-2394.**

The Department of Microbiology and Boston University are committed to Affirmative Action/Equal Employment Opportunities and encourage applications from women and minorities.

MOLECULAR EVOLUTION POSITION

The Ecology and Evolution Group within the Department of Biology at the University of Oregon invites applications for a tenure-track faculty position in molecular evolution. The specific area of research concentration is open, but priority will be given to candidates focusing on molecular mechanisms of evolution and/or the interface between evolution at the molecular and phenotypic levels. The position will be filled at either the **ASSISTANT** or **EARLY ASSOCIATE PROFESSOR** level. Applicants should submit a cover letter with a brief outline of research and teaching interests and a curriculum vitae, and arrange to have three letters of recommendation forwarded to the search committee by November 1, 1996, to: **Molecular Evolution Search, Biology Department, 1210 University of Oregon, Eugene, OR 97403-1210.** *The University of Oregon is an Equal Opportunity/Affirmative Action Employer committed to compliance with the ADA and cultural diversity. We encourage women and minorities to apply.*

ASSISTANT PROFESSOR of Nutrition and Food Science. Nine-month, tenure-track appointment. Requires doctorate in appropriate field; postdoctoral research experience mandatory. Responsibilities include teaching undergraduate and graduate courses, development of an externally funded research program in diet and cancer or food safety. Submit letter of application, curriculum vitae, three letters of reference to: **David M. Klurfeld, Ph.D., Professor and Chairman, Department of Nutrition and Food Science, Wayne State University, 3009 Science Hall, Detroit, MI 48202. Email: dklurfe@lifesci.wayne.edu.** *Wayne State University is an Equal Opportunity/Affirmative Action Employer.*

Manager Applied Pharmaceutical Sciences

Vical Inc., a leader in the development of gene-based pharmaceutical products for human gene therapy, is seeking an individual to develop pharmaceutical formulations for DNA for use in gene therapy. Responsibilities include preformulation studies, stability studies, design and development of liquid/lyophilized formulations, and analytical methods development. The ideal applicant will possess a Ph.D. with 5+ years of pharmaceutical drug development experience, a strong analytical, physical chemistry background, *in vitro/vivo* bio assays, and experience in a GMP environment.

Formulations Scientists

We are also seeking formulations scientists with strong pharmacy backgrounds to run preformulation stability studies. Minimum requirements include advanced degree in pharmaceutical sciences and practical laboratory experience.

Please send your resume to: **Human Resources, Vical Inc., 9373 Towne Centre Drive, Suite #100, San Diego, CA 92121,** or fax to **(619) 646-1350.** *EOE M/F/D/V.*

DEPARTMENT OF MICROBIOLOGY

ASSISTANT PROFESSOR

An Assistant Professor on the tenure track is sought. Current areas of research in the department include DNA replication, regulation of gene expression, genetic recombination, telomere synthesis, gene therapy, latent viral infection, DNA protein interactions, and molecular epidemiology. Of particular interest are candidates with research interest in lentiviruses or herpesviruses. The Department teaches medical students in the areas of microbiology and molecular genetics and graduate students in molecular biology. A new faculty member would be expected to develop a successful research program and to participate in the teaching of both medical and graduate students. The position includes resources for initiation of the research program. Applicants should send a *curriculum vitae*, statement of research accomplishments and plans, and the names of three references to: **Kenneth I. Berns, M.D., Ph.D., Department of Microbiology, CORNELL UNIVERSITY MEDICAL COLLEGE, 1300 York Avenue, New York, NY 10021.** ***Cornell University Medical College is an Equal Opportunity Affirmative Action Employer.***

CORNELL UNIVERSITY MEDICAL COLLEGE

AAAS

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

Directorate for International Programs

Program Director, Sub-Saharan Africa Programs

AAAS, the world's largest federation of scientific and engineering societies and the largest general scientific organization, seeks a director to oversee its Sub-Saharan Africa Program, which has concentrated on strengthening sub-Saharan African expertise and potential to harness science for the benefit of society. The newly-appointed director will have latitude to formulate future programmatic directions, especially reflecting African-defined needs and priorities. The position involves an array of activities that may include organizing international symposia and workshops in the U.S. or at African sites; analyzing, reporting about, and publishing materials on science and science policy issues affecting the region; and engaging in other cooperative endeavors. As well, the director will maintain productive partnerships formed since 1987 and engender new ones with counterpart individuals and institutions in African countries. The director will interact with key donors and will be responsible for obtaining necessary external support.

The director will provide expert advice about the region to AAAS leadership and represent the Association and the program at conferences and other professional meetings in the U.S. and abroad; will keep abreast of developments in science, technology, and socioeconomic policy and practice within sub-Saharan Africa.

Qualifications: The director must have had advanced training in a field of specialization relevant to the program's mission (science and/or African regional studies); held progressively responsible professional positions, for at least several years, involving large-scale project management and successful grantsmanship; firsthand knowledge of the region; substantial experience with supervision of staff members and management of finances; and excellent communication skills.

This position will become available by 1 October 1996, in order to allow for overlap with the present incumbent; must be able to begin employment by year end. Interested applicants may send resume and cover letter to **The American Association for the Advancement of Science (AAAS), Human Resources Department, 1200 New York Avenue, NW, #101-PD 017, Washington, DC 20005.** *EOE.* Non-smoking work environment.

Postdoctoral Research at The Wistar Institute

The Wistar Institute, an independent research organization located on the campus of the University of Pennsylvania, currently seeks postdoctoral applicants.

Postdoctoral Researcher 1 – Identify tumor antigens using antibody phage display. Strong background in molecular biology and some experience in immunology. **Reply to Dr. Dorothee Herlyn.**

Postdoctoral Researcher 2 – Interaction of cellular and viral proteins that regulate transcription and replication of Epstein-Barr virus. 1) Mechanism of transcriptional activation of latent virus by Zta in the context of general transcription factor assembly and chromatin repression. 2) Identification of cellular factors that mediate the cell cycle control of EBV DNA replication. **Reply to Dr. Paul Lieberman.**

Postdoctoral Researcher 3 – Conduct cellular immunology and molecular virology studies on HIV-1, cytokines and EBV. Research areas include AIDS immunopathogenesis, pre-clinical development of immunotherapy (viz., IL-12, IL-13) and viral interference. **Reply to Dr. Luis J. Montaner.**

Postdoctoral Researcher 4 – RNA editing of GluR ion channel gene transcripts in mammalian brain; the molecular mechanism and its relevance to neurological disorders such as Alzheimer's and epilepsy. Previous experience in molecular techniques required. Degree received within the last three years preferred. *Proc. Natl. Acad. Sci. USA* 91:11457 (1994). *EMBO J.* 15:34 (1996). **Reply to Dr. Kazuko Nishikura.**

Postdoctoral Researcher 5 – Research into the mechanism of Myc-induced apoptosis focusing on a novel Myc-binding protein, Bin1. Experience in molecular and cellular biology preferred. **Reply to Dr. George Prendergast.**

Postdoctoral Researcher 6 — Projects include characterization of a novel co-repressor for the KRAB domain; engineering repressors which revert the neoplastic phenotype; characterization of BRCA-1 interacting proteins. Highly motivated individuals with molecular biology/biochemistry background are preferred. **Reply to Dr. Frank J. Rauscher, III.**

Postdoctoral Researcher 7 — Structure-function studies of human spectrin and other membrane cytoskeletal proteins using recombinant peptides, biochemical, and biophysical methods. Structure-function studies of cell-cell adhesion proteins involved in human melanoma and colon carcinoma. **Reply to Dr. David Speicher.**

Interested applicants are requested to send a C.V. and three references to the appropriate faculty member's attention:
The Wistar Institute, 3601 Spruce Street, Philadelphia, PA 19104. Equal Opportunity Employer. Minority candidates are strongly encouraged to apply.

THE WISTAR INSTITUTE 1892

POSITIONS OPEN

TENURE-TRACK FACULTY POSITION IN PHARMACOLOGY

The Department of Pharmacology at the University of Vermont College of Medicine invites applications for a tenure-track position in Pharmacology (**ASSISTANT/ASSOCIATE/FULL PROFESSOR**). Candidates should have a Ph.D. or M.D. degree with at least two years of postdoctoral training. Applicants at the Associate/Full Professor level must have a funded and productive research program and demonstrated excellence in teaching, scholarship, and service. All candidates should have a record of research accomplishment using molecular, cellular, or genetic approaches that will complement existing research strengths in the areas of cell signaling or ion channels in the cardiovascular system or regulation of cell proliferation/cell death. The successful candidate will be expected to pursue an extramurally funded, independent research program and must be committed to excellence in teaching. Applicants should submit a curriculum vitae, statement of research objectives and career goals, and names of three references to: **Search Committee, Department of Pharmacology, College of Medicine, University of Vermont, Burlington, VT 05405**. The deadline for receipt of applications is October 21, 1996.

The University of Vermont is an Equal Opportunity/Affirmative Action Employer. Women and people from diverse racial, ethnic, and cultural backgrounds are encouraged to apply.

MOLECULAR BIOLOGIST/CELL BIOLOGIST

The University of Pittsburgh School of Medicine invites applications for two tenure-track positions at the **ASSISTANT** or **ASSOCIATE PROFESSOR** level. Preference will be given to individuals with primary training in molecular biology/cell biology with research interests in epithelial cell differentiation, polarization related to cell matrix or immune cell interactions, and the associated signaling mechanisms. The successful candidate will be expected to develop an independent research program and to participate in the teaching of medical and graduate students. Laboratory space and start-up funds will be provided by the Department of Cell Biology and Physiology. Extensive opportunities exist for interactions with other scientists within the University of Pittsburgh interested in the molecular and cell biology of epithelial tissues.

Salary commensurate with experience. The desired starting date is negotiable. Applicants should have a Ph.D. and/or M.D. degree and postdoctoral experience. Send curriculum vitae, summary of research interests, and names of three references to: **Raymond A. Frizzell, Ph.D., c/o Wendy Bell, Department of Cell Biology and Physiology, University of Pittsburgh School of Medicine, 814 Scaife Hall, Pittsburgh, PA 15261.** *The University of Pittsburgh is an Equal Opportunity/Affirmative Action Employer.*

RESEARCH SCIENTISTS

Junior, Staff, and Senior Scientists are being recruited at the Rammelkamp Center for Education and Research. The positions are equivalent to **ASSISTANT, ASSOCIATE** and **FULL PROFESSOR**. Research at RCER is in Molecular Medicine with emphasis on structure, function and regulation of membrane proteins. We seek Scientists with research programs in trafficking of membrane proteins, interactions of cytoskeletal and matrix proteins, and/or transcriptional regulation. Applicants for Staff and Senior positions should be independent Investigators with a history of extramural funding. Generous start-up funds and an excellent salary and benefits package are available. Send letter of application, curriculum vitae, three recent publications, and three letters of reference to: **Dr. Arthur M. Brown, Vice President, Research, Rammelkamp Center for Education and Research, MetroHealth Medical Center, 2500 MetroHealth Drive, Cleveland, OH 44109-1998.** *MetroHealth is an affiliate of Case Western Reserve University. Candidates must meet all requirements to work within the U.S. Equal Opportunity Employer.*

ASSISTANT PROFESSOR

The Waksman Institute at Rutgers University is inviting applications for a **TENURE-TRACK POSITION**. The position is for a developmental biologist, is a joint appointment in the Department of Microbiology and Genetics, and requires teaching at the undergraduate and graduate level. Applicants should submit a curriculum vitae, list of publications, three letters of reference, and a summary of research plans by November 30, 1996, to: **Dr. Ruth Steward, Search Committee Chairperson, Waksman Institute, Rutgers University, P.O. Box 759, Piscataway, NJ 08855-0759.** *Affirmative Action/Equal Opportunity Employer.*

POSITIONS OPEN

UNCW

Two new positions, **ASSISTANT** or **ASSOCIATE PROFESSOR** (tenure-track), beginning January or August 1997: 1) Marine Biologist with strong background in biochemistry who will teach core course in biochemistry, 2) Coastal Plant Biologist specializing in tidal, wetland, estuarine, or marine systems. Applicants will teach undergraduate and graduate courses and maintain an active research program. Ph.D. with postdoctoral experience required. Send curriculum vitae, research and teaching interests, graduate transcripts, selected reprints, and names of three references to: 1) **Dr. Joseph Pawlik** or 2) **Dr. Martin H. Posey, Department of Biological Sciences, University of North Carolina at Wilmington, Wilmington, NC 28403-3297** by 1 October 1996. *Affirmative Action/Equal Opportunity Employer.*

ASSISTANT PROFESSOR: The Department of Entomology at the University of Massachusetts (Amherst) invites applications for a tenure-track faculty position available Spring 1997 to conduct research in basic and/or applied insect population genetics. Preference will be given to candidates with a demonstrated commitment to studies on the genetics of natural/field populations of insects. Must have expertise in molecular and biochemical techniques for population genetic analysis. Candidate will need to develop a competitive, externally funded research program. Teaching will include instruction in population genetics at the graduate and undergraduate levels. Qualifications include doctorate in entomology or equivalent, and a strong commitment to teaching and research. Salary competitive and based on qualifications. Application deadline is October 15, 1996, but search will remain open until a candidate is selected. Send curriculum vitae, up to five reprints, graduate transcripts, and names, addresses, and FAX numbers of at least three references to: **Dr. Joseph S. Elkinton, Department of Entomology, Fernald Hall, University of Massachusetts, Amherst, MA 01003-2410. Telephone: 413-545-4816**; or **FAX: 413-545-2115**; or **Email: elkinton@ent.umass.edu.**

The University is an Affirmative Action/Equal Opportunity/Americans with Disabilities Act Employer.

The University of Iowa Department of Internal Medicine is seeking applicants for positions in the cell and molecular biology of inflammation. Appointment may be made to **ASSISTANT RESEARCH SCIENTIST, ASSOCIATE RESEARCH SCIENTIST**, or **RESEARCH SCIENTIST** based upon qualifications. Requires a Ph.D. and/or M.D. or an equivalent combination of education and experience. Expertise in the cell biology of phagocytes, endothelial cells, complement, and leukocyte-endothelial cell interacting and the ability to be an independent investigator with an established research program competitive for NIH and other external funding are desirable. Salary is based on the applicant's academic and/or scientific credentials. Candidates should submit curriculum vitae to: **Randall Jordison, Assistant to the Chairman, Department of Internal Medicine, SE 310 GH, The University of Iowa, Iowa, City, IA 52242.** *The University of Iowa is an Equal Opportunity/Affirmative Action Employer. Women and minorities are strongly encouraged to apply.*

FACULTY POSITION NEUROSCIENCE

A **TENURE-TRACK** faculty position is available in the Department of Neuroscience at the University of Virginia Health Sciences Center.

We are seeking an individual using cellular, molecular, and genetic approaches to fundamental problems in neuroscience.

We anticipate making this appointment at the Assistant or Associate Professor level, although applications from candidates at all levels will be considered.

Please send curriculum vitae, sample reprints, a description of research plans, and the names and telephone numbers of three references to:

Oswald Steward, Ph.D.
Professor and Chair
Department of Neuroscience
University of Virginia
Health Sciences Center
Charlottesville, VA 22908

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

POSITIONS OPEN

VETERINARY LABORATORY MICROBIOLOGY SERVICES MANAGER

A position is available as Veterinary Laboratory Microbiology Services Manager, which will serve as the Chief of Microbiology of the Bureau of Veterinary Diagnostic Laboratories, Summerdale, Pennsylvania. The laboratory is part of the Pennsylvania Animal Diagnostic Laboratory System (PADLS) with laboratories at the Pennsylvania State University and the University of Pennsylvania School of Veterinary Medicine. The position is responsible for the function and operation of the Microbiology and possibly the Immunology areas of the laboratory. The diagnostic laboratory performs procedures in pathology, histology, toxicology, microbiology and immunoserology on mammalian, avian, and aquatic species. A new laboratory is under construction; substantial equipment including development of a new computer system has been acquired in the past several years and provisional AAVLD accreditation is underway. Research and educational activities are encouraged and there is collaborative activity with the university laboratories. Training opportunities and professional self-development is encouraged and supported. A Ph.D. in microbiology and three years as a microbiologist in a full-service veterinary diagnostic laboratory is required. Postdoctoral/research experience desirable.

The Commonwealth of Pennsylvania offers a full benefit program including: paid life and medical insurance; dental, vision, hearing, and paid prescription plan; vacation; and an excellent retirement plan. A bonus program is also offered for this position. Salary range is $46,044 to $70,005.

This is a civil service position; a job announcement and required application materials must be obtained by contacting: **Ms. Beth Williamson, Pennsylvania Department of Agriculture, 2301 North Cameron Street, Harrisburg, PA 17110. Telephone: 717-787-1065.** Completed application and supplement must be filed at this address by September 27, 1996. Résumés alone will not be accepted.

RESEARCH DIRECTOR

The Department of Anesthesiology, Allegheny Campus, Allegheny University of the Health Sciences, seeks a director of research. The ideal candidate should be an experienced investigator with demonstrated success in initiating research programs, obtaining extramural funding, and publishing in peer-review journals, and should qualify for an **ASSOCIATE PROFESSOR** or **PROFESSOR** appointment. An important expectation will be the ability to serve as a mentor to other investigators. Expertise in pharmacology, cardiopulmonary physiology, neuroscience, or genetics would complement existing strengths. Send curriculum vitae to: **Glenn P. Gravlee, M.D., Chairman, Department of Anesthesiology, Allegheny General Hospital, Allegheny Campus, Allegheny University of the Health Sciences, 320 East North Avenue, Pittsburgh, PA 15212.** *Allegheny General Hospital is an Equal Opportunity Employer.*

MOLECULAR VIROLOGY
T. Jake Liang, M.D.

Current research focuses on the molecular pathogenesis of hepatitis B and C viruses. Elucidation of mechanisms of HBV and HCV infections leading to chronic infection and development of hepatocellular carcinoma is also a major research effort. Several positions are available to study various aspects of molecular virology and viral pathogenesis. Applicants should have a strong background in molecular and cell biology. Candidates with experience in viral and cell immunology, nucleic acid-protein interaction, signal transduction, and transgenic animal work are encouraged to apply. Applicants should have less than three years of postdoctoral experience. Contact: **Liver Diseases Section, Digestive Diseases Branch, NIDDK, Building 10, Room 9B16, 10 Center Drive MSC 1800, Bethesda, MD 20892-1800**.

WILDLIFE BIOLOGIST/LANDSCAPE ECOLOGIST FACULTY POSITION: Teaching: a course in applications of landscape ecology in alternate years; related courses such as wildlife techniques, field studies, and a team-taught capstone course. Requirements: Ph.D. in wildlife biology or a closely related discipline; research experience in applying landscape analysis techniques to problems of habitat fragmentation, patch dynamics, vertebrate and ecosystem management. Contact: **Department of Fishery and Wildlife Biology, Colorado State University, Fort Collins, CO 80523; Telephone: 970-491-1410; Email: fwb@cnr.colostate.edu**. Deadline: October 15, 1996. *Equal Employment Opportunity/Affirmative Action Employer.*

FACULTY POSITIONS

Albert Einstein College of Medicine
Department of Molecular Pharmacology

The Department of Molecular Pharmacology is seeking new faculty members during the period of August/September 1996-March 1997. Candidates are invited to apply for positions at all academic levels (**ASSISTANT, ASSOCIATE** and **FULL PROFESSOR**). All positions offer the opportunity for tenure. We are seeking individuals with a record of excellence in research who will apply skills in biochemistry, molecular biology, and cell biology to solve problems relevant to molecular pharmacology. Essential requirements are an innovative research program that complements programs within the Department and the Medical School, and a commitment to the training of fellows and graduate students. Research areas of interest to the Department include: mechanisms of drug, hormone, oncogene, growth factor, and neurotransmitter actions; structure, function, and regulation of receptors, regulatory enzymes, and transporters; signal transduction, second messengers, and protein phosphorylation; post-translational modification and intracellular targeting. Substantial packages will be provided to start up and sustain the laboratories of successful candidates. Submit two copies of a curriculum vitae, a statement of research interests, future plans, and names of three references to **Dr. Charles S. Rubin** or **Dr. Susan B. Horwitz, c/o Ms. Anna Cioffi, Administrator, Department of Molecular Pharmacology, Albert Einstein College of Medicine, Jack and Pearl Resnick Campus, 1300 Morris Park Avenue, Bronx, NY 10461.**

Equal Opportunity Employer

The Science of Agricultural Genetics

RESEARCH MANAGER

Enabling Technology - Gene Targeting (Job #ET-601)

The Research Manager in the Gene Targeting group will manage a molecular biology program, as part of a team working on gene targeting and other molecular genetic approaches for manipulation of corn and other Pioneer crops. This position will require not only a demonstrated ability to develop and implement innovative new procedures in areas of basic and applied research, but also experience and willingness to interact closely with other molecular and cell biologists and breeders on group oriented projects, including working with external collaborators. We require a Ph.D. or equivalent in molecular biology or related field, plus at least 3 years of directly related experience in molecular/cell biology, and experience with supervising technical staff and setting research goals/timelines. Excellent communication skills as well as fluency with use of computers and sequence analysis software are also required. Preference will be given to candidates with direct experience and/or broad knowledge in areas of DNA recombination and repair in plant, yeast or animal systems.

POST-DOCTORAL ASSOCIATE

Enabling Technology - Gene Targeting (Job #ET-602)

The candidate will work on methods for targeting gene integration in plants. Goals of the group include improving frequency and fidelity of delivery of nucleic acid sequences to specific genomic regions to facilitate manipulation of the corn genome. Efforts will focus on adapting or developing innovative procedures based on homologous recombination and site-specific integration approaches used in various biological systems. We require a Ph.D. or equivalent in molecular and/or recombination biology or related field, and a willingness to work as part of a team of researchers. Direct experience and good knowledge in the area of DNA recombination and repair mechanisms is desirable. Good communication/interaction skills are important, including the ability to write results for presentation or publication in a timely manner. Initial appointment is for two years with a third year optional upon approval.

We offer competitive salaries and excellent, comprehensive benefits such as 401(k), tuition and relocation reimbursement. Des Moines is a prospering heartland city that ranks well above the national averages in affordability and education. Our location provides a mix of beautiful open spaces and city life advantages. For confidential consideration send 3 copies of your resume and cover letter indicating job number by October 13, 1996 to: Pioneer Hi-Bred International, Inc., Attn: PERSONNEL (Job #ET-601 or ET-602), P.O. Box 1004, Johnston, IA 50131-1004.

Pioneer Hi-Bred International, Inc., is the world leader in agricultural genetics. Founded in 1926, we are a publicly held company that invests more than $115 million in research and product development. Pioneer® brand products are grown in almost every crop-producing continent in the world. At our headquarters in Des Moines, Iowa, we're adding to our Research team.

PIONEER HI-BRED INTERNATIONAL, INC.
An Equal Opportunity Employer

Public Health Service
National Institutes of Health
Baltimore, Maryland

TENURE TRACK POSITIONS AVAILABLE

NATIONAL INSTITUTE ON AGING

The National Institute on Aging is searching for two to three tenure track candidates (Ph.D. and/or M.D.) who are interested in the Institute's expanding research effort in the study of the immune system and host defense and how these systems are compromised in aging and in aging-associated diseases. The successful candidates will be expected to establish an independent research program on aspects of normal immune system function (including cytokine action, signal transduction, gene expression, cell physiology) and characterize alternations that occur with aging. Mechanistic studies should lead to an understanding of the basis for any defects and suggest potential therapeutic interventions that might reverse the defects. Candidates should submit a C.V., bibliography, three letters of recommendation, a detailed statement of research interests and select publications to: **Jonathan D. Ashwell, M.D., Chair of the Immunology Search Committee, c/o Personnel Office, Box 26, Gerontology Research Center, 4940 Eastern Avenue, Baltimore, Maryland 21224-2780.** ***All applications must be postmarked by October 25, 1996.***

NIH is an Equal Opportunity Employer

Join the Market Leader and Become a Senior Advisor to Biotechnology Companies Around the World

Huntingdon Life Sciences, the world's largest preclinical CRO, with over $145 million in assets and 1600 employees, is committed to providing toxicology, pathology, bioanalysis, pharmacokinetics, pharmacology and allied scientific services to the pharmaceutical and chemical industries. Huntingdon's clients include many of the world's most successful pharmaceutical and biotechnology companies, where we provide critical data for new product development.

Director of Biotechnology Industry Practice

Huntingdon's newly acquired 200,000 s.f. American laboratory is seeking a leader to manage our growing Biotechnology Industry Practice. As Director of the Biotechnology Industry Group, you will be responsible for developing new clients, providing scientific leadership for the group, working as a member of our client's development teams, designing and managing toxicology programs leading to INDs and supporting compounds entering clinical trials, and generating the safety data leading to registration and marketing of new drugs. Our current group has extensive expertise in the areas of continuous infusion dosing systems, telemetry, and analysis of cardiovascular and respiratory functions. Our clients are testing novel compounds in therapeutic categories such as: CNS disorders, anti-cancer, anti-viral, cytokines, anticoagulants, and gene therapy.

Experience and qualifications include a PhD or board certification in Toxicology, Pathology or a related field; drug development or project team management experience within a major pharmaceutical or biotechnology company, research and/or academic experience is a plus.

Huntingdon offers the best career opportunities in the fast growing contract research industry for talented toxicologists and pathologists. We are a growing public company located close to Princeton, NJ, with excellent salary, benefit and stock option programs. For consideration, please forward your resume to: Human Resources, Huntingdon Life Sciences, Mettlers Road, PO Box 2360, East Millstone, NJ, 08875-2360. An equal opportunity employer.

Huntingdon Life Sciences

POSITIONS OPEN

FACULTY POSITIONS IN CELLULAR/ MOLECULAR BIOLOGY

The Departments of Biology and Biochemistry at the University of Houston invite applications for tenured or **TENURE-TRACK FACULTY POSITIONS** in cellular or molecular biology. The scope of this search is broad, but will be expected to complement existing departmental strengths in neuroscience, signal transduction, microbiology and microbial pathogenesis, analysis of genetic diseases, developmental genetics, and biological rhythms. The positions require a Ph.D. or equivalent and postdoctoral experience. The level of academic rank is open and will depend upon qualifications. The faculty members are expected to develop and maintain a nationally competitive research program and participate in graduate and undergraduate teaching. The Departments have spacious labs, strong research programs in many areas of cellular and molecular biology and biochemistry, and encourage active research collaborations among its faculty and with other research institutions in the Houston area. Consult: **http://www.bchs.uh.edu** for further information about the Departments. Review of applications will begin by October 15, 1996. Applicants should submit curriculum vitae, statement of research plans, and have three letters of reference sent to: **Dr. Arnold Eskin, Faculty Search Committee, Departments of Biology and Biochemistry, University of Houston, Houston, TX 77204-5934.** *University of Houston is an Equal Opportunity/Affirmative Action Employer. Minorities, women, veterans, and persons with disabilities are encouraged to apply.*

UNIVERSITY OF PENNSYLVANIA MEDICAL SCHOOL DEPARTMENT OF PHARMACOLOGY

An Assistant Professor in the **TENURE TRACK** is being recruited to work in the area of DNA-adducts and protein-carcinogen adducts. The position requires an individual with a strong independent research program, as well as the ability to teach and supervise students and research assistants. The successful candidate will participate in the research and teaching program of the Department of Pharmacology. A Ph.D. degree in the area of pharmaceutical sciences and research experience in the structural analysis of DNA-adducts and proteins are essential. A strong background in HPLS and mass spectrometry together with a demonstrated record of research productivity and at least five years of postdoctoral training are required. *Applications from women and minorities are especially encouraged.*

Applicants should submit a cover letter, a curriculum vitae, selected reprints or preprints, a statement of research interests, and three letters of recommendation to: **Cancer Search Committee, Department of Pharmacology, Medical School of the University of Pennsylvania, 153 Johnson Pavilion, Philadelphia, PA 19104-6084.** *The University of Pennsylvania is an Equal Opportunity/Affirmative Action Employer.*

AGRICULTURAL ENTOMOLOGIST

Delta Research Center, University of Missouri, Portageville, Missouri. 50/50 extension/research non-tenure-track faculty position, 11-month appointment, Ph.D. required. Conduct research and develop IPM guidelines for the effective management of arthropod pests of cotton, corn, rice, soybeans, and other fields crops grown in Southeast Missouri. Salary competitive, based on experience and qualifications. Send letter of application including statement of interest, career goals and background, curriculum vitae, transcripts, three letters of reference by November 15, 1996 to: **Dr. Armon Keaster, Chair, Search Committee, Department of Entomology, 1-87 Agricultural Building, University of Missouri, Columbia, MO 65211. Telephone: 573-882-7894; FAX: 573-882-1469; Email: agrita@muccmail.missouri.edu.** *University of Missouri is an Equal Opportunity/Affirmative Action Employer.*

CNS DEMYELINATION/VIRAL PATHOGENESIS

SENIOR and **JUNIOR RESEARCH ASSOCIATE** positions available to investigate immune regulation in coronavirus (senior) and/or EAE (junior) models of CNS demyelination. Ph.D. required. Senior position has possibility of eventual appointment to non-tenure faculty. Background in immune regulation, viral pathogenesis, APC function, cytokines, neurobiology, or molecular virology desirable. Send curriculum vitae and names of three references to: **Stephen Stohlman, Ph.D., University of Southern California School of Medicine, MC4-142, 1333 San Pablo Street, Los Angeles, CA 90033. FAX: 213-225-2369.**

ASSISTANT PROFESSOR DEVELOPMENTAL NEUROSCIENCE UNIVERSITY OF DENVER

The Department of Biological Sciences, University of Denver, invites applications for a tenure-track position at the **ASSISTANT PROFESSOR** level to begin September 1, 1997. We seek a broadly based neurobiologist with an expertise in developmental neuroscience. The successful candidate will be expected to have a Ph.D., postdoctoral experience, develop an extramurally funded research program, and direct graduate students at the M.S. and Ph.D. levels. Teaching responsibilities may include undergraduate courses in introductory neurobiology, developmental neuroscience, cognitive neuroscience, and other courses, dependent upon research interests. The candidate will be expected to participate in a new interdisciplinary Cognitive Science major, which is jointly offered by the Biology and Psychology Departments. Submit curriculum vitae, two recent publications, three letters of reference, and statements of teaching and research interests to: **Dr. John C. Kinnamon, Department of Biological Sciences, University of Denver, Denver, CO 80208.** Applications should be received by November 1, 1996, to insure consideration. *The University of Denver is committed to enhancing the diversity of its faculty and staff and encourages applications from women, minorities, persons with disabilities and veterans.*

ACADEMIC PATHOLOGIST

A full-time position is available in the Department of Pathology at Baylor College of Medicine at the **FULL, ASSOCIATE,** or **ASSISTANT PROFESSOR** (tenure-track) level. Applicants should have a strong record of scholarship and, if at the Full or Associate Professor level, extramural research funding. Preference will be given to investigators in the area of cancer, developmental biology, cardiovascular disease, neurobiology, human genetics, or microbial pathogenesis. Investigators must be board-certified or -eligible in either anatomic or clinical pathology. The candidate should have a license to practice medicine in the United States. The position is available immediately. Applications will be accepted until October 15. Please send a letter, curriculum vitae, and names of three references to:

James M. Musser, M.D., Ph.D.
Department of Pathology
Baylor College of Medicine
One Baylor Plaza
Houston, TX 77030

Baylor College of Medicine is an Equal Opportunity/Affirmative Action/Equal Access Employer.

WESTERN WASHINGTON UNIVERSITY

The Department of Chemistry invites applications for two tenure-track positions, one in **organic chemistry** and one in **biochemistry**, at the **ASSISTANT PROFESSOR** level beginning September 1997. Candidates must have a Ph.D. degree, a strong record of or potential for scholarship and effective teaching, and the ability to establish a vigorous research program involving undergraduate and graduate (M.S.) students. The department recently moved into a new $20 million building and has purchased over $1 million in new equipment. Candidates should submit curriculum vitae, a brief description of teaching and research interests, transcripts, and three letters of recommendation to: **Dr. Mark Wicholas, Department of Chemistry, Western Washington University, Bellingham, WA 98225-9150. Web address: http://www.chem.wwu.edu/dept.** Review of applications will begin November 1. *Western Washington University is an Affirmative Action/Equal Opportunity Employer. To request disability accommodation, 360-650-3306 (V/TTY).*

POSTDOCTORAL FELLOWS

ATHERSYS is a privately held biotechnology company located in Cleveland, Ohio, adjacent to the Case Western Reserve University School of Medicine. The company develops novel gene therapy pharmacologics based on its proprietary **SYNTHETIC MICROCHROMOSOME VECTOR** (SMV) technology. The company is seeking two recent Ph.D.'s in genetics or molecular biology that have experience in working with high molecular weight DNA. Suitable candidates should have a background in eukaryotic chromosome structure and function and a strong interest in gene therapy. These individuals will focus on continued development of the SMV technology for specific pre-clinical and clinical applications.

Applicants should submit a curriculum vitae or résumé, with cover letter and references to: **Dr. John Harrington, Vice President, Athersys, Inc., 11000 Cedar Avenue, Cleveland, OH 44106. FAX: 216-721-2310.**

ASSISTANT PROFESSOR OF BIOCHEMISTRY BRANDEIS UNIVERSITY

The Department of Biochemistry invites applications for a full-time, **TENURE-TRACK POSITION**, preferably in the area of bio-organic reaction mechanisms. The candidate should have a doctoral degree in a relevant discipline and at least two years of postdoctoral research experience. Additional requirements are: a strong record of research accomplishments, commitment to developing an independent, creative research program, and skill in teaching biochemistry curricula at both graduate and undergraduate levels. Please send a curriculum vitae along with a succinct narrative statement of research accomplishments, interests, and future plans. Candidates should also arrange to have three letters of reference submitted. Please send applications and correspondence to: **Ms. Maureen Ferrari, Faculty Search Coordinator, Department of Biochemistry, Mailstop 013, Brandeis University, Waltham, MA 02254-9110.** Deadline for applications is November 15, 1996. Appointment commences September 1, 1997. *Brandeis University is an Equal Opportunity/Affirmative Action Employer. Applications from qualified women and minorities are encouraged.*

STAFF SCIENTIST Jean Mayer Human Nutrition Research Center on Aging at Tufts University

STAFF SCIENTIST position for a Ph.D. available immediately for research on antioxidant defense and oxidative stress status. Help design and participate in experiments to study interactions between nutrition and oxidative stress. Participate in cell culture, animal model, and human studies of antioxidant nutrition. Examine biochemical components of oxidative stress using HPLC, GC/MS, and molecular biology techniques. Help manage lab operations and prepare grant proposals. Potential for eligibility for faculty appointment as Instructor or Assistant Professor. Send curriculum vitae and names of three references to: **Jeffrey Blumberg, Jean Mayer USDA Human Nutrition Research Center on Aging at Tufts University, 711 Washington Street, Boston, MA 02111.**

Tufts University is an Equal Opportunity Employer.

NIH POSTDOCTORAL POSITION

Laboratory of Biological Chemistry, Gerontology Research Center, NIA, NIH, invites applications for a **POSTDOCTORAL POSITION** beginning November 1, 1996, to study the role(s) of mitochondria in neuronal cell death and age-associated neurodegenerative disease. Qualified candidates must have a doctoral degree (M.D. or Ph.D.) and fewer than five years of postdoctoral experience. Experience in molecular and cell biology preferred. The fellow will join a new program that focuses on the mitochondrion as both a source and a target of reactive oxygen species and its involvement in apoptotic cell death in neuronal cells. Studies use molecular biology techniques along with fluorometric probes with confocal microscopy. Applicants should send a curriculum vitae and three references (names, addresses, and telephone numbers) to: **Dr. Charles R. Filburn, Laboratory of Biological Chemistry, Gerontology Research Center, Mailstop 12, 4940 Eastern Avenue, Baltimore, MD 21224.** *NIH is an Equal Opportunity Employer.*

TENURE-TRACK POSITION MOLECULAR PHARMACOLOGY

The Bruce Rappaport Faculty of Medicine at the Technion in Haifa, Israel, invites applications (Ph.D. and/or M.D.) at all academic levels for a **TENURE-TRACK POSITION** in the Department of Pharmacology. Candidates are expected to establish a strong, extramurally funded research program in pharmacology and to participate in teaching medical and graduate students basic and advanced courses. Teaching language in Israel is Hebrew. Interested applicants should submit curriculum vitae, list of publications, and a statement of research and teaching philosophy, and have three letters of reference forwarded to: **Dr. Peretz Lavie, Dean, Faculty of Medicine, Technion-Israel Institute of Technology, P.O. Box 9649, Haifa 31096, Israel.**

Major National Patent Law Firm located in New York City seeks highly qualified **Ph.D. SCIENTISTS** in biomedical and organic chemistry fields interested in second career opportunities in intellectual property law. Demonstrated technical writing skills essential. Competitive salaries and benefits, and opportunities for challenging assignments. *Minorities/Females/Veterans/Disabled. Equal Employment Opportunity.* Send résumé to:

Box 69, SCIENCE
1200 New York Avenue, N.W.
Washington, DC 20005

MOLECULAR ONCOLOGIST

Institute for Molecular Medicine/ Ben May Institute for Cancer Research The University of Chicago

The University of Chicago is seeking applicants for 3 tenure-track positions at the Assistant and/or Associate Professor level. The Institutes are committed to developing strong interactive programs in molecular oncology and molecular immunology, broadly defined. We are seeking outstanding individuals who are using molecular, genetic and/or structural approaches to examine basic mechanisms such as signal transduction, gene and cell cycle regulation, and DNA replication and repair. The Institutes are closely interfaced with an NCI-designated Cancer Center, Committees on Cancer Biology and Immunology, and the new Advanced Photon Source at Argonne National Laboratory. Candidates should have sufficient research experience to demonstrate both significant accomplishment and outstanding promise. Faculty appointments will be tenure-track in the most appropriate academic department where the candidate will be expected to exercise full membership. Letters of recommendation including curriculum vitae, bibliography, a brief statement of research interest, and the names of 3 references should be sent to: Search Committee, Institute for Molecular Medicine, 924 East 57th St., Chicago, IL 60637-5419. The University of Chicago is an Affirmative Action/Equal Opportunity Employer.

THE UNIVERSITY OF CHICAGO

Dean of the School of Graduate Studies State University of New York Health Science Center at Brooklyn

The Health Science Center at Brooklyn is seeking a dynamic and visionary academic leader with a commitment to excellence in the training of biomedical scientists to serve as Dean of the School of Graduate Studies. The Dean reports to the Senior Vice President for Biomedical Education and Research and has the primary responsibility for the direction and development of the School's academic programs, for the development of its faculty, and for the maintenance of standards of excellence in research and teaching. The Dean will also serve as the principal adviser to the Dean of the Center's College of Medicine on the development of the College's clinical and basic science research programs.

The School of Graduate Studies has a full time faculty of approximately 100 (all of whom hold faculty appointments in the College of Medicine) and a student body of approximately 100 graduate students. The faculty maintains an active research program which is supported by growing external funding. The financial resources available to the Center, the School of Graduate Studies, the College of Medicine, and their faculty, exceed $350 million.

Candidates must possess a Ph.D. or M.D., be qualified for the rank of Professor, and should have a record of significant accomplishment in research and academic administration.

Applications and nominations should include a curriculum vitae and be submitted by October 11, 1996 to:
Roger Q. Cracco, M.D. Professor and Chairman, Chair, Search Committee, Box #1, Suny Health Science Center at Brooklyn, 450 Clarkson Avenue Brooklyn, New York 11203

State University of New York Health Science Center

SUNY-HSCB is an affirmative action equal opportunity employer

Occupational Health/Risk Assessment

The Directorate of Health Standards Programs (DHSP), U.S. Occupational Safety and Health Administration (OSHA), seeks experts in various aspects of occupational health and quantitative risk assessment (QRA), to help promulgate scientifically-sound regulations to protect the U.S. workforce from unacceptable risks of chronic disease and death. DHSP is responsible for setting permissible exposure limits (PELs) for toxic and carcinogenic substances, regulating exposures to biological hazards, exploring strategies for reducing the incidence of repetitive motion disorders, and improving exposure monitoring and medical surveillance programs. Six vacancies are available; two supervisory and four technical:

o Director, Office of Risk Assessment, GM-15: manages a staff of scientists responsible for improving methods of risk analysis and applying those methods to set health-protective PELs and other risk-reduction standards. Candidates should have supervisory experience in the public or private sectors and nationally-recognized expertise in QRA or one or more of its components (OSH-96-27).

o Director, Office of Risk Reduction Technology, GM-15: Supervises a group responsible for identifying technologically-feasible solutions for reducing workplace risks. Candidates should have management experience and substantial expertise in industrial hygiene, environmental engineering, or a related field (OSH-96-28).

o Senior Statistician, GS-14 (Office of Risk Assessment): reviews OSHA health standards to ensure statistically-sound use of toxicology, epidemiology, and industrial hygiene data; also leads a group responsible for program evaluation through statistical analysis of exposure and biomonitoring data. Candidates should have a Ph.D. or equivalent in biostatistics or related field; expertise in mathematical modeling (esp. pharmacokinetics) highly desirable. (OSH-96-29).

o Health Scientist, GS-13/14 (Office of Standards Review): conducts quantitative and qualitative risk characterizations for 20 substances designated in the "PEL Update," the first phase in a long-term effort to update several hundred antiquated exposure limits. Candidates should have a Ph.D. or substantial work experience in environmental health science, toxicology, or related field. (OSH-96-30).

o Health Scientist, GS-13/14 (Office of the Director): assists the Director of Health Standards with several special projects, including developing agency-wide guidelines for risk assessment methodology and acceptable risk policy, and integrating risk information into consensual processes (negotiated rulemaking, voluntary guidelines, etc.). Candidates should have substantial interest in science-policy issues as well as broad training in QRA. (OSH-96-31).

o Industrial Hygienist, GS-12/13 (Office of Risk Reduction Technology): provides guidance in exposure control and process modification issues to multi-disciplinary project teams developing new health standards. Candidates should be certified in industrial hygiene or have substantial experience evaluating engineering controls. (OSH-96-32).

All candidates should have excellent writing ability and proven capacity to meet deadlines. *U.S. citizenship is required.*

To receive a vacancy announcement, contact the **OSHA Personnel Office at (202) 219-8006 (Fax: (202) 219-6296)**) before **October 25, 1996,** and refer to the appropriate position number(s) listed above. For further information about any of the positions, contact **Adam M. Finkel, Director of Health Standards, at afinkel@dol.gov or Fax: (202) 219-7125.**

The U.S. Department of Labor is an equal opportunity employer.

Amyloidologist

Full-time research position available immediately for a well-trained, highly-motivated scientist to join a multidisciplinary basic and clinical research effort devoted to the study and treatment of AL amyloidosis. The successful candidate will be part of the NIH/ACS-supported **Human Immunology & Cancer Program** in the Department of Medicine, University of Tennessee Medical Center at Knoxville, and serve as project leader in a well-established, fully-equipped protein chemistry laboratory. Additional programmatic resources include hybridoma/tissue culture, molecular biology, immunochemistry, and pathobiology laboratories. Position requires a minimum of 2 years of post-doctoral research experience and involves graduate student and staff supervision. Compensation and academic rank commensurate with education and experience. The Knoxville area offers the scientific resources of The University of Tennessee and Oak Ridge National Laboratory; recreational opportunities provided by the surrounding Great Smoky and Cumberland Mountains and extensive TVA lake system; and cultural amenities including a symphony and chamber orchestra, a major fine arts museum, opera, and theatre. Letter of application, CV, and names and addresses of 3 reference sources should be sent to: **Alan Solomon, M.D., Professor of Medicine and Head, Human Immunology & Cancer Program, University of Tennessee Medical Center/Knoxville, 1924 Alcoa Highway, Knoxville, TN 37920.**

THE UNIVERSITY OF TENNESSEE
Medical Center at Knoxville

The University of Tennessee Medical Center/Knoxville is an Equal Opportunity/Affirmative Action/Title VI/Title IX/Section 504/ADA Employer.

POSITIONS OPEN

MOLECULAR/CELLULAR BIOLOGY
UNIVERSITY OF VIRGINIA

The Department of Biology at the University of Virginia (**http://www.virginia.edu**) invites applications for a **TENURE-TRACK** appointment at the **Assistant Professor** level (exceptional, more senior candidates also will be considered). We are seeking a researcher of outstanding promise who uses molecular, genetic, and/or biophysical approaches to investigate fundamental questions in biology. Candidates are desired who would contribute to existing departmental strengths in cellular, molecular and developmental biology, neurobiology/behavior, evolution, or plant biology. Applicants should submit curriculum vitae, a summary of past accomplishments, a description of future research plans and teaching interests, and should arrange for three letters of reference to be sent to: **Molecular/Cellular Biology Search Committee, Department of Biology, Gilmer Hall, University of Virginia, Charlottesville, VA 22903-2477.** *Women and members of minority groups are encouraged to apply and to identify themselves.* Screening of applications will begin immediately. Only applications received by November 15 will be considered. (Note: This search is in addition to our ongoing search for a circadian biologist.) *The University of Virginia is an Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL POSITIONS
Department of Neurosciences
University of California, San Diego

Four postdoctoral positions are available this fall in three new laboratories in the Department of Neurosciences at University of California, San Diego School of Medicine dedicated to cellular and molecular neurobiology. These three laboratories, under the directions of **Drs. Edward H. Koo** (cell biology of neurodegeneration and Alzheimer's disease). **Paul T. Martin** (synaptic targeting of proteins and role of glycosylation in synaptogenesis), and **Mark Mayford** (transgenic approaches to cellular and molecular mechanisms of learning and memory), are housed jointly in newly equipped space in the Cellular and Molecular Medicine building on the UCSD campus. The Neurosciences program at UCSD consists of a highly interactive group of neuroscientists involving not only UCSD, but also the research institutes in the La Jolla community. Experience is required in one or more of the following areas: molecular biology, cell biology, biochemistry, neurobiology, transgenic/knockout technology, and electrophysiology. Send curriculum vitae and three letters of recommendation to: **Ms. Patty Melendrez, Department of Neurosciences - 0691, University of California, San Diego, 9500 Gilman Drive, La Jolla, CA 92093-0691. FAX: 619-822-1021; Email: pmelendrez@ucsd.edu.**

POSTDOCTORAL RESEARCH SCIENTIST

Lawrence Livermore National Laboratory is currently seeking a **POSTDOCTORAL RESEARCH SCIENTIST** to isolate and characterize human DNA repair proteins. The position involves vector construction, protein expression, site-directed mutagenesis to correlate structural changes with cellular repair capacity and enzymology, and development of purification strategies. Requirements: Recent Ph.D., expertise in protein biochemistry, experience with recombinant DNA techniques, and intellectual interest in DNA repair and recombination, heterologous protein expression, and protein structure. LLNL offers a challenging work environment and a competitive salary/benefits package. Send cover letter and résumé to: **Mary Anne Holman, Recruiting and Employment Division, Lawrence Livermore National Laboratory, P.O. Box 5510, L-725, Department AJSC966MH, Livermore, CA 94551-5510.** *U.S. citizenship and the ability to obtain a Department of Energy clearance is required; permanent residency does not meet this requirement.* Further information can be found at the BBRP's home page: **http://www.llnl.gov/bbrp/bbrp.homepage.html.** *Lawrence Livermore National Laboratory is proud to be an Equal Opportunity Employer.*

POSTDOCTORAL POSITION available to study DNA repair and structure/function relationships in prokaryotic and eukaryotic DNA photolyases. A strong background in enzymology and molecular biology is required. Qualified candidates should send curriculum vitae, including names and telephone numbers of three references to: **Dr. Marilyn Jorns, Department of Biochemistry, MS 411, Allegheny University of the Health Sciences, Broad and Vine, Philadelphia, PA 19102. Email: jornsm@hal.hahnemann.edu.**

POSITIONS OPEN

ASSISTANT PROFESSOR
BIOCHEMISTRY
WESLEYAN UNIVERSITY

The Department of Molecular Biology and Biochemistry invites applications for a **TENURE-TRACK POSITION** at the **ASSISTANT PROFESSOR** level. A Ph.D. and postdoctoral experience are required. Researchers using state-of-the-art biochemical and molecular approaches to study eucaryotic gene regulation, cell, or developmental biology are sought. Implementation of a vigorous research program supported by extramural funds, participation in our Ph.D. program, and excellence in undergraduate and graduate teaching are expected. Send a curriculum vitae, description of research plans, and three letters of recommendation by December 20 to: **Molecular Biology and Biochemistry Search Committee, Department of Molecular Biology and Biochemistry, Wesleyan University, Middletown, CT 06459-0175.**

Wesleyan University is an Equal Opportunity/Affirmative Action Employer. We encourage applications from minority candidates and women.

COLLEGE OF PHYSICIANS & SURGEONS
COLUMBIA UNIVERSITY
MOLECULAR BASIS OF CANCER

POSTDOCTORAL/ASSOCIATE RESEARCH SCIENTIST positions available to join interactive research team studying novel genes involved in oncogenesis and cell differentiation (see *JNCI*, **86**:91, 1994; *PNAS*, **92**:6778, 1995; *Oncogene*, **10**:1855, 1995; *PNAS*, **93**: 7252, 1996; *MCD*, **4**:67, 1996). Expertise in molecular biology and biochemistry required. Send curriculum vitae and three letters of reference to: **Dr. Paul B. Fisher, Departments of Pathology and Urology, Columbia University College of Physicians and Surgeons, 630 West 168th Street, New York, NY 10032. FAX: 212-305-8177.** *Equal Opportunity Employer.*

POSTDOCTORAL POSITIONS
GLYCOPROTEIN PROCESSING
Membrane Fusion

POSTDOCTORAL POSITIONS are available immediately to study structure and function of paramyxovirus glycoproteins with a particular focus on glycoprotein folding and modification and membrane fusion. Requirements: Ph.D. in biochemistry or microbiology with documented experience in molecular biology techniques. Send curriculum vitae, research interests, and names of three references to: **Dr. T. Morrison, Department of Molecular Genetics and Microbiology, University of Massachusetts Medical School, 55 Lake Avenue North, Worcester, MA 01655. Email: T.Morrison@banyan.ummed.edu.** *An Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL CHEMIST POSITION

A **POSTDOCTORAL** chemist position in the Departments of Pharmacology and Radiology is available. Candidates should have a Ph.D. in either medicinal or synthetic organic chemistry to join a research team to study CNS receptor function. Major emphasis will be using products of molecular biology to characterize new ligands. Experience in synthetic organic chemistry and its application in drug discovery will be helpful. Send résumé to: **Dr. Hank F. Kung, Room 305, 37000 Market Street, Philadelphia, PA 19104.**

POSTDOCTORAL POSITION available immediately for studies regarding DNA/protein interactions mediating effects of insulin and counter-regulatory factors on hepatic gene expression. Experience with quantitative and qualitative analysis of DNA/protein interactions and molecular approaches to structure/function relationships in transcription factor activity is desirable. Please send curriculum vitae and names of three references to: **Dr. Terry Unterman, Endocrine Division (M/C 640), University of Illinois at Chicago, 1819 West Polk Street, Chicago, IL 60612. FAX: 312-455-5877; Email: unterman@uic.edu.**

POSTDOCTORAL POSITION available immediately to study the role of calcium in Bcl-2 mediated inhibition of apoptosis. Experience in molecular biology and biochemistry desired. Send curriculum vitae to:

Dr. Susan J. Knox
Stanford University Medical Center
Department of Radiation Oncology
Room A-093
Stanford, CA 94305-5105

Stanford University is an Equal Opportunity/Affirmative Action Employer

POSITIONS OPEN

BIOLOGY ITEM WRITERS

The Association of American Medical Colleges is seeking qualified individuals to write biology test units for a nationally administered standardized test. Applicants must hold an advanced degree (Ph.D. preferred) in a biological science and possess superior writing and reasoning skills. We are especially interested in applicants who have teaching experience in biology at the first year undergraduate level. The work involves a secure test; we ask that a writer's association with it be kept confidential and that premedical advisors or others with an institutional interest in the success of their students in the medical school application process not apply. In developing a test unit, writers are asked to follow the criteria described in a writer's guide, which is provided. A test unit consists of a passage of about 250 words, 10 multiple choice questions related to the passage, and a rationale for each response option. New writers are usually allowed one month to complete trial assignments on a specified topic, for which they receive $360.00. Prospective item writers should send their curriculum vitae to: **Mr. Jack Hackett, Association of American Medical Colleges, 2450 N Street, NW, Washington, DC 20037-1135.**

POSTDOCTORAL POSITIONS
Developmental Neuroscience
Case Western Reserve University School of Medicine

Investigate the role of neurotrophin growth factors in regulating development and function of primary sensory neurons involved in autonomic control (see Erickson, *et al.*, *J. Neurosci.*, September 1, 1996). Previous experience in neurobiology, including at least one of the following techniques, is highly desirable: 1) molecular biology, including *in situ* hybridization, 2) measurement of cardiorespiratory function in rodents, 3) cellular or systems neurophysiology. Please send résumé, including a list of references, to: **Dr. David M. Katz, Department of Neurosciences, Case Western Reserve University School of Medicine, 10900 Euclid Avenue, Cleveland, OH 44106-4975.**

POSTDOCTORAL POSITIONS are available immediately in the area of technetium site specific radiopharmaceutical development. Projects focus on peptide derived radiotracers. Chemists experienced in organic synthesis with special emphasis on peptide chemistry and synthesis should send a curriculum vitae, a statement of research objectives, and three letters of reference to: **Kwamena E. Baidoo, Ph.D., The Johns Hopkins Medical Institutions, 615 North Wolfe Street, Room 2001, Baltimore, MD 21205. Telephone: 410-955-7706; FAX: 410-955-6222.**

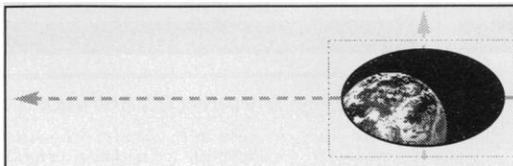
POSTDOCTORAL POSITION in viral oncogenesis. Available immediately to work on KSHV/HHV8 pathogenesis. Current studies emphasize KSHV genome analyses, virus oncogenes, cytokine genes, and their interaction with host immune and transformation pathways. Candidates with a background in the cell biology of transformation and/or recombinant DNA 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 takes affirmative action toward equal employment opportunity.*

POSTDOCTORAL POSITION
NEUROENDOCRINOLOGY

To study the role and regulation of hypothalamic neuropeptides involved in reproduction and adrenal physiology utilizing transgenic and knockout murine systems. Background in molecular biology required, experience in mouse or drosophila genetics desirable. Please send summary of experience with references and curriculum vitae to: **Louis Muglia, M.D., Ph.D., Washington University School of Medicine, Box 8116, St. Louis, MO 63110. FAX: 314-454-4275.** *Washington University is an Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL POSITION to study varicella zoster virus (VZV) gene expression during latency. Position available immediately for individual with strong training in molecular virology to work with a team studying VZV latency and pathogenesis. Send curriculum vitae and names of three references to: **Randall Cohrs, Ph.D., Department of Neurology, 4200 East 9th Avenue, Box B183, Denver, CO 80262.** *The University of Colorado is committed to Equal Opportunity and Affirmative Action.*

The University of Vermont College of Medicine is seeking a director to lead the Human Genetics Unit in the Department of Medicine and to lead the molecular epidemiology research program in the Vermont Cancer Center. The successful candidate will be responsible for the development of teaching programs in genetics pertinent to cancer for medical students, housestaff, graduate students and fellows in the Vermont Cancer Center. He or she will be expected to develop and lead programs in clinical human genetics and molecular epidemiology of cancer. Applicants must have an M.D., Ph.D. or equivalent degree; demonstrated ability to initiate and support independent research; and a strong publication record and membership in prestigious professional societies. *UVM is an AA/EOE. Applications from women and people from diverse racial, ethnic, and cultural backgrounds are encouraged.* Applications accepted until October 18, 1996. Please contact **Burton E. Sobel, M.D., Professor and Chair, Department of Medicine, MCHV Campus, Fletcher Allen Health Care, Burlington, VT 05401** or **David Yandell, Sc.D., Director, Vermont Cancer Center, One South Prospect Street, Burlington, VT 05401.**



Ceregen.

Ceregen is a unit of the Fortune 100 Monsanto Company, and a world leader in the discovery and development of agricultural products based on advanced chemistry and biotechnology. Ceregen Technology, the research and development arm of Ceregen, has been highly successful in developing transgenic plant varieties which are already available on the market. We are looking for innovative, highly-skilled, and experienced scientists to implement a program on plant plastid transformation and gene expression. Positions to be filled immediately are:

Plastid transformation and tissue culture:

Scientist - PhD (or equivalent experience)

You must have proven expertise and success in technology development for plant transformation, regeneration and tissue culture.

Scientist - MS (or equivalent experience)

You must have demonstrated expertise and experience in plant transformation, regeneration and tissue culture.

For both positions, previous experience with the transformation of plant organelles is highly desirable.

Plastid gene expression and molecular biology:

Scientist - PhD (or equivalent experience)

You must have extensive knowledge and expertise in plant organelle gene expression, as well as in the molecular techniques necessary to introduce genes into plastids.

Scientist - MS (or equivalent experience)

You must have significant expertise in gene expression of plants or plant organelles, as well as in the molecular techniques necessary to introduce genes into plastids.

For both positions, previous experience with plastid gene expression and transformation of plastids is highly desirable.

For consideration, please send a curriculum vitae, a list of 4 references and a cover letter describing your qualifications to: **Monsanto Company, LMH, Job Code # Plastid, 800 N. Lindbergh, Mail Zone C2NB, St. Louis, MO 63167. Prior to October 4, 1996.** An Equal Opportunity Employer M/F/D/V.

CEREGEN
INGENUITY IN AGRICULTURE

DARWIN MOLECULAR

Postdoctoral Fellowships

Darwin Molecular Corp., is a growing biotechnology company with a technical focus on the use of genomics and combinatorial chemistry for drug discovery. We are seeking Postdoctoral Fellows to:

- Develop a genetic map of a selected non-human primate. Collaborate with our scientists involved in complex trait mapping in humans and with an outside research team at an established primate colony. Pedigree collections are available. Candidates with a strong record of accomplishment, experience in molecular biology, statistics or genetics, and an interest in complex trait mapping are encouraged to apply.
- Identify autoimmune regulatory mechanisms in endometriosis, with the specific aim of characterizing the lymphocyte populations present in diseased tissue. Evaluate genetic mapping study of endometriosis susceptibility. Candidates with a strong record of accomplishment, experience in cell and molecular biology/endocrinology, and an interest in autoimmune mechanisms are encouraged to apply.

To apply, send curriculum vitae to: **Darwin Molecular Corp., Attn: HR/Postdoctoral Fellow, 1631 220th St. SE, Bothell, WA 98021, USA.**

Equal Opportunity Employer

FACULTY POSITION
GENETICS

Rhodes College, the Department of Biology, seeks applications for the position of Assistant Professor, to begin in August of 1997. The Biology Department seeks applicants whose research interests are in the area of Plant Genetics; however, all qualified applicants will be considered. This is a long-term, renewable position. Teaching responsibilities will include genetics, another course in the applicant's area of interest, and participation in the team-taught introductory course in botany. Candidates must have a Ph.D., a strong interest in teaching at the undergraduate level, and a commitment to continuing research in their field.

Rhodes is a coeducational college of the liberal arts and sciences founded in 1848. Rhodes has been related to the Presbyterian Church USA since 1855. The College Statement of Mission will be sent to all applicants and is available on the Internet at:

http://blair.library.rhodes.edu/goninfohtmls/purpose.html

Rhodes is an equal opportunity employer.

Applicants should submit transcripts, curriculum vitae, a statement of teaching philosophy and research interests, and have three letters of recommendation sent by 1 November 1996 to:

Dr. John Olsen, Chair
Department of Biology
Rhodes College
Memphis, TN 38112

Postdoctoral Position

A Postdoctoral position is available starting January 1997 for research into the role of SH2/SH3 adaptors and protein-protein complexes in signaling.

Experimental approaches include expression of protein-interaction domains in mammalian tissue culture and Xenopus embryos and purification of interacting proteins, with the ultimate aim of identifying novel proteins and complexes involved in regulation and proliferation and differentiation.

Interested candidates with experience in molecular biology and protein analysis should send CV and the names of three references to: **Bruce J. Mayer, Department of Microbiology and Molecular Genetics, Harvard Medical School, Children's Hospital, 300 Longwood Avenue, Boston, MA 02115 Email: bmayer@rascal.med.harvard.edu**

We are an equal opportunity employer.

POSITIONS OPEN

POSTDOCTORAL POSITION
PROTEIN-MEMBRANE INTERACTIONS

Position is available immediately to study the role of membranes in the control of chromosomal replication. Biochemical and genetic approaches are being employed to investigate the peripheral association bewteen the E. coli initiator protein DnaA and membrane phospholipids. Applicant should have research experience in biophysical and biochemical analysis of protein-lipid interactions or in bacterial genetics and molecular biology. To be considered, please send a curriculum vitae and the names of three references to:

Dr. Elliott Crooke
Department of Biochemical and Molecular Biology
Georgetown University Medical Center
3900 Reservoir Road NW
Washington, DC 20007.
FAX: 202-687-7186

ACADEMIC POSITIONS

Analytical Biochemist/Molecular Biologist—Versatile scientist required to join research and analytical services team. Experienced in eukaryotic genetics and familiar with HPLC, GLC, GC/MS and GLP. Position will require creativity in the use of molecular biology, glycoprotein and carbohydrate analytical techniques and assistance in the routine maintenance of GC/MS equipment. Position is nonacademic and is available September 1, 1996. Applications will be accepted until the position is filled. Please send complete curriculum vitae and two letters of recommendation to: **Dr. Thomas P. Mawhinney, Director, Agriculture Experiment Station Chemical Laboratories, Room 4, Agriculture Building, University of Missouri, Columbia, MO 65211.** *The University of Missouri is an Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL POSITION available immediately to study potential "fingerprints" of the effects of radiation on cells. The focus of the work is the use of Fluorescent In-Situ Hybridization to look at intra- and inter-chromosomal aberrations; candidates therefore should have a background in research using FISH, as well as experience in cell culture. Please send curriculum vitae, names of references, and a description of research interests/accomplishments to: **Dr. David Brenner, Center for Radiological Research, Columbia University, 630 West 168th Street, New York, NY 10032. FAX: 212-305-3229; Email: brenner@curly.ccc.columbia.edu.**
We are an Affirmative Action/Equal Opportunity Employer.

POSTDOCTORAL POSITION: A Molecular Biologist is required for a team studying foreign gene expression in the ruminant mammary gland. The person appointed will develop adenoviral or retro viral vectors containing gene constructs, study of gene expression in mammary cell culture systems and *in vivo*. Candidates must have obtained a Ph.D. within the last five years, and have laboratory experience in mammalian expression or viral vector construction. Send curriculum vitae, statement of interests, and three letters of reference to: **Dr. Karen Plaut, Department of Animal and Food Sciences, Terrill Hall, University of Vermont, Burlington, VT 05405.**

HERPESVIRUS PATHOGENESIS

POSTDOCTORAL POSITION available to investigate the molecular basis of varicella-zoster virus or channel catfish virus pathogenesis and latency. Ph.D. or M.D. and research experience in molecular biology and viral pathogenesis preferred. Send curriculum vitae, statement of research experience and interests, and two letters of reference to: **Dr. Wayne L. Gray, Department of Microbiology and Immunology, Slot 511, University of Arkansas for Medical Sciences, Little Rock, AR 72205. Email: wgray@biomed.uams.edu.** *An Equal Opportunity Employer.*

POSTDOCTORAL POSITION available in cellular and molecular hematology. Investigations involve the study of myeloid specific gene regulation and signal transduction events relevant to myeloid hematopoiesis, leukemogenesis, and the inflammatory response. Projects involve protein purification, gene transduction, and molecular cloning techniques. Backgrounds in molecular biology, gene regulation, and protein chemsitry are desirable. Send curriculum vitae and three letters of reference to: **Dr. E. Eklund, Wallace Tumor Institute, University of Alabama, Birmingham, 1824 6th Avenue South, WT1554, Birmingham, AL 35294. FAX: 205-975-6911.**

POSITIONS OPEN

TWO POSTDOCTORAL POSITIONS

To study molecular mechanisms of apoptosis induced by novel retinoids and nuclear receptors in cancer cells. Candidates with excellent achievements who have recently obtained their Ph.D.s should send their curricula vitae to:

Magnus Pfahl, Ph.D.
Sidney Kimmel Cancer Center
11099 North Torrey Pines Road
La Jolla, CA 92037
FAX: 619-623-9628

POSTDOCTORAL POSITION
ALBERT EINSTEIN COLLEGE OF MEDICINE

A **POSTDOCTORAL RESEARCH** position is available in molecular virology. The project involves the study of HIV reverse transcriptase (RT) with emphasis on virological, genetic, and biochemical approaches to dissect structure-function of RT and to understand the contribution of RT fidelity to genetic variation in HIV. Applicant must hold a Ph.D. degree in biochemistry, molecular biology, molecular virology, or a related field. Those with expertise in molecular virology of HIV are given preference. Applicants should send curriculum vitae and names and addresses of three references to: **Dr. Vinayaka R. Prasad, Department of Microbiology and Immunology, Albert Einstein College of Medicine, Jack and Pearl Resnick Campus, 1300 Morris Park Avenue, Bronx, NY 10461.** *Equal Opportunity Employer.*

POSTDOCTORAL POSITION available immediately to investigate molecular mechanisms underlying the interactions between immune mediators and the central nervous system stress response. Emphasis will be on the development of gene knockout models. The successful candidate will work with an interdisciplinary team of molecular biologists, endocrinologists, immunologists, and psychiatrists. Candidates experienced in molecular biology or transgenic methodologies are encouraged to apply. *This is an NIH Equal Employment Opportunity.* Please send curriculum vitae, and names and telephone numbers of three references to: **Philip W. Gold, M.D., Chief, Clinical Neuroendocrinology Branch, Intramural Research Program, NIMH, NIH Clinical Center, Room 3S231, 10 Center Drive MSC 1284, Bethesda, MD 20892-1284; Email: philgold@codon.nih.gov.**

POSTDOCTORAL FELLOWSHIP
THE JOHNS HOPKINS UNIVERSITY

A **POSTDOCTORAL POSITION** is available immediately to study the regulation of proliferation and differentiation in intestinal epithelial cells. Research will focus on the structural and functional analysis of a newly identified gut-enriched Krüppel-like transcription factor (see *J. Biol. Chem.*, **271**:20009, 1996). Candidates should have a Ph.D. degree and prior experience in molecular biologic approaches. Send curriculum vitae and the names of three references to: **Vincent W. Yang, M.D., Ph.D., Departments of Medicine and Biological Chemistry, The Johns Hopkins University School of Medicine, 720 Rutland Avenue, Baltimore, MD 21205.**

POSTDOCTORAL POSITION IN BIOPHYSICS AND MOLECULAR BIOLOGY

The Departments of Physics and Molecular Biology, and the Materials Science Institute invite application for a **POSTDOCTORAL POSITION** involving the study of DNA in nanofabricated arrays (Volkmuth and Austin, *Nature*, **358**:600, 1992; Volkmuth *et al.*, *Phys. Rev. Lett.*, **72**:2117, 1994; Volkmuth *et al.*, *Proc. Natl. Acad. Sci. USA*, **92**:6887, 1995; Duke *et al.*, *Electrophoresis*, **17**:1075, 1996). Send résumé and three letters of reference to: **Dr. Edward C. Cox, Department of Molecular Biology, 333 Moffett Laboratories, Princeton University, Princeton, NJ 08544.** *Princeton University is an Affirmative Action/Equal Opportunity Employer.*

A **POSTDOCTORAL POSITION** is available immediately to identify and characterize proteins that interact with the Ah receptor during ligand-mediated signaling. Candidates should have a Ph.D. with a demonstrated background in molecular biology. Send curriculum vitae and names of three references to: **Dr. Cornelis Elferink, Institute of Chemical Toxicology, Wayne State University, 2727 Second Avenue, Room 4000, Detroit, MI 48201-2254.** *Wayne State University is an Equal Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

POSTDOCTORAL FELLOW
THE UNIVERSITY OF TEXAS HEALTH SCIENCE CENTER AT SAN ANTONIO

To study the biology and regulation of virulence properties of mycoplasmas using biochemical, genetic, immunological, and ultrastructural tools. Emphasis will be placed on defining the regulation of mycoplasma responses to eucaryotic cells. Qualifications are: Ph.D. in related disciplines. Previous experience with mycoplasmas is not essential; however, a solid background in biochemistry and genetics is important. Mail curriculum vitae and names of references to: **Dr. Joel Baseman, Department of Microbiology, The University of Texas Health Science Center at San Antonio, 7703 Floyd Curl Drive, San Antonio, TX 78284-7758. Telephone: 210-567-3939; FAX: 210-567-6612; Email: baseman@uthscsa.edu.**
The University of Texas Health Science Center at San Antonio is an Equal Employment Opportunity/Affirmative Action Employer.

POSTDOCTORAL POSITIONS

Ophthalmology/Visual Sciences. Two postdoctoral positions are available for fall 1996 to study the molecular basis of phagocytosis in the retina. Candidates must have obtained a Ph.D. degree within the last five years and must have laboratory experience in molecular biology. A background in neuroscience, developmental biology, or visual science is preferred but not required. Send curriculum vitae and three letters of recommendation to: **Barbara J. McLaughlin, Ph.D., Kentucky Lions Eye Center, University of Louisville School of Medicine, 301 East Muhammad Ali Boulevard, Louisville, KY 40292. FAX: 502-852-7375; Email: bjmcla01@ulkyvm.louisville.edu.** *An Affirmative Action/Equal Opportunity Employer.*

POSTDOCTORAL POSITION: available immediately to study molecular mechanisms underlying malignant transformation. A strong background in molecular and cell biology is required. Experiences with PCR, immunohistochemistry, and antibody production are desirable. Send résumé and names of three references (and their telephone numbers) to: **Mark Dayton, M.D., Ph.D., Department of Medicine, Section of Hematology/Oncology, Louisiana State University Medical Center—Shreveport, 1501 Kings Highway, Shreveport, LA 71130.** *Louisiana State University Medical Center is an Equal Opportunity Educator and Employer.*

POSTDOCTORAL POSITIONS are available to investigate structure-function relationships in the anion channels of the cystic fibrosis transmembrane conductance regulator (CFTR) and the GABA-A receptor. Experience in electrophysiology, molecular biology, or membrane protein biochemistry would be desirable. Please send curriculum vitae and three letters of reference to: **Myles Akabas, M.D., Ph.D., Center for Molecular Recognition, Columbia University, 630 West 168th Street, New York, NY 10032. Email: ma14@columbia.edu.** *We are an Equal Opportunity/Affirmative Action Employer.*

A **POSTDOCTORAL POSITION** is available immediately to study the genetic and biochemical basis of polyketide and peptide antibiotic biosynthesis in *Streptomyces* spp. Applicants should have a Ph.D. in molecular biology, microbiology, or biochemistry. Send curriculum vitae, brief description of research experience, and names of three references to: **Dr. Ben Shen, Department of Chemistry, University of California, Davis, CA 95616. FAX: 916-752-8995; Email: shen@chem.ucdavis.edu.** *An Affirmative Action/Equal Opportunity Employer.*

TWO POSTDOCTORAL POSITIONS

First position is to investigate pathogenetic derangements in colonic carcinogenesis. Second position is to study the genetics of inflammatory bowel disease. Recent Ph.D. in biology required. Send curriculum vitae and names of three references to: **Dr. Marc Bissonnette, Department of Medicine, GI Section, University of Chicago Hospitals, 5841 South Maryland Avenue, MC4076, Chicago, IL 60637. FAX: 312-702-2182. Email: mbissonn@medicine.bsd.uchicago.edu.**

POSTDOCTORAL POSITION to study transcriptional regulation of apolipoprotein genes. Must have an M.D., Ph.D., or equivalent, and experience in molecular biology. Send curriculum vitae, summary of research experience, and names of three references to: **Geoffrey S. Ginsburg, M.D., Ph.D., Cardiovascular Division, Beth Israel Hospital, 330 Brookline Avenue, Boston, MA 02215.**

POSITIONS OPEN

FELLOWSHIP IN AIDS RESEARCH

New York University, an NIH-designated Center for AIDS Research, invites applications to a multidisciplinary **POSTDOCTORAL** program for training in basic research related to the immunopathogenic mechanisms underlying HIV infection. Trainees will work collaboratively with mentors specializing in immunology, retrovirology, molecular biology, anti-viral therapeutics or pediatrics. The program is placed within a multi-institutional setting with labs located at NYU Medical Center, the Public Health Research Institute, Veterans Administration Medical Center, and Bellevue Hospital. As many as seven fellows will be accepted into this NIH-sponsored program for up to three years of training, beginning August 1, 1996. Women and minority candidates are encouraged to apply.

Individuals with an M.D., Ph.D., or M.D./Ph.D. may apply. *Candidates must be U.S. citizens or permanent residents.* Please submit a curriculum vitae with a summary of past research experience and the names of three individuals from whom you have requested letters of recommendation. Please FAX to: **Susan Zolla-Pazner, Ph.D.**, at: **212-951-6321**. Or mail to:

Susan Zolla-Pazner, Ph.D.
Veterans Administration Hospital
423 East 23rd Street, Room 18124N
New York, NY 10010-5050

THE OHIO STATE UNIVERSITY BEHAVIORAL NEUROBIOLOGY OF RETROVIRUS INFECTION CENTER FOR RETROVIRUS RESEARCH

Applications are invited for a **POSTDOCTORAL POSITION** for a multidisciplinary research program on the behavioral and neurological consequences of retrovirus infection using an established model of feline immunodeficiency virus infection. This is a unique opportunity for a Psychobiologist/Behavioral Neuroscientist to enter this rapidly developing new research area. While the candidate will be primarily responsible for studies on the behavioral/cognitive consequences of feline immunodeficiency virus infection, this interdisciplinary position provides opportunities for acquiring skills and competence in associated research areas such as immunology, virology, neurophysiology, and immunohistochemistry. The candidate must have experience in the experimental analysis of animal behavior. For more information contact: **Dr. Michael Podell, Department of Veterinary Clinical Sciences (Telephone: 614-688-3792; Email: mpodell@magnus.acs.ohio-state.edu)** or **Dr. Martin Sarter, Department of Psychology (Telephone: 614-292-1751; Email: msarter@postbox.acs.ohio-state.edu)**.

POSTDOCTORAL POSITION COX LABORATORY FOR BIOMEDICAL ENGINEERING, RICE UNIVERSITY

A position is available in an NIH-funded program on the effects of hemodynamic forces on blood and vascular cells. The project involves research to elucidate the mechanisms of interaction of endothelial cells, smooth muscle cells, and platelets as influenced by fluid mechanical shear stress and cyclic strain. Some of the work focuses on the mechanisms of regulation of the expression of genes in vascular cells that mediate the synthesis of important vasoactive metabolites. The work is accomplished by an established, interdisciplinary research group of engineers, medical scientists, and basic scientists from Rice University and the Baylor College of Medicine. Send curriculum vitae and two references to: **J. David Hellums, A. J. Hartsook Professor, Cox Laboratory for Biomedical Engineering, Rice University, MS 142, Houston, TX 77005. Telephone: 713-285-5116; FAX: 713-285-5116; Email: jhellums@rice.edu.**

Rice University is an Affirmative Action/Equal Opportunity Employer.

POSTDOCTORAL RESEARCH ASSOCIATE

Anticipated availability of one or two positions in the Laboratory of Molecular Psychiatry to work on cloning and neuropharmacological analysis of imidazoline receptors. Relevant Ph.D., evidence of research productivity, and expertise in molecular biology are required. Unique opportunity for a creative person to contribute to a new field of study, within an outstanding Division of Neurobiological and Behavior Research. Send curriculum vitae and names and addresses of three references to: **J. E. Piletz, Department of Psychiatry and Pharmacology, Room G128, 2500 North State Street, Jackson, MS 39110. FAX: 601-984-5899.** *Equal Opportunity Employer, Minorities/Females/Disabled/Veterans.*

POSITIONS OPEN

POSTDOCTORAL POSITION in cellular and molecular neurobiology—The Department of Neurobiology has **POSTDOCTORAL POSITIONS** available to study various aspects of molecular, cellular, and developmental neurobiology. Some major areas of interest are cell-cell and cell-substratum adhesion molecules, neurite outgrowth, and nerve regeneration. Specific studies include: analysis of overexpression, mutation or deletion of adhesion molecules in animals, analysis of genes such as Hox and Pax, that control the expression of adhesion molecules and their subsequent roles in the formation of morphogenetic pathways during neural development; identification of signal transduction pathways and the gene programs activated by adhesion molecule binding. Applicants should have a strong background in cellular and/or molecular biology. Send curriculum vitae and three letters of reference to: **Dr. Gerald M. Edelman, Chairman, Department of Neurobiology, The Scripps Research Institute, 10550 North Torrey Pines Road, SBR14, La Jolla, CA 92037.** *Affirmative Action/Equal Opportunity Employer.*

IMMUNOLOGY POSTDOCTORAL FELLOWSHIP POSITIONS

Immediate opening for two full-time **POSTDOCTORAL FELLOWSHIPS** in the Tumor Immunology Section, Surgery Branch, National Cancer Institute, National Institutes of Health, Bethesda, Maryland, to study the immune response to tumor cells in murine models and in humans.

We seek candidates with experience in cellular immunology. Ongoing projects include the study of breaking immune tolerance to tumor-associated differentiation antigens and the development of synthetic and recombinant anti-cancer vaccines.

The NIH is an Equal Opportunity/Affirmative Action Employer.

Send cover letter, curriculum vitae, and statement of research interests to: **Steven A. Rosenberg, M.D., Ph.D., Chief of Surgery, National Cancer Institute, Building 10, Room 2B42, Bethesda, MD 20892-1502. Telephone: 301-496-4164.**

YALE UNIVERSITY SCHOOL OF MEDICINE

Applicants are invited to apply for **POSTDOCTORAL POSITIONS** in Developmental Neurobiology. One project will study the structure/function of brain-enriched protein tyrosine phosphatases using molecular and immunocytochemical techniques. Preference will be given to applicants with experience in metabolic labeling of primary cell cultures, yeast 2 hybrid system, or gene knock-out techniques. A second position is available for applicants with a background in immunology to investigate autoimmune disorders of the CNS, including the recently advanced molecular mimicry hypothesis for Tourette's syndrome and obsessive compulsive disorder. Send curriculum vitae, and the names and telephone numbers of three references to: **Dr. Paul Lombroso, SHM I-270, 230 South Frontage Road, Yale University School of Medicine, New Haven, CT 06520. Telephone: 203-737-2224; Email: Paul_Lombroso@QM.Yale.edu.**

An NIH-funded **POSTDOCTORAL POSITION** is available to study fission yeast signal transduction (*Genes Dev.*, **5**: 561; *Genetics*, **138**: 39), using genetic and molecular (two-hybrid) approaches. Applicants with molecular or biochemical experience preferred. Send curriculum vitae and the names of three references to: **Charles Hoffman, Boston College, Department of Biology, Chestnut Hill, MA 02167. Email: hoffmacs@bc.edu.** *Equal Opportunity Employer.*

BIOINFORMATICS

DIRECTOR BIOSTATISTICAL CORE

The Department of Pediatrics at the Children's Hospital Medical Center/University of Cincinnati College of Medicine, Cincinnati, Ohio, is seeking a Ph.D. to direct a biostatistical core support facility for M.D. and Ph.D. researchers in clinical, basic, and health outcomes research. Position requires high quality academic achievement, including extramural grant support. Academic rank will be determined by candidate's credentials and research experience. Send curriculum vitae to: **James E. Heubi, M.D., Director, General Clinical Research Center, Children's Hospital Medical Center, 3333 Burnet Avenue, Cincinnati, OH 45229-3039.** *Children's Hospital Medical Center is an Affirmative Action/Equal Opportunity Institution. Women and minorities are encouraged to apply.*

SYMPOSIUM

International Symposium at
Harvard University
HEALTH AND THE WORK ENVIRONMENT
October 7 and 8, 1996 • Boston, MA
Monday, October 7:
DEFINING ERGONOMIC EXPOSURES
Tuesday, October 8:
OCCUPATIONAL AND ENVIRONMENTAL MOLECULAR EPIDEMIOLOGY

For information: **J. Sullivan, HSPH, 665 Huntington Avenue, Boston, MA 02115. FAX: 617-277-2382** or **Email: jsulliva@sph.harvard.edu.**

ANNOUNCEMENTS

CALL FOR NOMINATIONS BUSSE RESEARCH AWARDS

Promoting international research in gerontology, two Busse Research Awards will be given at the XVIth International Congress of Gerontology, Adelaide, Australia, August 1997. Two gerontologists (**JUNIOR** or **MID-CAREER**) who have made significant contributions to aging research will be selected. One award will recognize a scientist from the social/behavioral sciences; the other, from the biomedical sciences. Awards: $2000 each, with up to $2,500 provided for travel/living expenses. Awardees must present a lecture based on their research at the Congress.

Deadline for receipt of applications: October 30, 1996.

For information and application forms contact:

Harvey Jay Cohen, M.D.,
Jury Chair,
Busse Research Awards,
Center for Aging,
Box 3003,
Duke University Medical Center,
Durham, NC 27710, USA.
Telephone: 919-660-7502
FAX: 919-684-8569
Email: ray00004@mc.duke.edu.

U.S. GREEN CARDS No Job Offer

Scientists, Engineers, Physicians, Surgeons: It is now possible for professionals to obtain green cards without job offers. Please send your curriculum vitae for a free evaluation. We also handle H-1 visas and J-1 waivers. **Thomas C. Jones, Attorney at Law, Immigration Associates, P.O. Box 7407, Elgin, IL 60121-7407. FAX: 847-426-3657; Email: tjimmig@aol.com.**

COMPUTER MARKETPLACE

MARKETPLACE

Marketplace ads continue on page 1458

Continued from page 1457

MARKETPLACE

MORE PRODUCTS ON PREVIOUS PAGE

CUSTOM HYBRIDOMA DEVELOPMENT

• Ascites Production Available
• Purification • Conjugation

HTI BIO-PRODUCTS, INC.

Phone (800) 481-9737 • Fax (619) 788-9694
e-mail: antibodies@htibio.com
http://www.htibio.com

Circle No. 30 on Readers' Service Card

DNA Technologies, Inc.

Custom Baculovirus Cloning • Expression	Custom *in-vitro* Mutagenesis
Custom DNA Sequencing	Custom Plasmid DNA Isolation

7860 Beechcraft Ave., Gaithersburg MD 20879 USA
TEL 1-800-998-3628 • FAX 301-990-4063 • eMail dnatech@erols.com

Circle No. 25 on Readers' Service Card

SFM-Human Keratinocyte Cell System

Start up a 75 for LESS than a 25
More Cells / Lowest Price / Highest Quality
CSC Certificate™ #30467

cell systems 1-800-697-1211

Circle No. 16 on Readers' Service Card

CUSTOM PEPTIDES

Quality Peptides at Competitive Prices.
Experienced Company offering;

- Synthesis of difficult sequences
- Phospho peptides
- Biotinylated peptides
- Fluorescent labeling
- Peptide conjugation
- Large scale synthesis
- Special amino acid containing peptides

Welcome to American Peptide. We can satisfy your peptide needs from small to large quantities at ***considerably reduced prices.*** We offer different purity levels to match your exact needs, whether for screening, antibodies production or drug development.

NEW 1996-97 CATALOG

Many new peptides. Comprehensive Selection. Amyloids, Endothelins, Neuropeptides, Substrates, Toxins & many more. Call / Fax for a free copy!

88-1-10	Endothelin-1	98%	0.1 mg	60.00
			0.5 mg	175.00
			1.0 mg	285.00
60-1-11	NPY, human	98%	0.5 mg	85.00

AMERICAN PEPTIDE COMPANY
TEL: 408.733.7604 FAX: 408.733.7603
777 E Evelyn Ave., Sunnyvale, CA 94088 USA

Circle No. 21 on Readers' Service Card

MARKETPLACE

PeptidoGenic

The Peptide Engineering Specialist

E-mail: pkim@ccnet.com
Fax: 510-371-1156
Voice: 800-597-7873
510-371-1070

No Setup Fee, Free HPLC & IonSpray Mass.

Custom Peptide :$20/residue/crude/5days

Circle No. 29 on Readers' Service Card

Custom DNA from $1.00/base

ransom hill bioscience, inc.
http://www.ransomhill.com
no setup, no minimum, no baloney!
email: visla@ix.netcom.com fax: (800) 597-8509

Circle No. 4 on Readers' Service Card

- Automated DNA sequencing
- Custom DNA/RNA synthesis
- Protein/peptide synthesis & sequencing
- Spectroscopy/calorimetry
- Mass spec services

Commonwealth Biotechnologies, Inc.
Your one stop biotech shop

LET US QUOTE YOUR SPECIAL PROJECTS
Comprehensive biotech services. For information please call:
1-800-735-9224
Visit our web page at:
www.cbi-biotech.com
Fax: 804-648-2641 E-mail : CBI@richnet.com

Circle No. 19 on Readers' Service Card

CUSTOM **DNA** SYNTHESIS

PURE & SIMPLE

- Superb Technical Support
- Impeccable Quality
- World's Fastest Service
- Cap Gel & TOF Mass Spec

$1.19* per base, $10 setup, 50 nmole scale

* Some restrictions apply. Please call for details.

MIDLAND
STILL THE UNDISPUTED #1 CUSTOM DNA SYNTHESIS SERVICE
THE MIDLAND CERTIFIED REAGENT COMPANY
Phone 1-800-247-8766 FAX 915-694-2387
email mcrc@oligos.com

Circle No. 8 on Readers' Service Card

PARTICLE SIZE STANDARDS

NBS traceable calibration standards and controls. Large assortment of diameters from 0.02 to 2000 µm. microspheres of polystyrene, glass and fluorescent materials. Free catalog available. Toll Free 800-334-3883. In Calif. 415-424-1177. FAX 415-424-1158

Duke Scientific Corporation
P.O. BOX 50005
2463 FABER PLACE
PALO ALTO, CA 94303

Circle No. 1 on Readers' Service Card

MARKETPLACE

CUSTOM **PRIMERS**

$1.19
- 200 NMOLS (15-20 ODU)
- NO Restrictions
- NO Setup
- Purified
- Full Q.C., Page on every oligo
- 24-48 Hours

or

65¢
- 50 NMOLS (5 ODU)
- Full Q.C.
- Just order>400 bases aTsT
- Guaranteed Quality

"From the people that first introduced **oligos** in 1984."

BIO-SYNTHESIS, INC.
1-800•227•0627
Fax 214•420•0442
E-Mail: biosyn@onramp.net
INet:http://www.biosyn.com

Circle No. 10 on Readers' Service Card

TITERFLUOR™
FLUORESCENCE EIA ANSWERS
A complete reagent, instrument & data analysis system.

- Up to 100X increased sensitivity
- Superior expanded dynamic range
- Novel non-isotopic format

New *TiterFluor* Kits Measure:
Cytokines • Cyclic Nucleotides • Eicosanoids

Tel: 1.800.899.5858 x 7843
Fax: 1.508.383.7885
PerSeptive Biosystems

Circle No. 18 on Readers' Service Card

ONLY DNA
No frills, just good DNA at very low prices
69¢ per base, **NO** setup charge
Ultra-small scale synthesis gives 1 A_{260} unit
Some restrictions apply; Call for details
1-800-359-5794 e-mail onlydna@oligos.com

Circle No. 9 on Readers' Service Card

Plasmid-prep kits
Super low price
miniprep midiprep maxiprep
$0.74/prep $3.44/prep $5.75/prep
Viogenic TEL: 800-225-3402

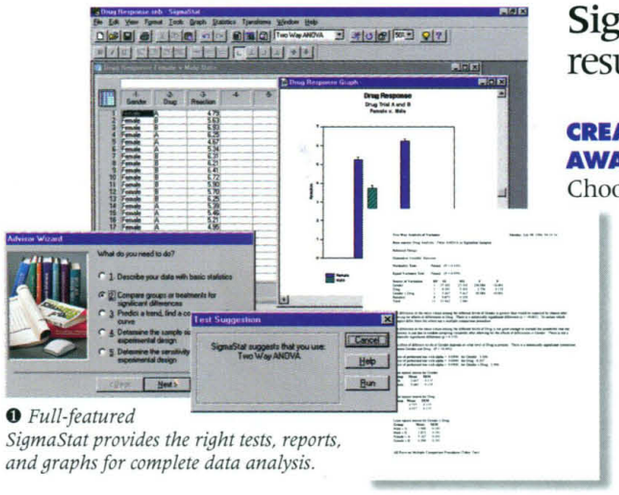
Circle No. 27 on Readers' Service Card

Custom DNA
Purified & Delivered in 48 Hours
$1.20 per base • Purified
http://www.resgen.com
Research Genetics, Inc.
1-800-533-4363

Circle No. 6 on Readers' Service Card

THE PROGRAMS OF CHOICE BY OVER 100,000 SCIENTISTS AND ENGINEERS

The exact solution for exacting research.



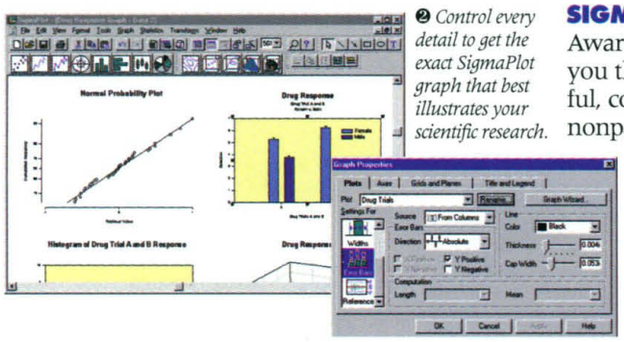
❶ *Full-featured SigmaStat provides the right tests, reports, and graphs for complete data analysis.*

SigmaPlot® and SigmaStat® give you the *right* results with the *right* tests and *right* graphs.

CREATE THE EXACT GRAPH YOU NEED WITH AWARD-WINNING SIGMAPLOT

Choose from a complete set of 2D and 3D scientific graph types – grouped bar, contour, multiple 3D and many more. Then customize every detail – multiple axes, technical axis scales, error bars and more – to create the exact graph you need to explain your research. And fit nearly any function with SigmaPlot's powerful nonlinear curve fitter. See why more than 100,000 scientists choose award-winning SigmaPlot over spreadsheets and any other graphing program to visualize and publish their data.

SigmaPlot – SCe²A's Readers' Choice Winner five years running!



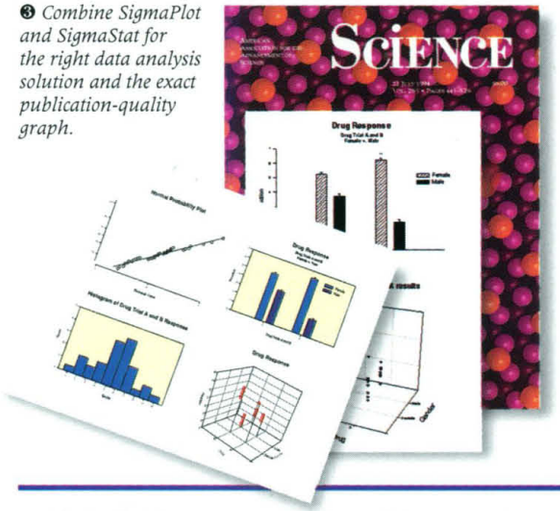
❷ *Control every detail to get the exact SigmaPlot graph that best illustrates your scientific research.*

SIGMASTAT GIVES YOU RESULTS YOU CAN TRUST

Award-winning SigmaStat is the *first* and *only* software that guides you through your entire statistical analysis. SigmaStat offers powerful, comprehensive statistical procedures including *t*-tests, ANOVAs, nonparametric statistics, correlations, regressions and more.

Plus, SigmaStat's "expert system" design *automatically* finds the *right* test with the Advisor Wizard, checks if your data fits the underlying assumptions of your statistical model, handles messy data, prints a report complete with an explanation of the results, and creates high-quality graphs. SigmaStat ensures that you draw the right conclusions.

❸ *Combine SigmaPlot and SigmaStat for the right data analysis solution and the exact publication-quality graph.*



COMBINE THE POWER OF SIGMAPLOT AND SIGMASTAT

Team-up these powerful stand-alone programs for an integrated scientific software solution. Increase productivity by sharing worksheets using Jandel's SigmaLinking technology and conveniently organizing files in the Jandel Notebook. Or use state-of-the-art OLE 2 technology to run Excel® directly inside either program. Both programs use the same menus and commands, so you don't have to learn two different products. And with Windows® 95 and Office 95 compatibility, you get consistency across applications. For powerful data analysis and precise publication-quality graphs, SigmaPlot and SigmaStat are *your* exact solution.

FOR MORE INFORMATION CALL
1-800-4-JANDEL (1-800-452-6335)
Or visit our website at: http://www.jandel.com

Jandel Scientific Software 2591 Kerner Blvd. San Rafael, CA 94901 Phone: 1-800-4-JANDEL, (415) 453-6700 FAX (415) 453-7769 e-mail: sales@jandel.com Internet: http://www.jandel.com **In Europe:** Jandel Scientific, Schimmelbuschstrasse 25, 40699, Erkrath, Germany, 02104/9540, 02104/95410 (fax) Jandel Scientific Software has dealers and distributors worldwide. Call , fax or email Jandel U.S. for a representative in your country.

Jandel SCIENTIFIC SOFTWARE

Circle No. 47 on Readers' Service Card