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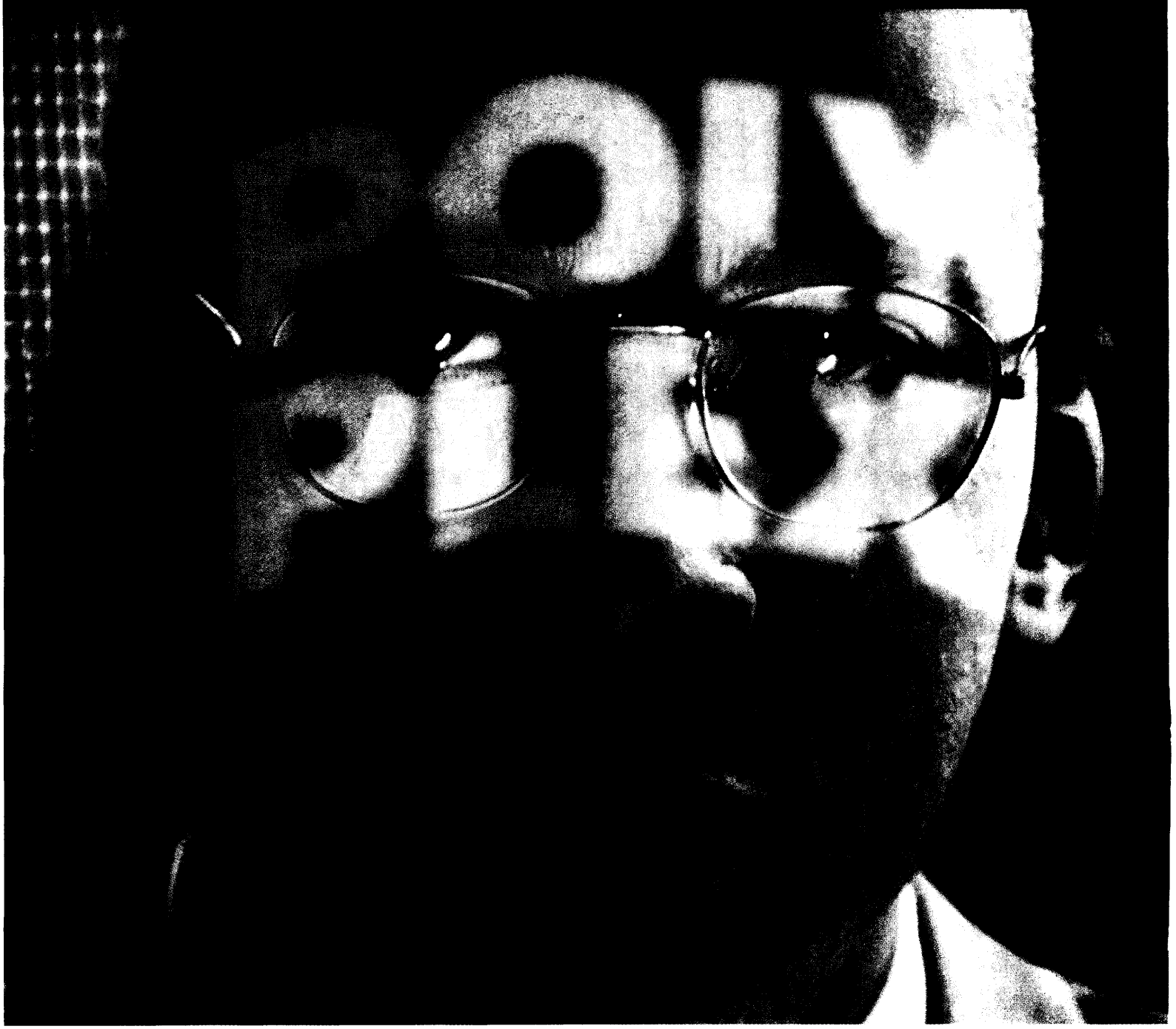

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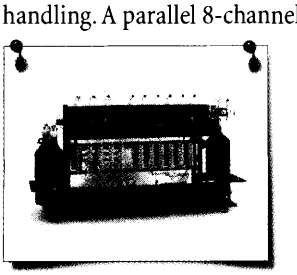

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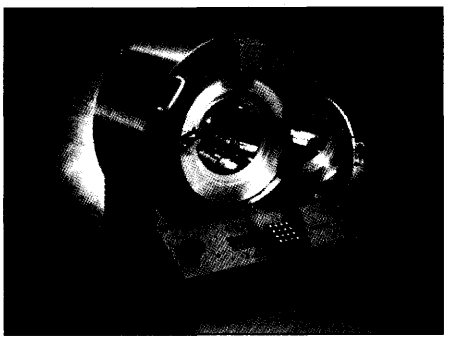

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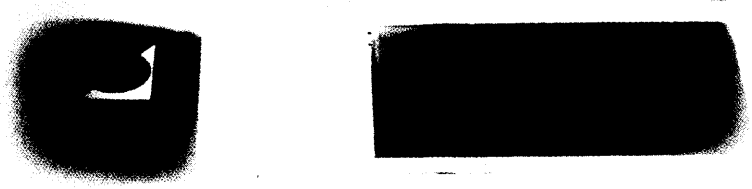

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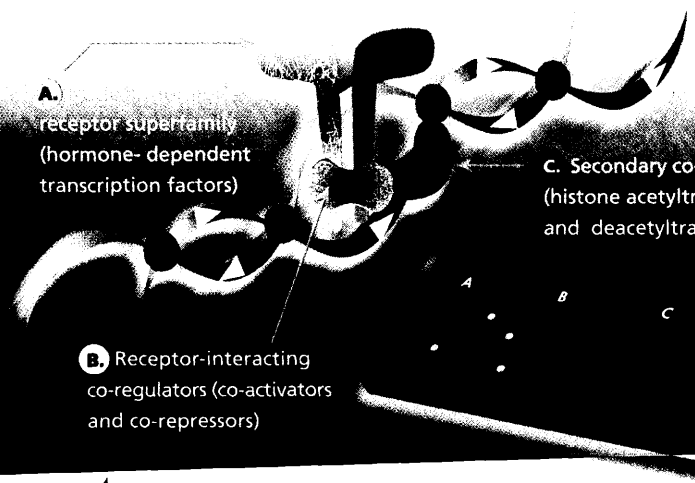

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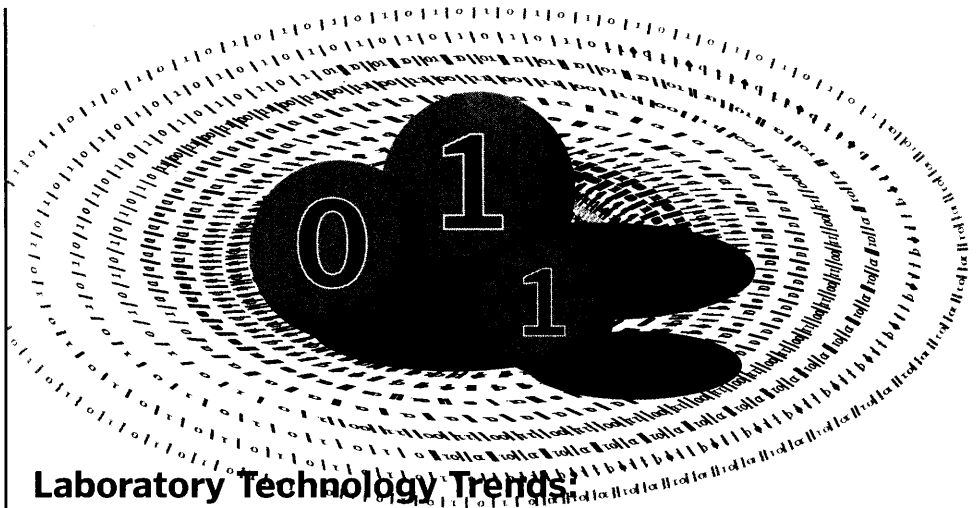

Laboratory Technology Trends:

Bioinformatics + Genomic Analysis

Bioinformatics Moves to Center Stage in the Genetic Revolution

by Peter Gwynne and Guy Page

In the context of an explosion of new data management challenges, the field of bioinformatics is rapidly becoming the most critical step in realizing the full potential of genomics.

Life scientists have recruited computers to analyze their data for several decades. Population geneticists, ecologists, epidemiologists, and clinical researchers (among others) have routinely used statistical and computational models to evaluate information they have collected. But now a new breed of life scientist is applying new analytical techniques to new types of data. Bioinformatics and the approaches that it employs differ from earlier computational enterprises in that they deal almost entirely with genomics and its related data.

The rise of bioinformatics to its current prominence has paralleled the growth of the Human Genome Project. Before the advent of the program, molecular biologists had little need for extensive computation. Basic DNA sequence management programs were all that the average laboratory needed to manage the tens or hundreds of kilobytes of data routinely collected on its benches. In the past few years, however, those programs have evolved to the point at which they form the foundation of an extremely critical subdiscipline whose major challenge is to integrate a panorama of increasingly diverse data sets.

As a result, bioinformatics has rapidly become the most important technology of the genomics specialist. "It is really revolutionizing the way in which research biologists are pursuing all sorts of questions, from discovering metabolic pathways to drug discovery to looking at the causes and potential treatments of diseases," says Frank White, director of bioinformatics marketing for InforMax, Inc.

"Every single area of biology will eventually use bioinformatics, from human genetics through ecology, evolutionary biology, epidemiology, molecular biology, and structural biology," adds David Landsman, chief of the computational biology branch at the National Center for Biotechnology Information (NCBI), a part of the National Institutes of Health. "It might be the bridge between fields that have been separated for a while, like epidemiology and molecular biology or evolutionary biology and molecular biology."

For the moment, bioinformatics has most to offer to efforts to sequence the genes of humans and other creatures. "The real value of sequencing the human genome won't come about until bioinformatics is applied to interpret the realities," says James Nelson, vice president of marketing at eBioinformatics. "Until you understand what the data mean, it's useless. Everyone in the bioinformatics space is trying to translate the information into knowledge that can be used."

Commercial and Home-Grown Software

Interpretation requires effective tools and scientists who can use them efficiently. Most specialists in the subdiscipline in academic and corporate research departments prefer to design their tools and write their own software programs. "About 90 percent of the bioinformatics software now available has been written by academics who used it to solve a problem and then made it public," says Nelson. "There's a price to be paid by the user who gets a piece of software not as well documented as that bought commercially."

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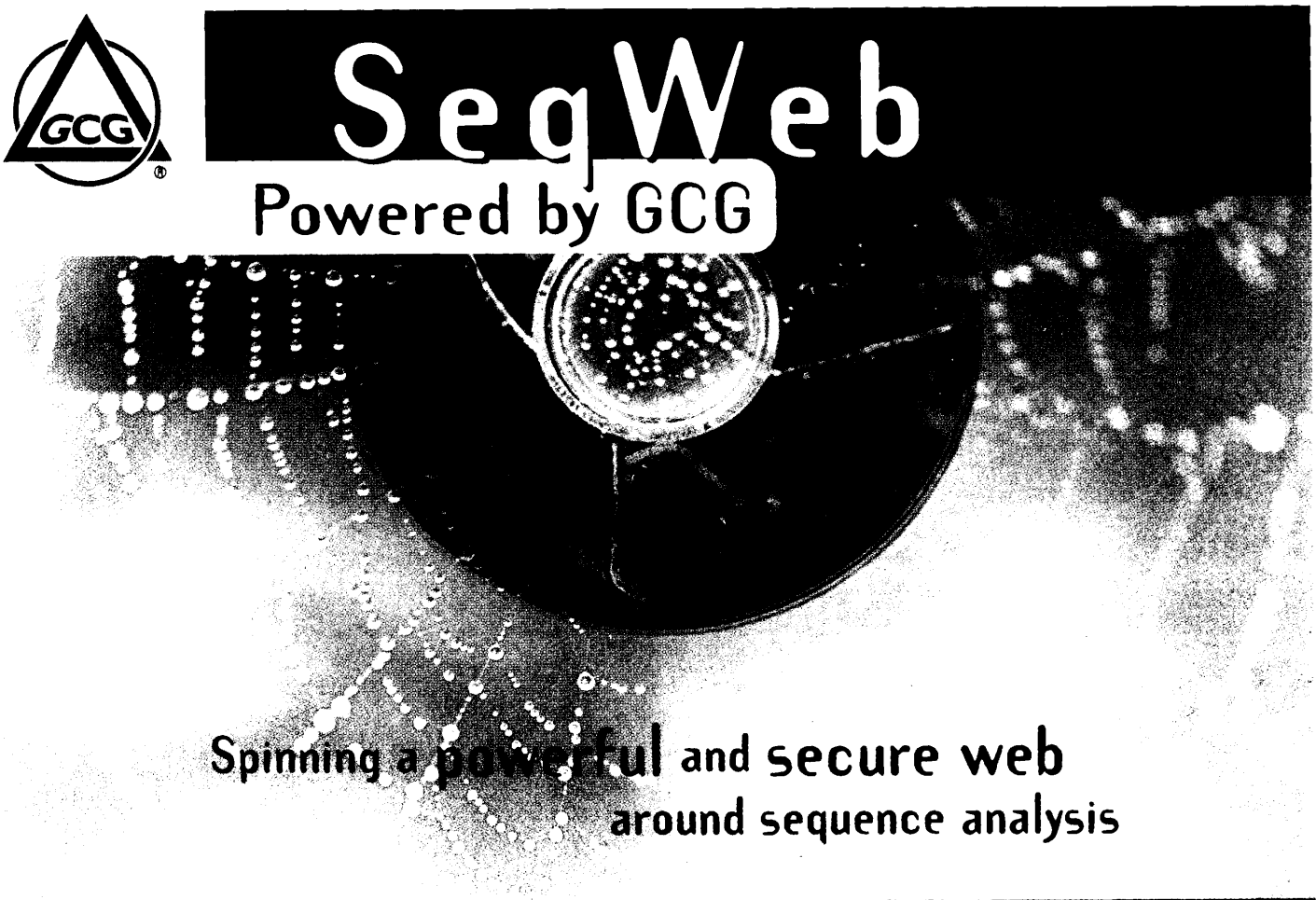

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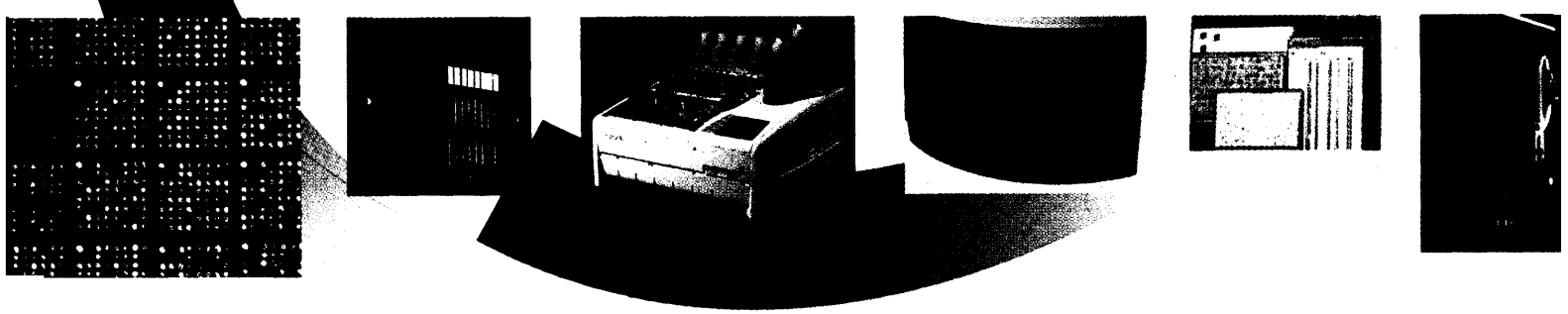

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In response to that problem, about 10 companies now sell bioinformatics software that can operate alone or complement in-house software. "Companies are definitely tailoring their tools to the challenges out there, such as finding genes, and are interacting quite strongly with geneticists," says Landsman. "New algorithms being developed, mostly at academic institutions, are addressing real biological problems."

Several commercial software packages permit bench scientists to carry out rudimentary bioinformatic calculations. Practice leads to greater sophistication. "You have to understand the manuals of packages sufficiently well to be able to adjust the parameters of any piece of software you're using," says Landsman. "You have to have the patience to learn something that's quite complex at the outset." However, he continues, the packages "become simpler with use."

Younger life scientists (who tend to have more experience with computers and statistics than their older peers) show growing enthusiasm for doing their own bioinformatics work. "The ways in which life scientists are using bioinformatics are expanding dramatically," says White. "They are saying: 'we really need to learn how to do this.'"

Responding to that expansion, companies have started to make their bioinformatics tools as user-friendly as possible. However, they must make compromises between access and achievement. "You can make the interface to the software look relatively simple and present the scientist with a relatively small number of options," explains White. "But the tools themselves typically rely on sophisticated math and statistics. You have to have a good level of training to interpret the results."

For more information on Careers in Bioinformatics, see the Focus on Careers section appearing after this section or visit sciencecareers.org

From Simple Databases to Complex Bioinformatics

Bioinformatics has developed at a remarkable pace. The first wave hit the biotechnology beach in 1993 with the arrival of expressed sequence tags (ESTs) as sources of truly large-scale gene sequence data. Companies such as Incyte Pharmaceuticals, Human Genome Sciences, and Millennium Pharmaceuticals came into existence during this period to capitalize on advances in DNA sequencing technology. By collecting large amounts of EST information stored in databases, these companies opened the doors to the pragmatic use of genomic information. This glut of data presented significant management challenges to the existing software.

Those challenges were more of magnitude than of kind because the data were all of a single type. However, scientists working with the EST data soon realized that they would need more than simple cataloging to make the short and error-prone EST sequences truly useful for scientific purposes. This led to the development of more sophisticated techniques to qualify EST sequences and assemble the shorter sequences into longer contiguous units. The resulting data sets were incorporated into the Unigene database now at the NCBI.

As the development of software progressed, so did life scientists' ability to generate larger amounts of genetic data. Instruments for collecting DNA sequences steadily improved, throughput increased, and the technology began to spread more widely in the molecular biology community. In response, researchers began to take on larger and larger projects. The first complete sequence of a microbial genome, *Hemophilus influenzae*, appeared in 1995 (*Science* **269**:496). That set the stage for a continuing flow of microbial genomes into public and private databases.

Pharmaceutical companies seeking to develop new antibiotics rapidly embraced those sequences. Drug developers wanted to know what the genes in the genomes were, how they functioned, how they were related to the genes of other organisms and, in the final analysis, whether or not they would make reasonable drug targets. For the first time, bioinformatics had to look beyond raw data management for answers to its questions.

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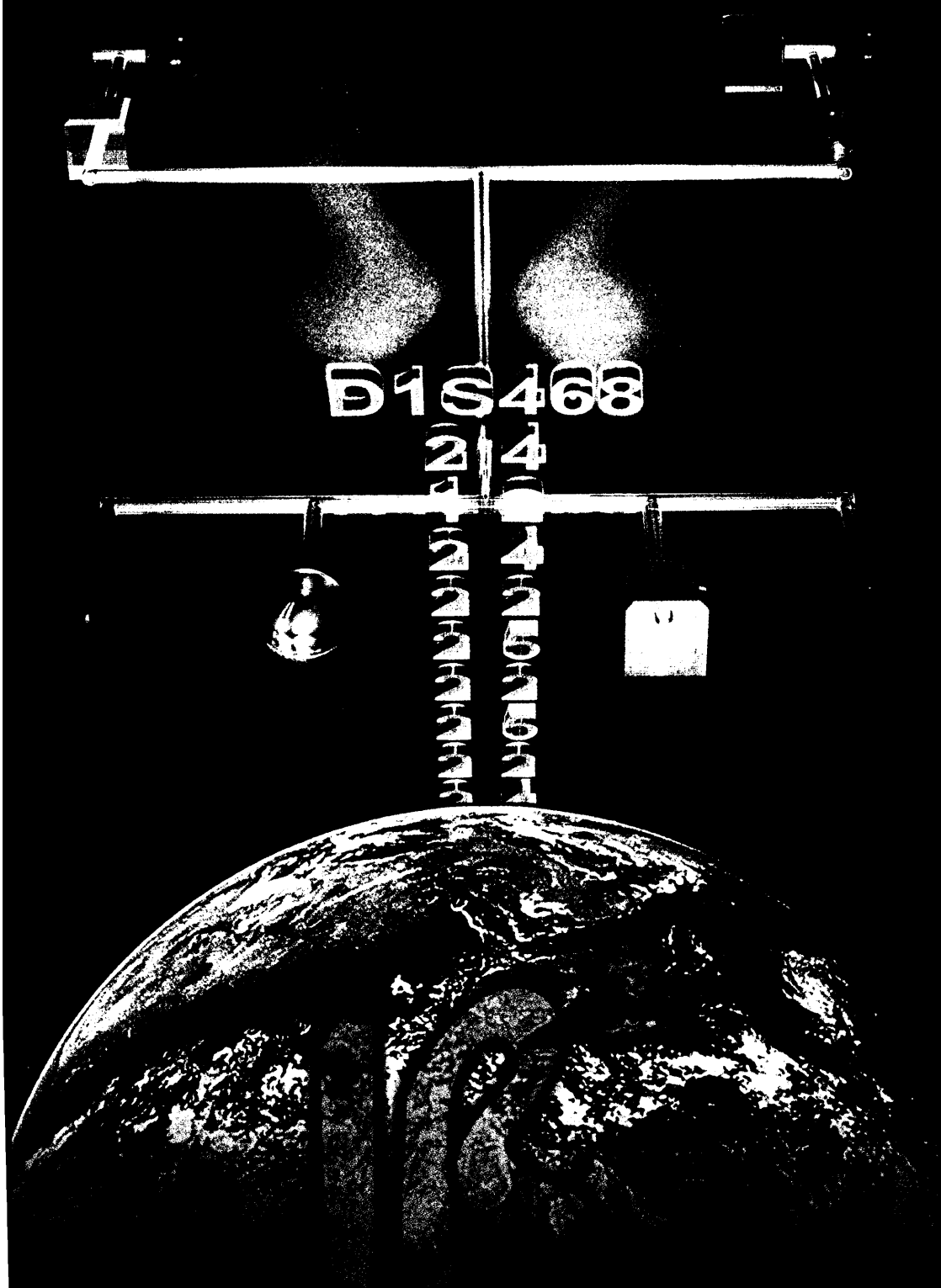

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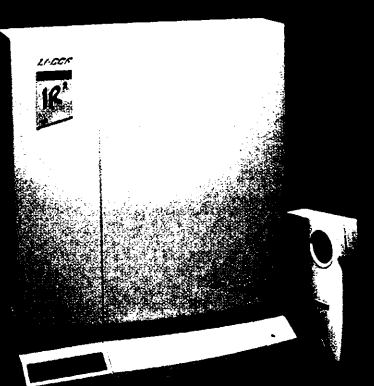

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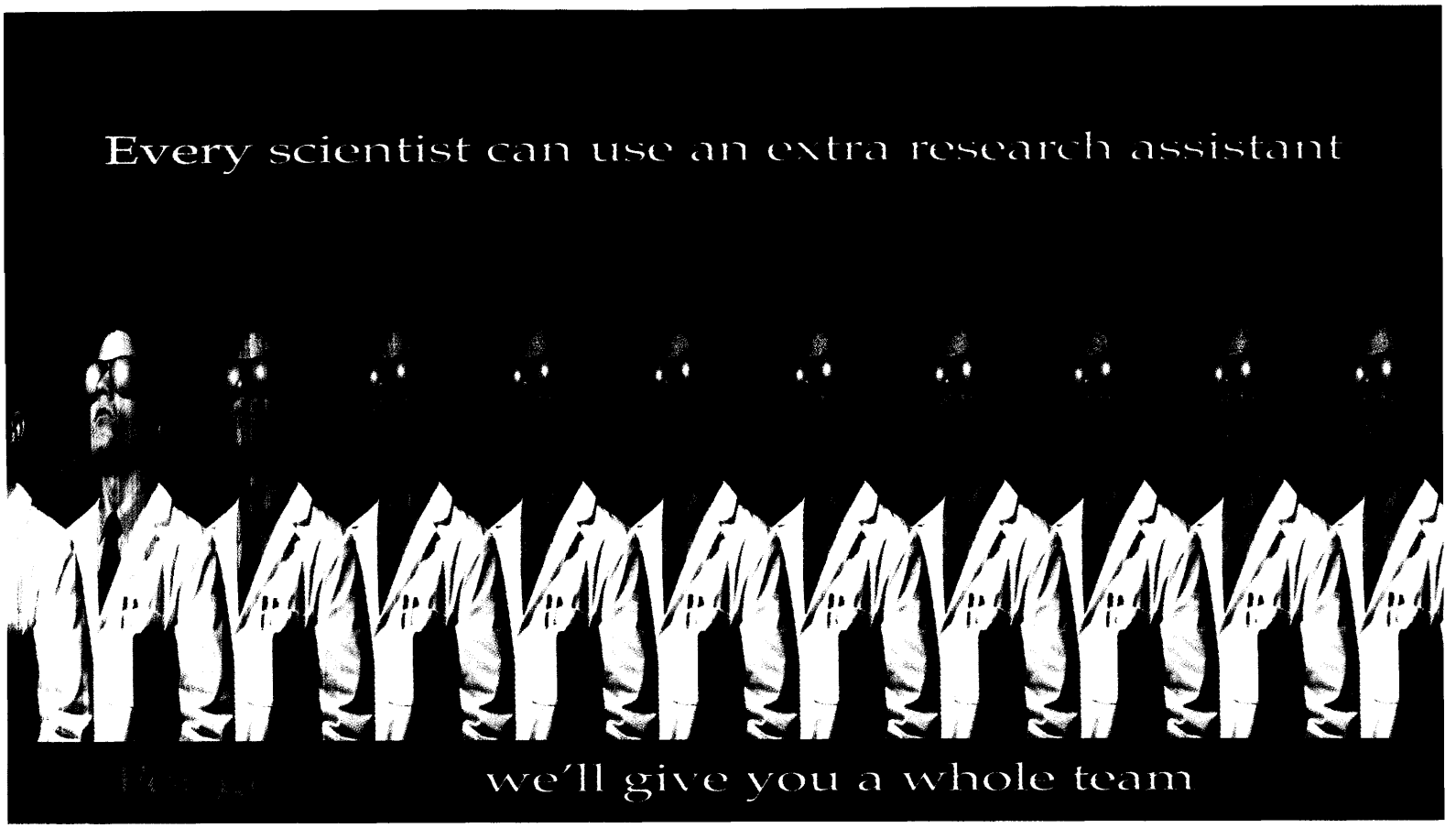

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FOR FURTHER BIOINFORMATION . . .

Bioinformatics will provide a major theme at the Drug Discovery Technology 2000 conference in Boston between August 14 and 18. Several presentations and at least one workshop at the conference proper will touch on bioinformatics. In addition, a pre-conference workshop under the title *Managing Information in Drug Discovery for Better Decision Making* will focus on the need to integrate information in the drug discovery process. Speakers include representatives from Arena Pharmaceuticals, AstraZeneca, Bayer, Novartis, and SmithKline Beecham. After the presentations, the session will feature an interactive panel discussion.

"The conference is a very good place to meet your peers and to network," says Tim Harris, president and CEO of Structural GenomiX. "The presentations tend to be informal enough and at a sufficient level for you to pick up what's happening at the cutting edge of bioinformatics. It also provides a good opportunity to recruit postdocs."

If you can't make the meeting, try a virtual appearance. IBC will record the entire proceedings for broadcast over the web, as it has already done for last month's Drug Discovery Technology meeting in Basel, Switzerland, for which *Science* is a sponsor. You can access the webcast free at **www.ibc-lifesci.com/webcast/**

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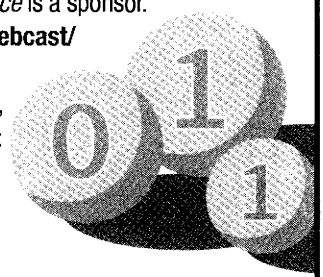

Filling the Databases

One of the early tasks in analyzing microbial genomes was the construction of phylogenetic trees based on the sequence data. By comparing the gene and protein structures of multiple organisms, researchers hoped to identify genes that were particularly likely to serve as drug targets. From a more academic point of view, analyses of this kind helped to illuminate the evolutionary relationships among bacterial species and the mechanisms of their evolution. Having entire sequences available for analysis removed any ambiguities associated with holes in EST data, incomplete gene sequences, or actual errors in the sequences. Whole genome analysis also answered questions that simply could not be asked with EST data, such as the relative chromosomal positions of individual genes. It provided far more robust and informative data on microbial sequences than had EST studies. The concept was naturally extended to model eukaryotes in anticipation of analyzing the entire human genome.

The complete sequences of the genome of yeast, *Saccharomyces cerevisiae* (1997), and the nematode *Caenorhibditis elegans* (1998) opened up new approaches to genome analysis in general and analysis of the human genome in particular. Life scientists could explore a wider range of homologies between genes and gene sets than ever before. The recent completion of the *Drosophila* genome sequence extended the scope of the analysis even further. Homologies with yeast and *C. elegans* have helped to identify the broad biochemical function of human genes and their position in important pathways. Data from *Drosophila* and, in the near future, the mouse should prove even more valuable in examining the genetic functions of higher organisms that can be subjected to experimental manipulations.

The bioinformatics docket received another addition with the growth of SNP analysis. SNPs (single-nucleotide polymorphisms) are single-base changes in DNA sequences that occur naturally in the human population. Current DNA analysis techniques are sufficiently sensitive to detect these minor changes, allowing individuals to be characterized quickly and accurately at the most detailed genetic level. The pharmaceutical industry quickly realized the importance of this capability. Several leading pharmas banded together to create a cooperative data resource, The SNP Consortium (http://snp.cshl.org/). In the near future, SNPs will become essential tools not only in the mapping of disease associations but also in pharmacogenetics, which attempts to identify the genetic determinants of drug responsiveness.

New Data, New Challenges

The recent development of DNA chips and microarrays has begun to produce what will undoubtedly become a vast and complex source of data concerning genetic expression. Each DNA or protein microarray contains hundreds of thousands of data points, each of which represents a complex data set in itself. Government and private organizations have begun the extremely demanding task of designing cataloging systems for such data and making them available to the public or their customers.

The burgeoning new field of proteomics adds another large dimension to the bioinformatics challenge. In parallel with genomics, proteomics seeks to identify the specific identities and functions of each of the members of the "proteome," the total collection of all proteins, and to chart the variations in expression of proteins from one tissue location or physiological state to another. This will lead naturally to the creation of yet more databases that have to be integrated with the existing data sets.

All these new databases coexist with the vast and long-standing data resources of the scientific literature, the multitude of publications that describe the biology and medical impacts of genes and proteins. Thus, the challenge facing bioinformatics today has grown immeasurably beyond the mere management of DNA sequences, a task that seems almost trivial in retrospect.

To contribute fully, a bioinformatics program must not only manage diverse forms of data from several different sources; It must also find ways to integrate the data to create unique insights into the relevant biology. "Once the genome is sequenced, microarrays will generate far more data. You'll also want to

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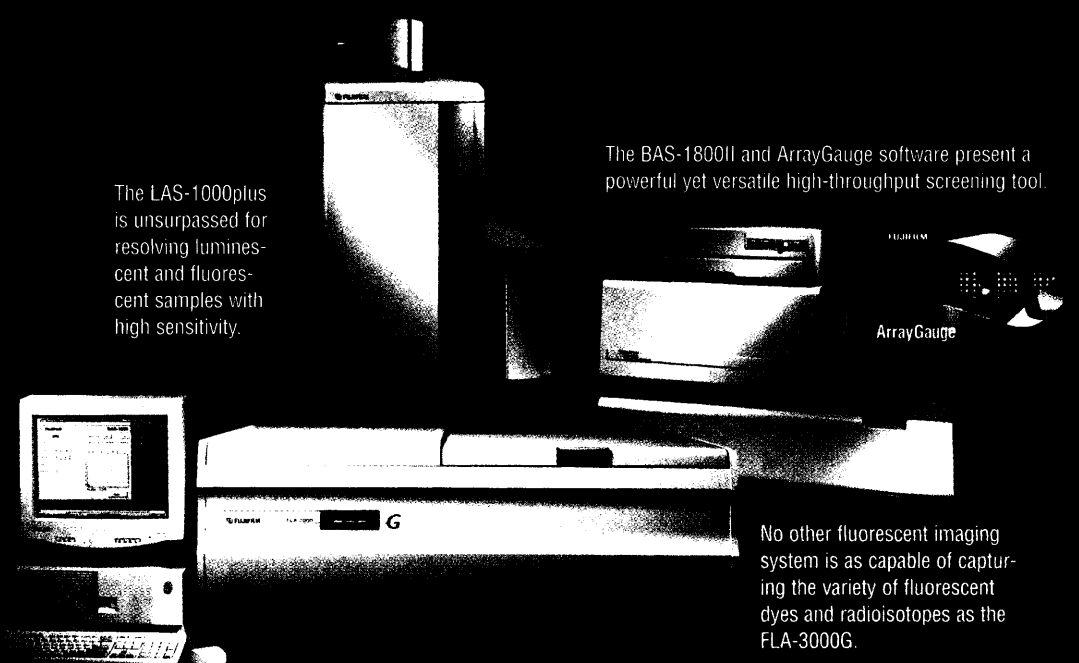

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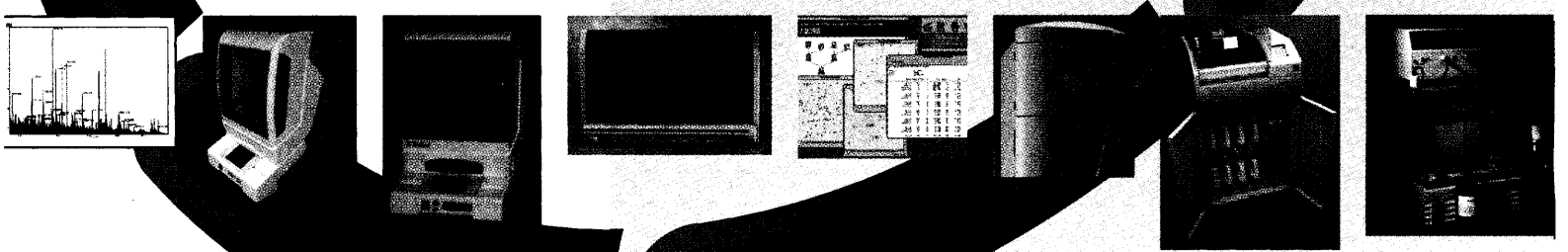

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look at protein sequences, protein-protein interactions, SNPs, and metabolic pathways." says White. "A lot of that will be relationship data rather than simply sequences. The diversity of data types means you'll need an integrated environment for biologists to look at the information. For the next five to 10 years, you'll need to pull together different types of data as well as high volumes. The real challenge lies in integrating all these types of information."

A Selection of Packages

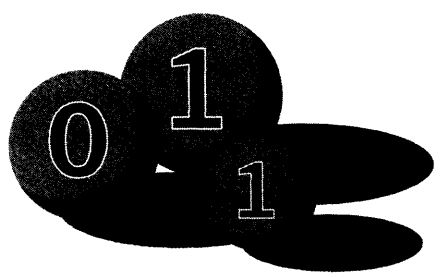
Through its BioNavigator service, eBioinformatics aims to meet the challenge. "We gather programs from a multitude of sources and make them available in a user-friendly form," says Nelson. "You have one standard interface that permits users to access something like 180 different software programs. You pick the one that at a very sophisticated level does what you need it to do. You have control of your data from the second you submit it until you get the answer back."

Registered users obtain lifetime access to the site at no charge. "We use the cell phone model," explains Nelson. "They charge only when customers make long-distance calls; we charge only when they use complex tools. All the simple tools are available to anyone who has registered." Through that strategy, eBioinformatics hopes to free up bioinformatics specialists to do what they do best: Develop the next generation of bioinformatics software.

InforMax takes a similar approach. "Vector NTI is targeted at life scientists who use desktop Windows and Macintosh computers," says White. "We have at least 15,000 users in biotech, academia, and government labs, including 20 of the top 25 pharmas, and more than 30 site licenses for Vector NTI."

The company's other major product, GenoMax, is an enterprise-wide solution that runs in a Web browser on desktop computers. "It has UNIX-based analysis tools and stores its results in an Oracle database," says White. "It is designed to do searches behind a corporate firewall, to manage a company's data, and to look at gene expression data from all sorts of microarray systems. It has automation capabilities and gives users the ability to add their own data and additional public domain data. They can also add tools developed in-house to the ones we provide. We currently have a dozen GenoMax customer sites."

LION Bioscience Research, Inc., which has a $100 million bioinfomatics contract from Bayer, has three significant products on the market, says CEO Reinhard Schneider. SRS is a database system specifically tailored for the more than 400 flat-file databases that contain data on molecular biology and genomics. Based on technology developed at the European Molecular Biology Laboratory, bioSCOUT "is a kind of umbrella system that knows how to deal with data," says Schneider. "It is strongly interactive and allows you to do a lot of bioinformatics without knowing much about bioinformatics. Finally, arraySCOUT helps to analyze expression profiling data. "Expression profiling analysis has proved that you have to do a lot of statistics but that you need a link to the biology; arraySCOUT does this for you," says Schneider.



Spotfire, Inc., a provider of decision analytics solutions, aims to help life scientists cope with the rapid development of new knowledge. "You don't want to be six months out of date on new algorithms and the application of existing technologies to new problems," says director of bioinformatics Bill Ladd. "So we put a Web browser inside Spotfire software that permits users to access new data sources and new tools from the Web. If we write a new function, we can deploy it to our customers' desktops as soon as we've checked it."

Present and Future Successes

DoubleTwist, Inc. showed the power of bioinformatics in the past month when it announced completion of an extensive analysis of publicly available data from the Human Genome Project in a collaboration with supercomputer manufacturer Sun Microsystems, Inc. "What we have done is raise a technology program that empowers life scientists to do genomics research," says DoubleTwist's CEO John Couch. "I compare it to the time when we went from computers that were centralized, expansive, and hard to use for dedicated personnel to personal computers that were decentralized, inexpensive, and easy to use by individuals. It represents a technology platform for biology research." Using the technology, he added, "Each scientist can be his or her own bioinformatics expert."

Another recent start-up, Structural GenomiX, is using bioinformatics to determine the structures of proteins. "We're setting up an industrial-scale platform to express thousands of proteins in order to get derivatives that we can crystallize," says president and CEO Tim Harris. "We want to provide the agricultural and pharmaceutical industries with the ability to subscribe to databases with added value." The company uses bioinformatics to correlate models of proteins with real structures. "The more structures you have," Harris explains, "the better you'll be at modeling the structures of proteins with no known structures. We buy our own bioinformatics tools off the shelf and develop some of our own. Most of what we write involves joining software."

Bioinformatics tools are still in their infancy. "There needs to be another quantum jump to the next level where we need an even better analysis," says Landsman. "We need tools to help us handle things that seem somewhat cryptic, such as finding first and last exons on a gene and making structural predictions." Given the amount of progress so far, such tools will arrive very soon.

Peter Gwynne is a freelance science writer based on Cape Cod, Massachusetts. Guy Page is managing director of Ferguson Forth Page, a consulting firm in Madison, Wisconsin.

focus on careers

bioinformatics

by peter gwynne

AstraZeneca ▮ Exelixis, Inc. ▮ Genaissance Pharmaceuticals ▮ Whitehead/MIT Center for Genome Research

LOW SUPPLY, HIGH DEMAND

Industry's demand for scientists with skills in bioinformatics far exceeds the supply of qualified specialists in the field. So companies are developing methods of spotting potential bioinformatics experts and then training them on the job.

In just a few years, bioinformatics has emerged as a key feature of gene sequencing and drug discovery, among other pursuits. The subdiscipline permits research teams to integrate huge amounts of data from a variety of sources. Demand for individuals capable of doing bioinformatics is soaring. Biotechnology and pharmaceutical companies join genome centers and academic departments in attempting to land the top talents. However, the supply of such scientists is nowhere near sufficient to keep up with that demand.

At present, only a few universities offer degree courses in bioinformatics. Academic genome centers represent an alternative source, but their supply is still too limited to fulfill companies' needs. Thus, recruiters must track down their candidates from less obvious sources.

Skill in bioinformatics does not necessarily stem from a glittering academic background. Some of the best practitioners of the discipline don't even have a Ph.D. degree. Promising candidates include well-qualified life scientists who have shown a facility for working with computers or individuals with degrees in computer science who also possess a background and interest in life science.

Individuals who have changed their academic majors from life science to computer science or vice versa may be well fitted for a career in bioinformatics. Many good bioinformatics scientists started their careers in the laboratory, as the "power users" of computers to whom fellow life scientists brought their toughest computer problems. However, mathematicians, physicists, engineers, and even geologists have found their niche in bioinformatics. Work in the subdiscipline demands enthusiasm for facing the challenges offered by present-day life science. It also requires two specific skills beyond scientific credentials. Individuals must be good communicators and good team players.

Once they have located the right people, managers of bioinformatics groups must train them in the complex tasks that they will carry out and then integrate them effectively with the laboratory groups that will use their services. Different companies take different approaches to the integration. Some have a central group of bioinformatics specialists who continually circulate among projects. Others assign individual specialists to specific projects for as long as those projects last.

In addition to their work on data, bioinformatics experts have a mentoring role for the life scientists with whom they collaborate. Several companies expect bench scientists to take increasing responsibility for dealing with data, leaving the bioinformatics specialists to concentrate on the most complex tasks.

Here, we discuss this issue and others with representatives of three companies and one genome center with strong academic ties. All perform a great deal of work in bioinformatics.

For more information on BIOINFORMATICS PRODUCTS & SERVICES, turn to page 1844 in this issue.

A former science editor of Newsweek, *Peter Gwynne writes about science and technology from his base on Cape Cod, Massachusetts, U.S.A.*

CONTINUED ➢

Richard Judson

new haven, connecticut

Genaissance Pharmaceuticals, Inc. commercializes population genomics and informatics technologies to improve the biopharmaceutical industry's drug development process. "We generate a huge amount of genomic polymorphism data," says Richard Judson, the company's senior vice president for informatics. "In my department we determine how these polymorphisms are organized within a gene to constitute haplotypes, which we call HAP™ markers. We mine this data to understand the effect of genomic variation at both the molecular and clinical levels. One team of reseachers with backgrounds in molecular biology, statistics, and medicine is analyzing the clinical implications of HAP™ markers. Other teams are bringing together sequencing and polymorphism databases to stay a little bit ahead of the public efforts to understand gene structure and function."

Judson's department is growing fast. Starting in March of last year with three individuals, it expanded to 25 last fall, and to about 40 at present. "We expect it to number something like 60 by fall of this year," he says.

Finding new recruits isn't easy. "There is a group of folks who do software development," says Judson, "and we can find molecular biologists. But finding scientists who combine both skills is tough. We have yet to see these people come out of universities." The company typically looks for scientists with cross-disciplinary backgrounds, such as a Ph.D. in a different field from the master's degree, along with an interest in computers.

Nonscientific skills also play a part in determining whether individuals can work effectively in bioinformatics. "A desire to look around for items of interest is a good indicator," says Judson. "Communication skills are very, very important. If you can't make yourself understood, you have a problem. You also have to be egoless. It's a team environment. Projects come and go. You can't get too attached to a particular project."

During their time on specific projects, specialists in bioinformatics must coordinate closely with bench scientists. "They sit next to one another," says Judson. "For better or worse, there are regular meetings for particular project groups. We really try to hire people who have a facility for talking to scientists in other disciplines. People who don't like to do that just don't get along here."

Genaissance's training focuses heavily on Java, the language in which most of its software is written. "We have beginner, intermediate, and expert training in Java," says Judson. "We send people to Oracle to learn about databases and to courses run by SAS. We also expect our people to attend scientific conferences and workshops on bioinformatics."

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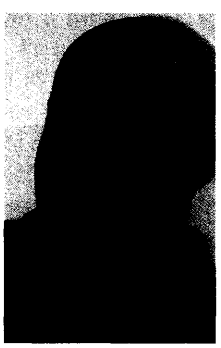
south san francisco, california

"Our informatics department concentrates on both bioinformatics (especially computational target discovery) and cheminformatics (especially computational target discovery)," says Christian Burks, chief information scientist for Exelixis, Inc., a company that specializes in model system genetics and comparative genomics. "Because of our focus on the genetics of model organisms, we deal with everything from sequencing and mapping projects to proteomics, transcriptional profiling and large genetic screens."

Having started from ground zero in early 1997, Burks's department now has about 25 members. Initially he sought scientists with skills in both life science and computing. "Every individual reflected the interdisciplinary aspect, and some key members of the group had formal degrees in both disciplines," he recalls. More recently, he has looked for recruits with more specialized backgrounds. "It's a lot more comfortable now hiring people with, say, very strong programming skills but not much experience in biology, or with very specific domain experience in biology but less experience in programming," he notes. "We've been able to emphasize deeper experience now that we have built up the core critical mass that spans several disciplines."



Christian Burks

Burks expects his recruits to possess some domain knowledge, in ion channels or proteases, for example. In addition, he looks for recruits who understand the nature of research in life science. "You need to be familiar with how bench scientists work, how they draw on data resources, and the rate at which they change methodologies that either feed into or rely on those data resources," he explains. "You want to avoid the disconnect of taking six months to design an elegantly wrought database only to find that the scientists at the bench have already moved on from the need for that database." On the software side, he adds, "It's definitely important to understand the underlying principles of databases and algorithms for pattern matching and string comparison. I ask candidates if anyone depends on their software to get their jobs done."

Flexibility is also important. "To avoid isolation, we push the notion that members of our department are members of discovery teams in the labs," Burks says. But assignments can alter fast. "Our highest priority is ensuring that project resources match scientific and business deadlines, which means that we occasionally shift people from one project to another," he advises. "We have had to pass on candidates who otherwise looked like excellent hires because they required our being able to guarantee work on a specific project or area."

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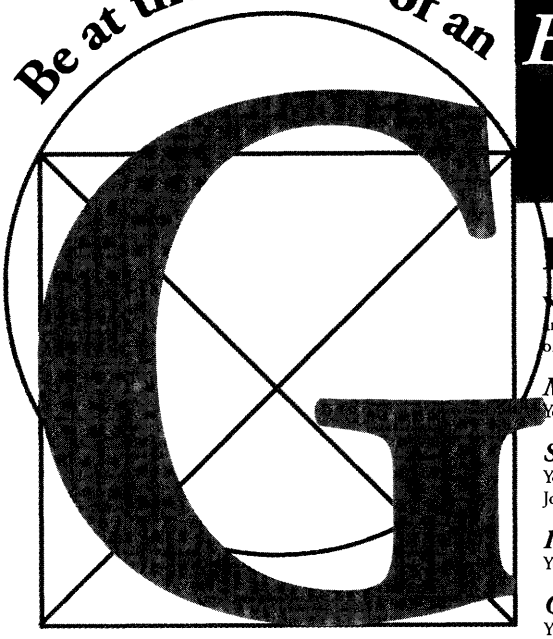

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Statistical Geneticist - Clinical Informatics
You will design and create appropriate analytical methodology for ongoing and planned clinical trials. Job Code: CS-02

Population Geneticist - Population Informatics
You will address evolutionary and anthropological issues with genomic data. Job Code: CS-03

Quality Control Manager - Genome Informatics
You will design, develop, and maintain critical checkpoints and feedback loops to insure production of high-quality genomic data. Several positions also exist at the B.S./M.S. level. Job Code: CS-04

Software Engineer
Requires 2+ years of commercial software experience in Java, C++, and/or PL/SQL. Current projects include the development of an in-house LIMS effort and the main software product, DecoGen which is used for the analysis of genetic variation and its impact on drug response. Job Code: RJ-01

Bioinformatics Scientist - Data Mining
Ph.D. in the Biological Sciences. 5+ years of experience in use of public databases and analysis tools including GCG, Blast, Phrap, or other similar programs. Software experience in Oracle, SQL, Perl, Java, C, or C++ is essential. Job Code: RJ-02

Programmer/Analyst
You will select genes of relevance and perform quality control on genetic data. B.S., M.S,. or Ph.D. Experience in UNIX and NT systems. Programming experience in PL/SQL, C++, or Java is also required. Additional preferred qualification includes a basic training in Epidemiology, Statistics, Molecular Biology, or Genetics. Job Code: RJ-03

Scientific Analyst - Molecular Biology
B.S./M.S. and working knowledge of standard bioinformatic tools such as Blast, protein domain analysis, mutation detection analysis, etc., and familiarity with biological databases such as GenBank, HMGD, Swiss-Prot, etc., are required. Experience in UNIX and NT systems is also essential. Programming experience in C+ or Java would be an asset, but not required. Job Code: KN-01

Computational Molecular Biologist
Requires a Ph.D. in Molecular Biology or related discipline with up to 2 years of experience. In-depth knowledge of gene regulation, signal transduction pathways, gene mapping technologies, structure-function relationship, classification of gene families, mapping of disease genes, etc.; and extensive experience in using public domain databases and bioinformatic tools such as those available from NCBI, EBI, ORNL, etc., essential. Experience in programming languages such as C++ or Java preferred, but not required. Job Code: KN-02

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"People have the idea that bioinformatics is computer support for molecular biology, aimed at the early stages of target identification," says Ken Fasman, vice president, R&D informatics at pharmaceuticals company AstraZeneca. "But we find that it has a role to play throughout the drug discovery pipeline. We use it to find and validate drug discovery targets all the way through to proof of concept in humans. We're also using bioinformatics in identifying the potential toxicity of candidate drugs."

Formed last year by the merger of Swedish company Astra AB and Zeneca PLC of the United Kingdom, AstraZeneca has about 75 individuals working on bioinformatics worldwide. "We're trying to grow those numbers significantly," says Fasman. "We're looking for clever biologists and computer scientists who have some experience with the other discipline. In the case of biologists we're looking for some demonstration of computer skills and interest. We're interested in former computer science majors who switched to biology and vice versa, and in life scientists who were the power users of computers in their laboratories."

As Fasman sees it, two factors drive people in the direction of bioinformatics: the voracious demand by the life science industry and the current glut of scientists in more traditional roles in molecular biology and cell biology. Another stimulus: "Generally," he adds, "someone in bioinformatics will be better compensated than a scientist with the same amount of experience in molecular biology, as a result of simple supply and demand."

Rather than letting new bioinformatics recruits sink or swim on their own, AstraZeneca matches them with more experienced specialists in the field. "We've resisted a formal training program in favor of a mentoring program," explains Fasman. And instead of choosing between a tightly centralized and an entirely distributed bioinformatics department, the company combines the two approaches. "We have centralized skill centers in the U.S., the U.K., and Sweden, the three countries where we primarily do our research," says Fasman. "They account for 50 percent of our bioinformatics scientists. The other 50 percent work in individual laboratories, where they become part of lab teams. Our idea is to keep a relatively constant churn among those in the central and distributed groups so that nobody becomes isolated and everybody keeps learning."

Ken Fasman

AstraZeneca also tries to instill some skill in bioinformatics into all its scientists. "We have an 'outreach program' that involves formal training, individual training materials, and even help-desk support," says Fasman. "We always want to increase the baseline skill level and keep our program at the state of the art or beyond it."

Jill Mesirov

cambridge, massachusetts

In recent years, the need for expertise in bioinformatics in the Whitehead/MIT Center for Genome Research has grown at much the same rate as it has in private sector life science companies. Three years ago, when Jill Mesirov arrived from IBM to take on the position of director of bioinformatics and research computing, her department had 10 people. Now it numbers about 40.

The specialists possess training in several disciplines. "They have backgrounds in mathematics, computer science, physics, geology, and engineering," says Mesirov. "We actually have fewer people in the department with backgrounds in biology."

Within the past year, Mesirov has found a new source of junior specialists in bioinformatics: new Bachelor's graduates with joint majors in biology and computer science. "These are not formal programs," she says. "These young people have recognized that there's an opportunity for them in bioinformatics."

Mesirov's group demands more computing skill than most bioinformatics departments. "A lot of companies use the word bioinformatics to describe applying bioinformatics software to analyze data. People who do that are quite likely to come with biology backgrounds," she says. "Our people do more algorithms and software development. They need stronger computational and engineering skills."

In addition to those abilities, Mesirov seeks one extra ingredient. "Our people are successful only to the extent that they are driven by the biological problems," she explains. "Someone who has been a software engineer for 10 years and doesn't care what sort of system he or she is developing for is less likely to be successful."

Bioinformatics at the Center for Genome Research involves both data acquisition and data analysis. "In both cases, there has to be a lot of communication with people in the lab," says Mesirov. "In the process that delivers the data you have to understand what you need, and in analysis you have to understand the biology behind the problem."

Those requirements put a premium on communication skills. "The way computer people think and the way lab biologists think tend to be quite different," says Mesirov. "So the ability to communicate effectively with the biologists is extremely important. The biologists often don't know what's possible and can't formulate what they need. You have to be able to sit down and talk to them about the analysis and the problem they're working on. Somebody who needs to have the problem translated into mathematical terms and delivered on a plate is not going to be very successful. But those who are interested in the science and can bridge the communication gap — and we have many of them here at the Genome Center — make vital contributions to our work." ■

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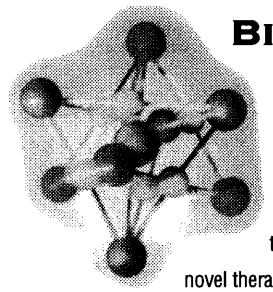

BIOINFORMATICS SCIENTISTS

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The second position, 21R299, requires knowledge of protein family classification and structural analysis. The successful candidate will use his or her understanding of biological processes and computational skills in performing sequence analyses, database mining, and designing bioinformatics tools, all focused on the discovery of novel therapeutic proteins. Candidates should have a strong biological background, with experience in biological structure, biochemistry or molecular biology, as well as strong computational skills. Knowledge of UNIX and Perl is required. Familiarity with lab techniques is useful. This position requires a Ph.D. or equivalent experience, preferably in a field of biochemistry, bioinformatics, or computer science.

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To apply, send a curriculum vitae, statement of research plans, representative publications and three letters of reference to:

Neuroscience Search Committee
Department of Physiology and Biophysics
University of Iowa College of Medicine
Iowa City, IA 52242-1109
email neurosearch@physiology.uiowa.edu

The University of Iowa is an Equal Opportunity/ Affirmative Action Employer. Women and minorities are encouraged to apply.

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Millennium is a leader in computational bioinformatics, with the largest informatics team in the industry. Join us in building the biopharmaceutical company of the future at our Cambridge facilities. The ability to work in a multidisciplinary environment and good communication skills are crucial to any candidate's success.

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Work closely with biological scientists to develop post-genomic informatic tools, informatic resources, and qualitative modeling of biochemical pathways. We require a PhD in Computational or Molecular Biology or related field, 2 years postdoctoral experience, and 3 years experience in C, C++, Perl or Java. Ability in mathematical modeling and experience in simulation of biological systems are a plus.

COMPUTATIONAL BIOLOGISTS

Help us unravel computational challenges arising from the post-genome era. We have several opportunities available for strong computational biologists who would like to work closely with molecular biologists, computer scientists and computational biologists to develop or integrate computational methods for our technology platform. This requires a PhD in Computational or Molecular Biology or related field and 2 years postdoctoral experience. Research in molecular biology or biochemistry and experience with biological information systems are a plus.

Please respond by sending only one resume using only one of the following methods, indicating the positions you are interested in. Mail your resume to: Millennium Pharmaceuticals, Resume Processing Center, Source Code SC6900, PO Box 798, Burlington, MA 01803. Email: millennium@rpc.webhire.com. Fax: (800) 370-6925. A source code must be included with all submissions. We are an equal opportunity employer committed to discovering the individual in everyone.

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- **Sr. Research Associates–In Vitro ADMET**
- **Sr. Research Associates–Chemokine Receptors**
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TENURE TRACK FACULTY POSITIONS IN MARINE BIOPRODUCTS ENGINEERING

Department of Ocean and Resources Engineering
University of Hawaii at Manoa

MarBEC

A new National Science Foundation supported Engineering Research Center, the Marine Bioproducts Engineering Center has been established at the University of Hawaii at Manoa in partnership with the University of California Berkeley. In support of the Center, the Department of Ocean and Resources Engineering (ORE) of the School of Ocean and Earth Science and Technology (SOEST) at the University of Hawaii at Manoa (UHM) invites applications for five tenure-track positions at the assistant and associate professor levels in support of a growing world-class marine bioproducts research and education program. Ocean and Resources Engineering is a graduate department offering M.S. and Ph.D. degrees. The program is accredited by ABET. Program areas of emphasis include coastal engineering, offshore engineering, ocean resources engineering, and marine bioproduct engineering. Candidates in each of the following areas of expertise are invited to apply:

1) **metabolic engineering, functional genomics and biochips** (theoretical or experimental analysis of metabolic pathways for systematic redirection of cellular activities, microfabrication technology for biological analysis)

2) **materials science engineering** (design and synthesis of novel organic polymeric or semiconductor materials with an emphasis on biological applications)

3) **bioreactor modeling and design** (reactor design, kinetics, heat and mass transfer)

4) **sensing and process control** (control theory, mathematical modeling of biological systems, and development of sensors for bioprocess monitoring)

5) **protein separation and purification engineering** (biological separation processes, including chromatography, extraction or novel separation processes).

The anticipated start date is January 2001. Successful candidates will be expected to develop an externally funded, nationally recognized research program and have a strong commitment to teaching excellence at the graduate level. Successful candidates will also possess superior communication skills, leadership capabilities, and the ability to motivate and inspire graduate students. Minimum Qualifications: Ph.D. in chemical engineering, biochemical engineering, electrical engineering, environmental engineering, bioengineering, biophysics, cell or molecular biology with a physical sciences emphasis or related field; scientific research experience (4 years for associate rank). Desirable Qualifications: university teaching experience, industrial work experience, record of successful research experience, ability to establish and maintain effective working relationships with fellow university faculty, students and industry partners. These five state-funded positions are part of a new phase of growth resulting from the establishment of the Marine Bioproducts Engineering Center (MarBEC) under the sponsorship of the Engineering Directorate of NSF. The Department of Chemical Engineering at the University of California at Berkeley is the academic partner with UHM in MarBEC. MarBEC is an industry/university collaborative engineering research center (ERC) for the development of an integrated marine bioproducts industry for the 21st century. The goal of MarBEC is to develop the engineering and research foundations to allow a continuum from product discovery in marine microorganisms to production and processing of high-value end-products.

For general information about MarBEC, please visit the website at http://www.MarBEC.org/ Interested candidates should submit a detailed resume, a statement of teaching and research interests, a copy of one publication or manuscript, names, addresses (including e-mail) of five references to: **Prof. Alexander Malahoff, Chair of Ocean and Resources Engineering, University of Hawaii, 2540 Dole Street, Holmes Hall room 402, Honolulu Hawaii 96822.** The closing date is September 1, 2000.

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

SYN·X PHARMA INC. IS SEEKING SCIENTISTS

SYN·X Pharma Inc.is a well-established in-vitro diagnostics company focusing on discovery, development and commercialization of antibody-based products for cardiovascular and related diseases. We are recruiting self-motivated M.S. and Ph.D. team players for the following positions:

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Molecular Biology: A minimum of 5 years relevant experience in molecular cloning and expression of heterologous genes in different systems.

Assay Development: More than 2 years experience in immunoassay development from early R&D stage to commercialization.

Please submit your Curriculum Vitae and publication list to: **Personnel Department, SYN·X Pharma Inc., 6354 Viscount Road, Mississauga, Ontario, Canada L4V 1H3.**

www.synxpharma.com

POSTDOCTORAL POSITIONS AVAILABLE

The Cancer Institute of New Jersey
UMDNJ - Robert Wood Johnson Medical School

The Microarray Facility at The Cancer Institute of New Jersey, part of the University of Medicine & Dentistry of New Jersey, Robert Wood Johnson Medical School, is seeking postdoctoral fellows who will be trained in the basics of microarraying and bioinformatics and will have the opportunity to collaborate with basic and clinical investigators in conducting microarray experiments, analysis and interpretation of data.

Ph.D. Candidates should have experience in molecular biology, including RNA extraction from a variety of cell and tissue sources; PCR expertise; nucleic acid hybridization; and good computer skills. Experience in microarray technology is desirable.

Visit our website at:
http://www.umdnj.edu/hrweb/

Please send curriculum vitae no later than July 15, 2000, to: **William N. Hait, M.D., Ph.D., Professor of Medicine and Pharmacology, Director, The Cancer Institute of New Jersey, 195 Little Albany Street, New Brunswick, NJ 08901, Fax: 732.235.8094.** UMDNJ is an Affirmative Action/Equal Opportunity Employer, M/F/D/V, and a member of the University Health System of New Jersey. Regrettably we can respond only to those candidates chosen for an interview.

UMD NEW JERSEY

INITIATIVE SPARKS INITIATIVE.

At Biogen, we believe that computational biology and chemistry are quintessential ingredients for successful drug discovery in the post-genome era. Our Research Computing Department is responsible for the development, implementation, and support of sophisticated solutions for data analysis, information management, and knowledge discovery across the whole spectrum of research activities. To achieve our ambitious goals, Research Computing Scientists work hand in hand with colleagues in all of Biogen's research focus areas.

We are looking for highly motivated candidates to join our rapidly expanding team. Openings are available in **Bioinformatics** and **Laboratory Information Management/Instrumentation**.

BIOINFORMATICS

In Bioinformatics, we seek individuals to develop and implement new bioinformatics tools in support of our genomics program. Candidates should have an MS/PhD in Biology, Biochemistry, Molecular Biology or a related field with an in-depth knowledge of computational analysis of sequence or gene expression data. Experience in software and database development is highly desirable. We are also interested in candidates who have a background in Computer Science and experience in knowledge discovery in databases or expert systems. Source Code: RC-A304-SCI

LABORATORY INFORMATION MANAGEMENT/INSTRUMENTATION

To complement our Laboratory Information Management/ Instrumentation efforts, we seek individuals to create and manage systems for automated data acquisition and workflow management for multiple laboratories, including genomics, chemistry and high-throughput screening. Candidates should have an advanced degree in a physical or computational science with demonstrated experience in laboratory automation and instrumentation in a drug discovery environment. Source Code: RC-A303-SCI

Foster your initiative and creativity at Biogen. We have one of the strongest financial profiles in the industry and our compensation and benefits package, including equity participation, is unmatched. To explore specific opportunities, please view our website and send your resume, indicating Source Code corresponding with the position of your interest, to: Biogen, Inc., Attn: Ron Cornila, 14 Cambridge Center, Cambridge, MA 02142; Fax: (617) 679-2546; Email: ron_cornila@biogen.com (Job Code ONLY must appear in the subject line). Biogen is an Equal Opportunity Employer. No phone calls, please.

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To qualify, a PharmD or PhD along with excellent communication skills are necessary. Pharmacology, toxicology, microbiology, or related life science backgrounds are preferred. 35% travel is required.

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Institute of Genetic Medicine

POSTDOCTORAL POSITIONS available in the Belfer Gene Therapy Core Facility for development of viral and non-viral gene transfer vectors. Become part of an excellent team of basic, preclinical and clinical researchers dedicated to the success of human gene therapy. Positions require close interactions with technicians in providing preparations of vectors to Core users, cloning new genes into existing vectors, and optimizing production procedures. Experience and publications in virology and recombinant DNA required.

Applicants should send a cover letter, CV, and names and contact information for 3 references to the address below. Applications may also be faxed to: 212-746-8796 or e-mailed (in WordPerfect or Microsoft Word format) to: generx@med.cornell.edu

Administrator,
Belfer Gene Therapy Core Facility
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Aab Institute of Biomedical Sciences Postdoctoral Positions in PROTEOMICS

Several Postdoctoral positions are available with funding for 3-4 years. Salary and benefits are commensurate with experience and are highly competitive. The Aab Institute is housed in newly constructed research space; state-of-the-art core facilities are available. Opportunity to develop an independent research program and for professional advancement leading to a faculty position.

Position 1: **CELL BIOLOGIST** with experience in biochemical, biophysical and/or genetic approaches (e.g. FRET analysis; yeast-two-hybrid screening; MALDI-TOF identification of proteins) to study protein-protein interactions in the Golgi complex.

Position 2: **DEVELOPMENTAL BIOLOGIST** with experience in either Drosophila or Mouse genetics to study protein function during development.

Position 3: **MASS SPECTROSCOPIST** (MALDI-TOF; Q-TOF; ES) with interest in protein discovery.

Positions 4 and 5: **MOLECULAR and STRUCTURAL BIOLOGISTS** to study protein functional domains.

Please send curriculum vitae, a brief summary of research interests and the names and addresses of at least two references to: **Dr. Lawrence A. Tabak, Senior Associate Dean for Research, Aab Institute of Biomedical Sciences, University of Rochester, 601 Elmwood Avenue, Box 611, Rochester, NY 14642. Lawrence_Tabak@urmc.rochester.edu**

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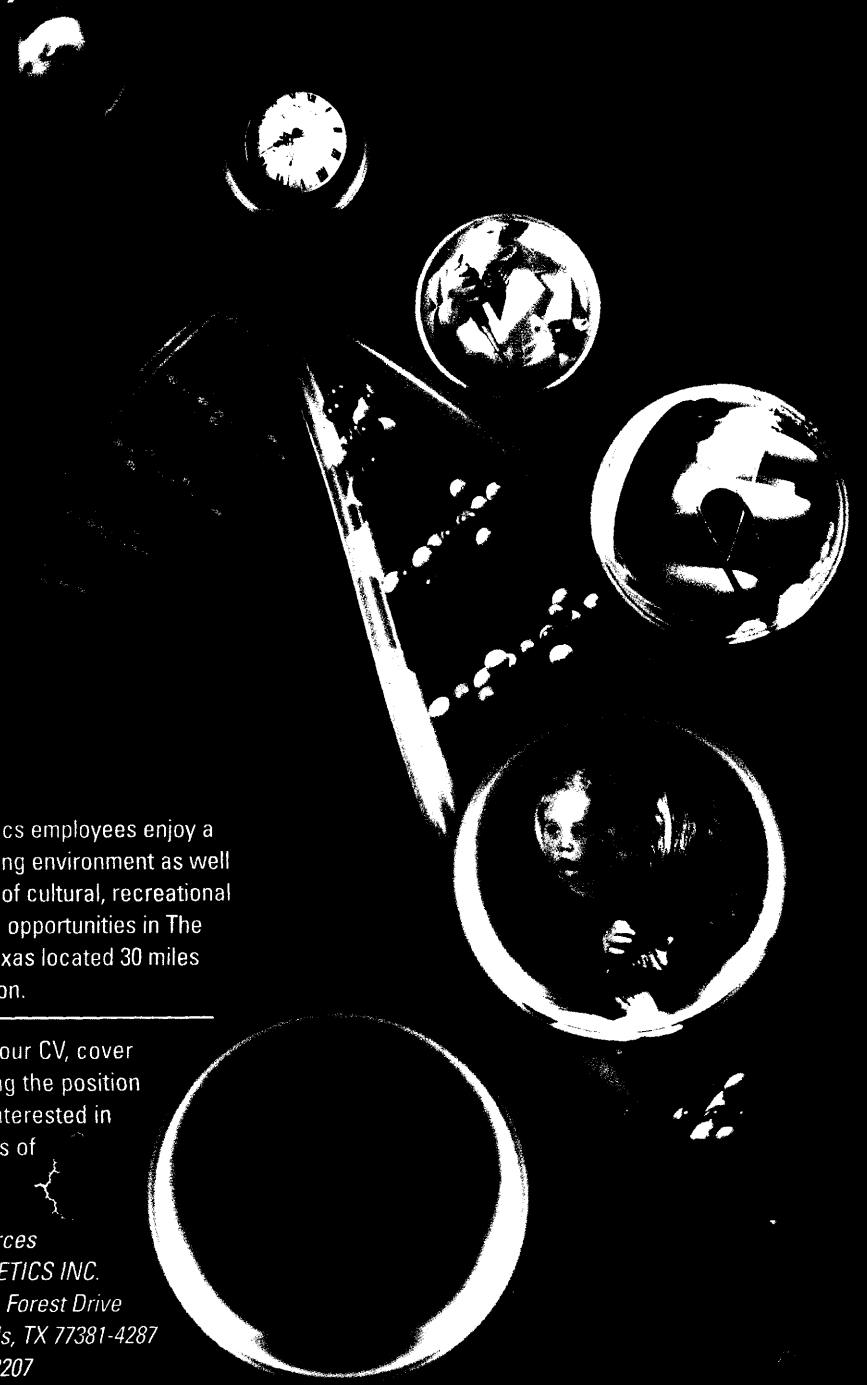
Defining Gene Function for Drug Discovery



Lexicon Genetics is building a Pharmaceutical Biology division that is pioneering functional genomics analysis of knockout mice for drug discovery. Through significant improvements in non-invasive measurements of mouse development and physiology, the science of mouse genetics is poised to enter a new era of sophistication and descriptive power for drug discovery. Lexicon Genetics has brought mammalian functional genomics to an unprecedented scale and depth.

We are presently seeking three Director-level candidates to set up and manage three core biology groups, which will be charged with the identification and implementation of Pharmaceutical Target projects arising from our functional genomics analysis.

Opportunities exist in the core biology areas of Immunology/Hematology, Oncology and Neurology. Successful candidates will have at least five years post-doctoral experience in one of these areas with a proven track record of scientific success and managerial skills, preferably in a drug discovery context. These positions represent outstanding opportunities for exceptional scientists to participate in shaping the future of health care and drug discovery.

Scientists/Research Associates Scientist candidates must have at least two years of post-doctoral experience in a molecular biology lab and Research Associates must have a bachelor's degree in a science field and one year of experience in a research lab.

Lexicon Genetics employees enjoy a beautiful working environment as well as a full range of cultural, recreational and residential opportunities in The Woodlands, Texas located 30 miles north of Houston.

Please send your CV, cover letter indicating the position that you are interested in and two letters of reference to:

Human Resources
LEXICON GENETICS INC.
4000 Research Forest Drive
The Woodlands, TX 77381-4287
Fax (281) 364-3207
Email: resume@lexgen.com
For more information on our company please visit our website at:
www.lexicon-genetics.com
EOE

Director, Program in Bioinformatics and Computational Biology

The University of Rochester is developing a new Program in Bioinformatics and Computational Biology that will serve as a nucleus for interdisciplinary efforts being conducted across the Schools, Centers and Institutes of the University.

Director, Program in Bioinformatics and Computational Biology: We seek a creative leader who will sustain his/her own rigorous research program; lead faculty in research efforts which will result in state-of-the-art multidisciplinary programs; and will establish a service core facility which will interface with investigators throughout the institution. The Director and his/her faculty will also contribute to newly developed undergraduate and graduate programs in Bioinformatics and Computational Biology.

We are particularly interested in individuals conducting innovative research in one or more of these areas: development and application of methods to extract and analyze highly complex and large data sets; Bioinformatic, Genomic and/or Proteomic approaches that lead to the identification of key structure/function relationships in macromolecules; functional imaging leading to fuller understanding of signaling networks; or the mathematical modeling of physiological systems.

The successful candidate will be appointed as a tenured associate or full professor in the Division of Genetics in the School of Medicine and Dentistry with additional appointments as appropriate in either the College (e.g. Department of Computer Science) or the Aab Institute of Biomedical Sciences. The Director will report to the Dean of the School of Medicine and Dentistry.

Additional Positions: Three tenure-track positions in bioinformatics and computational biology will be available with primary appointment in an appropriate basic science department/division either within the School of Medicine and Dentistry (e.g. Department of Biostatistics, Division of Genetics) or the College (Department of Computer Science, Department of Biology). Several staff positions will also be available to provide support for the research efforts of the Program and the service Core Facility to be established.

Applicants should send a curriculum vitae, a brief statement of research interests and contact information for at least three references to:

Dr. Lawrence A. Tabak
Senior Associate Dean for Research
School of Medicine and Dentistry
Medical Center Box 611
601 Elmwood Avenue
University of Rochester
Rochester, New York 14642

UNIVERSITY OF ROCHESTER MEDICAL CENTER

Nominations for this position are also welcome.
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PROFESSOR and CHAIR
Department of Physiology and Biophysics

The Weill Medical College of Cornell University (formerly Cornell University Medical College) and the Graduate School of Medical Sciences, located on the upper east side of Manhattan, seeks a Professor and Chair of the Department of Physiology and Biophysics at the Medical College and of the Graduate Program in Physiology and Molecular Medicine. The candidate should have an international reputation for outstanding research accomplishments, commitment to the educational mission of the Medical College and Graduate School, and skills as an effective administrator. The successful candidate will be expected to direct the development of the department and run an active research program in molecular, cellular or organ physiology and biophysics, and direct the recruitment of new faculty.

Those interested should forward a curriculum vitae, bibliography and a list of referees to:

David P. Hajjar, Ph.D., Chair
Physiology and Biophysics Search Committee
WEILL MEDICAL COLLEGE OF CORNELL UNIVERSITY
1300 York Ave, Rm F-108, NY, NY 10021

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Faculty Positions in Microbial Genomics or Fungal Pathogenesis
Department of Microbiology
University of Minnesota

The Department of Microbiology at the University of Minnesota invites applications for two tenure-track faculty positions: one to be filled at the Assistant Professor level and a second position at the Assistant Professor or higher level. We are particularly interested in outstanding individuals who will establish or have established independent research programs in prokaryotic or eukaryotic microbiology focused on pathogenesis, development, or drug discovery, and individuals interested in fungal pathogenesis, microbial genomics or proteomics. Successful applicants for these positions should also be well qualified to contribute to departmental teaching efforts in undergraduate, graduate and medical school courses. For more information about microbiology at the University of Minnesota, please visit our web site: http://www.microbiology.med.umn.edu.

Minimum qualifications: Ph.D. in microbiology or a related biological science discipline or an M.D. degree with extensive postdoctoral experience. Review of applications will begin on July 1, 2000, but early applications are encouraged and will be considered promptly. To apply, please submit a curriculum vitae, summary of research and teaching interests, a two-page proposal on research activities and the names and addresses of three references to: **David H. Sherman, Ph.D., Search Committee Chair, Department of Microbiology, Medical School, University of Minnesota, Delivery Code 8196, 420 Delaware St. S.E., Minneapolis, MN 55455.**

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It's a vision of hope and of bettering the world that would be pretty cloudy if we relied on just one pair of eyes. To make this vision a reality, each of our facilities has a vested interest in recruiting the best and brightest from all walks of life. And, as part of American Home Products, we deliver.

Genetics Institute - Cambridge & Andover, MA

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Senior Director of Bioinformatics - Cambridge, MA

Exciting opportunity for a Head of Wyeth Global Bioinformatics to lead the post-genomic bioinformatics revolution across Wyeth Discovery Research sites. Reporting to the Assistant Vice President of Genomics and based in Cambridge, Mass., the Senior Director will directly manage four Department Directors and a total staff of approximately 33 scientists, bioinformaticians, analysts, programmers and database administrators.

Bioinformatics Technology Analyst - Andover, MA

Assist the Bioinformatics Technology group in researching and applying advanced technological and computational bioinformatics solutions to support Genomics and Therapeutic Areas.

Duties include but are not limited to:

- Installing, configuring, testing, and implementing bioinformatics software and systems.
- Administering applications on various server platforms.
- Coordinating and/or managing the research, evaluation, and implementation of client/server systems and technology.
- Working closely with IT and Scientists to achieve goals.

Qualified candidates should have a BS in an engineering, scientific, or related field and a minimum of 2-5 years of relevant experience. Excellent knowledge of mainstream computer platforms including Windows 95/98, NT, Mac OS, and UNIX required. Excellent technical and troubleshooting skills are necessary. Knowledge of client/server systems, web-based applications, and databases is essential. Familiarity with bioinformatics applications and systems (Blast, GCG, Millennium, LIMS, etc.) is desirable. Candidates must have the ability to identify, organize, and assist or lead in project related issues, and potentially administer and manage various bioinformatics systems and software. Strong interpersonal and verbal and written communication skills are essential. Self-motivation and the ability to work effectively both independently and in a team environment are important. Some travel will be required.

Software Engineer
Bioinformatics Systems Development
Genomics Department, Genetics Institute
Cambridge and Andover, MA

You will be responsible for the design, development, deployment, and integration of systems to meet the needs of Bioinformatics and Genomics scientists in a team oriented, dynamic environment using state-of-the-art technologies. Both junior and senior level positions are available. We are seeking candidates with experience in Java, Perl/CGI, C/C++, Oracle, and SQL. Basic understanding of bioinformatics concepts such as gene expression and sequence analysis desirable. BS or MS in Computer Science, Molecular Biology, or a related discipline required.

Senior Computational Biologist - Cambridge, MA

The Department of Genomics is seeking a highly motivated individual to fill a challenging senior role in its Bioinformatics Sciences group. The role of this position will involve:

- Curating and managing DNA and protein sequence databases.
- Scripting and analyzing sequence similarity searches.
- Engineering creative approaches to genomic sequence annotation and data mining.
- Collaborating with biologists in extended sequence analysis projects.

Requirements: A strong scientific background (Ph.D. with 2 years' postdoctoral experience), knowledge of UNIX and Perl, and 4 years' demonstrated experience in the areas listed above. Formal training in Computer Science (BS or MS) is strongly preferred. Excellent interpersonal skills and the ability to participate in multiple concurrent projects are essential. Experience in user interface implementation, relational database design, or Object Oriented Programming on multiple platforms is a plus.

Bioinformatics Analyst - Cambridge and Andover, MA

We are looking for a talented individual who can provide bioinformatics support for our therapeutic areas in Massachusetts. You will provide DNA, RNA, and protein sequence analysis, and assist in gene expression projects. You will support mainstream applications (e.g., GCG/Seqweb, BLAST), desktop applications (e.g., Sequencher, DNA*), and, at times, provide training, education materials, and support of specialized projects. Ten percent of your time will be dedicated to research and development activities of your design and choice.

Candidates must have a Ph.D. in the biological sciences with two years' industrial experience or an MS/BS with equivalent relevant experience. Experience with mainstream bioinformatics tools absolutely required. You must demonstrate excellent UNIX and PC skills. Programming experience is desirable but not required. Strong communication, organizational, and people skills are required.

Genetics Institute offers competitive compensation and benefits programs including stock options, child-care subsidies, flex time, business casual Fridays, educational assistance and professional development programs. Please forward your resume and salary requirements to: **Wyeth-Ayerst, Reference OPSCI, P.O. Box 7886, Philadelphia, PA 19101-7886.** Fax in fine mode to: **(610) 989-4854.** E-mail: **jobs@RAMAIL1.wyeth.com** (ASCII format, no attachments, subject: resume).

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The Discovery Research Group in Italy has a proud and successful tradition in cytotoxic drugs. Building from it, we are committing to innovation by targeting specific molecular defects of different tumors in areas such as cell cycle regulation, intracellular signaling, telomere integrity and senescence.
We are now seeking talented scientists with excellent backgrounds in these and other oncology areas, to join our team in a multidisciplinary and highly interactive environment. We offer competitive salaries, benefits and global career opportunities limited only by your skills, creativity and performance. The R&D Center in Italy, with 700 scientists, is one of the major R&D sites of the company. It has an excellent location in Nerviano, ten miles northwest of Milan.

Dept. of Pharmacology

1-Scientist, Molecular Biology
The successful candidate will develop genetically engineered cell and animal models. A Ph.D. in Molecular Biology or equivalent is required. Scientific background in telomerase/ senescence and/or DNA damage checkpoints desirable.

2-Scientist, *in vivo* Tumor Models
The candidate will develop and characterize *in vivo* tumor models for testing potential anti-cancer therapeutic agents. A Ph.D. or equivalent background is required. Experience and significant knowledge in experimental tumor models, with particular focus on xenograft/orthotopic models and carcinogenesis models is also required.

3-Scientist, Tumor Histopathology
The candidate will characterize gene expression response to anticancer agents in xenograft and transgenic mouse models. He/ she should have experience with traditional and molecular histopathology techniques. A Ph.D., M.D. or equivalent and a background in molecular genetics of cancer is required.

4-Scientist, Transgenics Unit
The successful candidate will contribute to the generation and characterization of mouse models of tumorigenesis, to be used for *in vivo* drug testing, and for generating transgenic primary cells and cell lines. A Ph.D. or equivalent required. The candidate should have extensive molecular biology expertise and prior successful experience in creating transgenic and knockout mouse models.

5-Scientist, Cell Biology
The successful candidate will utilize cell and molecular biology techniques to study intracellular signaling pathways. A Ph.D. in Molecular Biology or a related field with prior experience in studying mitogenic and/or apoptotic signaling pathways required.

6-Scientist, Fluorescence Activated Cell Sorting
The candidate will perform analysis of tumor samples and normal tissues for the expression of molecular markers using automated sampling systems. MS or equivalent background and experience required. Prior expertise in cell sorting and in cancer biology required.

7-Scientist, Quantitative PCR and Related Technologies
The candidate will analyze tissue samples for the simultaneous expression of molecular markers. MS or equivalent background and experience required.

8-Scientist, Cell Based Assay Automation
The successful candidate will be responsible for automated cell proliferation and apoptosis assays. MS or equivalent and prior experience in using robotic equipment and in tumor cell biology required.

For additional information please e-mail to the Head of the Department: giulio.draetta@eu.pnu.com

Dept. of Biology

9-Head, Bioassay lab.
The candidate will direct a laboratory dedicated to assay development for HTS and secondary *in vitro* screens. The successful candidate will have a Ph.D. or equivalent qualification in Chemistry or Biological Sciences, and 5+ years of industry experience in drug discovery. A strong expertise in technologies and automation applied to throughput screening, and a good knowledge of enzymology is required. Chemoinformatics know-how is desirable.

10-Scientist, Protein Chemistry/Mass Spectrometry
The candidate will be responsible for a Protein Chemistry Unit working on analytical characterization of proteins to identify *in vivo* postranslational modifications and protein-protein interactions. The ideal candidate will have a Ph.D. and 3+ years of postdoctoral experience in protein mass spectrometry, and broad expertise in protein chemistry approaches.

11-Scientist, Biochemistry (3 positions)
The candidates will work on production and characterization of proteins for x-ray crystallography and NMR studies. The successful candidates will possess a Ph.D. in Biochemistry/Molecular Biology with 2-5 years of postdoctoral experience in protein expression-characterization and structure-function relationships.

12-Scientist, Biophysics
The candidate will apply biophysical approaches to enzymatic assays and protein-protein interaction studies. He/she will have a Ph.D. in Biophysics and 3+ years of experience in fluorescence applications such as FRET, fluorescence polarization and time-resolved fluorescence.

13-Scientist, Biochemistry/Molecular Biology
The candidate will clone and characterize novel molecular targets in Oncology. He/she must have a Ph.D. in Biochemistry or Molecular/Cell Biology and 3+ years experience in signal transduction, preferably applied to the Oncology area. Previous experience in kinase enzymology is highly desirable.

For additional information please e-mail to the Head of the Department: antonella.isacchi@eu.pnu.com

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Please specify the position number in your application and send it by e-mail directly to the Head of the respective Dept, as indicated below each section. For information on PHA please refer to Diana Didoni, Pharmacia & Upjohn, S.p.A; Human Resources; Via R. Koch, 1.2; 20152 Milano, Italy.
e-mail: diana.didoni@eu.pnu.com
DEADLINE: June 30th, 2000

ELITRA PHARMACEUTICALS is a rapidly growing biotechnology company located in the heart of San Diego's biotech community. We employ proprietary, ultra high throughput methods for gene analysis and antimicrobial drug discovery. Elitra recently entered into several corporate alliances that have created a variety of openings in drug discovery and development. We are seeking highly motivated, experienced scientists with excellent interpersonal and organizational skills who enjoy working in a team oriented environment.

BIOINFORMATICS - Senior Scientist is needed to perform DNA and protein sequence analysis for functional genomics experiments generated in antibiotic target discovery. The candidate should have in-depth knowledge of bioinformatics algorithms and statistical analysis applied to drug target analysis, as well as the ability to develop Perl scripts for automation and mining of bioinformatics ORACLE databases. Experience with comparative genomics methods in bacterial organisms would be a major asset, with a Ph.D. in Bacterial Genetics or related field. A minimum of 2 years industry experience is strongly preferred. ***(Job Code: SCI500CZ)***

HIGH THROUGHPUT SCREENING - Research Associates are sought for assay development and high throughput screening. Strong fundamental knowledge and technical skills in Microbiology, Microbial Physiology, Biochemistry, Assay Development and High Throughput Screening are essential for this position. Experience in Anti-infective Research and Bacterial Pathogenesis is required. Applicants should have a Master's degree or equivalent in Microbiology, Molecular Biology or Biochemistry and at least 1 year industrial experience in drug discovery. If you want to help establish UHTS at a sustainable throughput of 500,000 data points per week, this could be the opportunity you're seeking. ***(Job Code: SCI500GC1)***

HIGH THROUGHPUT SCREENING - Compound Manager who is highly organized with a demonstrable attention to detail is sought for this position. Applicants should have at least three years industrial experience working with automated liquid handling equipment, robotics and database driven inventory and tracking systems. ***(Job Code: SCI500GC2)***

ANIMAL PHARMACOLOGY AND PRECLINICAL DEVELOPMENT - Scientist/Senior Scientist needed to oversee preclinical animal models for our antimicrobial drug discovery programs. Successful candidate will be responsible for conducting acute toxicology studies, in vivo efficacy studies, and appropriate infection models aimed at elucidating PK/PD relationships and ADME of various drug candidates. In addition, you will be responsible for contracting IND-enabling GLP toxicology studies. The successful candidate should have a Ph.D. in Pharmacology, Toxicology or related discipline, and 3-5 years of experience in supporting drug discovery and development programs, preferably in an industrial setting. Specific experience in infectious disease research and antibiotics is an advantage. ***(Job Code: SCI500DM)***

FUNGAL MOLECULAR GENETICS - Scientist sought to develop and apply new technologies as well as classical molecular biology and genetic techniques to identify and evaluate new antifungal drug targets. The successful candidate should have a Ph.D. and 1-3 years experience in molecular biology and microbial genetics. Knowledge of biochemical pathways and previous experience with filamentous fungi, antifungal drug development, clinical microbiology, high throughput assay development and genomics/proteomics data evaluation are desirable. ***(Job Code: SCI500DT1)***

FUNGAL MOLECULAR GENETICS - Research Associate II/Senior Research Associate needed to apply new technologies as well as classical molecular biology and genetic techniques, to identify and evaluate new antifungal targets. A demonstrated working knowledge of molecular biology is required. Preferred candidates will have a B.S./M.S. in a scientific discipline and 2+ years of industrial experience. Previous experience with filamentous fungi, clinical microbiology, high throughput assay development and genomics/proteomics data evaluation are desirable. ***(Job Code: SCI500DT2)***

Elitra offers competitive salaries, stock options, and excellent benefits including medical and dental insurance, and 401(k). EOE. If you have a desire to deliver promising therapeutics to the people who need them most, submit your resume referencing code to: **Elitra Pharmaceuticals, Inc., Code (see above), 3510 Dunhill Street, San Diego, CA 92121. sboles@elitra.com**

Leading the Revolution in Discovery Informatics

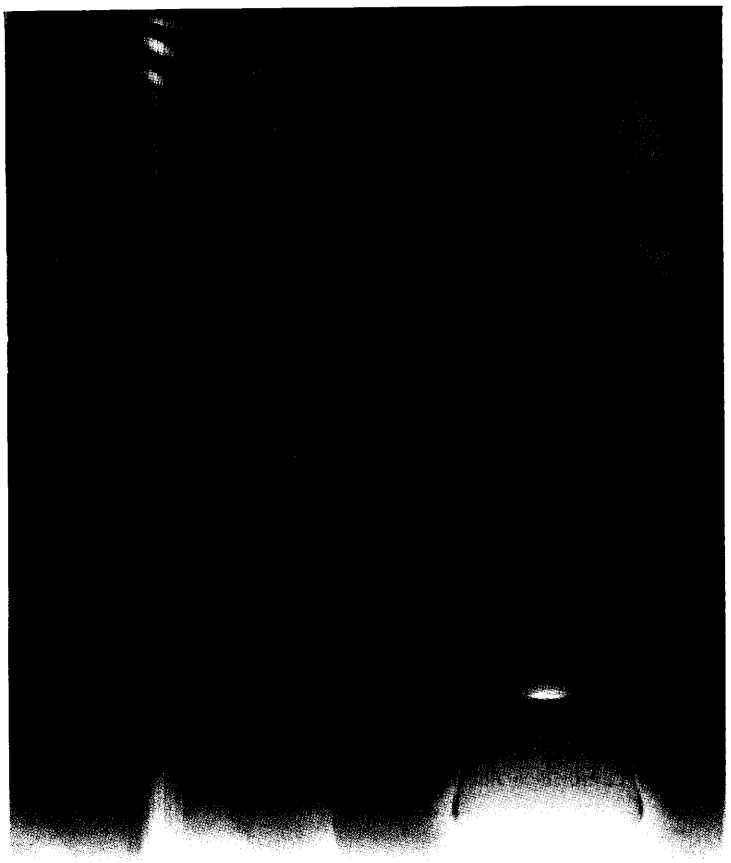
VIAKEN
Your Path to Knowledge™

Viaken is a high growth, entrepreneurial company where the creative spirit is valued and rewarded. We are a Full Service ASP (Application Service Provider) for the Life Sciences. Our products and services utilize state-of-the-art computer and telecommunication technologies to provide Informatics Solutions via the Internet to the Biotechnology and Pharmaceutical Industries. We are looking for qualified people with strong technical skills who are enthusiastic, hard working, and team oriented.

Application Managers: The successful candidates will be able to provide project support of Viaken's Platform Tools. We are looking for a chemoinformatics manager with skills in high throughput screening analysis, combinatorial chemistry analysis, molecular modeling, diversity analyses, and data visualization (Job Reference VWR1301). We are also looking for a Genome Informatics manager with skills in sequence and array analysis, sequence assembly, statistical and clustering methods, structure prediction and visualization (Job Reference VWR1291). The candidates will be responsible for validating and testing the tools and collaborate in consulting relationships with customers. The ideal candidates will possess Chemistry or Life Sciences related Ph.D. degrees, a demonstrated proficiency in Chemistry and Genomics software and good computer science skills. EOE. US Citizen or permanent resident.

Customer Support: The successful candidates will be able to provide customer project support of Viaken's Platform Tools. We are looking for chemoinformatics support staff with skills in the areas of chemistry, modeling, screening and other lead identification methods (Job Reference VWR1241). We are also looking for Genome Informatics support staff with skills in sequence analysis, sequence assembly, structure prediction and visualization, and other similar applications (Job Reference VWR1231). The candidates will be responsible for handling web based chat, phone based support and updating the Viaken Web based FAQ database. The ideal candidate will possess Chemistry or Life Sciences related B.S. or M.S. degrees and demonstrated proficiency in Chemistry and Genomics software. EOE. US Citizen or permanent resident.

Please submit your resumes referencing these job codes either to: Viaken Systems, Inc., Human Resources Department, 16 South Summit Ave., Gaithersburg, MD 20877 or through email at jobs@viaken.com



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careers that matter

Pfizer Central Research is the R&D division of Pfizer Inc, a global, research-based pharmaceutical company at the forefront of a dynamic, rapidly growing industry. We're known for both our unparalleled drug development pipeline and the respect and resources we give to our people. If that appeals to you, maybe yours could be the new Face of Pfizer. Join us in the following opportunities at our facilities in Groton, Connecticut, and Cambridge, Massachusetts.

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Pfizer Central Research
Life is our life's work.

The following opportunity places you at the heart of our effort to take the drug discovery process to a new level of efficiency at our Discovery Technology Center in Cambridge.

Bioinformatics Scientist

Design and implement a computational pipeline of bioinformatics tools to classify and predict the molecular/cellular functions of genes, and curate and manage a database of target protein families. We require BS/MS, database experience, background in C++, JAVA or Perl, and 1 year of bioinformatics programming on UNIX machines. Experience with protein structure, genomic data mining, HMMs, and neural networks desired. Ad Code: 0003225SC6

For more information on this opportunity or to apply online, please visit us at www.pfizer-dtc.com. You may also email your resume, indicating Ad Code in the "Subject" line, to openings@cambridge.pfizer.com, or fax to (617) 551-3111. Pfizer Discovery Technology Center, 620 Memorial Drive, Cambridge, MA 02139.

Explore these opportunities at our Central Research facilities in Groton.

Research Scientist, Bioinformatics

As a key member of a high-energy multidisciplinary team, you will apply innovative computational methods for analyzing genomic and proteomic data to advance drug discovery and development. You'll have access to world-class collaborations and state-of-the-art databases, analytical tools, and computing resources. You'll need a PhD and 2+ years postdoctoral research experience in Molecular or Structural Biology, proficiency with current sequence and expression analysis tools, and strong scripting skills in Perl and SQL. Ad Code: 982028SCI

Research Scientist, Inflammation

Design, develop, validate and implement pharmacology models for evaluating mechanism-based compounds for the treatment of osteoarthritis. You'll also develop biological activity-efficacy correlations to evaluate the utility of surrogate efficacy markers. We require a PhD and 2-4 years postdoctoral research in the area of cartilage biology. Practical experience of *in vivo* models of OA is required. Experience in the pharmaceutical industry is desirable and sound supervisory skills are essential. Ad Code: 0003222SCI

Manager, Fermentation/Expression

In this critical role, you'll manage the Expression and Fermentation groups within our Exploratory Medicinal Sciences Department. Beyond providing leadership and regular presentations, you will coordinate the production of priority cell lines and reagents needed to support early exploratory biology, high throughput screening, and crystallization and labeling of proteins for structural studies. We require a PhD or equivalent training in Fermentation or a related field, 5-10 years of relevant experience in a pharmaceutical industrial setting, substantive scientific credentials, and demonstrated leadership and presentation skills. Ad Code: 0003721SCI

Research Scientist, Computational Chemistry

Apply computational and monitoring efforts to facilitate combinatorial chemistry, lead optimization, and structure-assisted drug design and help the team review priorities and allocate resources. Requires a PhD in Chemistry or Computational Chemistry with 6 years work experience, preferably in drug discovery chemoinformatics. Ad Code: 9924149SCI

FACS Operator

A senior associate, you'll be responsible for the Groton FACS cell sorting facility—now under construction—based on a new Vantage SE FACS and custom-designed laboratory. You will work with minimal supervision and interact with cell and molecular biology colleagues from all Groton therapeutic teams. Along with a BS/MS in Biology, Molecular Biology or Cell Biology, you must have 2 years of academic, hospital or industrial experience operating a FACS facility. Ad Code: 0002743SCI

Research Scientist, Biology

Capitalize on your scientific background and exceptional interpersonal skills as you help project teams discover novel immunosuppressive drugs for treating transplant rejection and autoimmune disease. You'll need a PhD in Immunology, Pharmacology or a related field and 3 years postdoctoral experience in development and pharmacological characterization of *in vivo* animal models; experience in animal models of transplantation is a plus. Ad Code: 0003901SCI

Research Scientist, Allergy and Respiratory Biology Laboratory

Leading our Allergy and Respiratory Biology Laboratory, you'll contribute to ongoing drug discovery programs, identify new drug discovery targets and potentially support clinical development of previously nominated drug candidates. This requires a PhD, excellent communication skills, and experience in designing experiments to identify novel targets. Industrial experience is desirable. Ad Code: 0003941SCI

Recently ranked among *Fortune's* 100 Best Companies to Work For, Pfizer offers an exceptional work environment complete with training opportunities designed to develop your supervisory effectiveness and professional talents. We encourage all candidates to apply online through our website at www.pfizer.com. If necessary, you may also mail your resume, indicating the appropriate Ad Code, to: Pfizer Inc, Central Research, c/o Aon Consulting, P.O. Box 25, Findlay, OH 45839. As an Equal Opportunity Employer, Pfizer offers a workplace rich with diversity and potential.

Gateway to New Pharmaceuticals

SPRL *(Suntory Pharmaceutical Research Laboratories), a pharmaceutical company in* **Cambridge, MA**, *is dedicated to the discovery and development of drugs for the treatment of* ***cardiovascular*** *and* ***immunological disorders****. SPRL combines innovative chemistry, screening, and insightful biology approaches directed towards rapid discoveries and cost-effective validation in these target areas. We are currently seeking individuals to join our growing Discovery Team in Biology, who are motivated and dedicated scientists that share our passion for the development of novel therapies.*

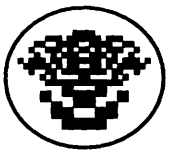
SCIENTIST/SR. SCIENTIST (JOB CODE #113)

The Scientist/Sr. Scientist will design novel cell-based assays for high throughput screening, and use cell-based and animal models for pre-clinical drug evaluation. The candidate must have a PhD or MD, with a minimum of 3 years' postgraduate research experience in the area of immune response regulation. Pharmaceutical industry experience is preferred.

ASSOCIATE SCIENTIST (JOB CODE #224)

The Associate Scientist will explore drug targets in cell-based assays relevant to immune regulation. Experience in tissue culture, molecular biology methodologies, and animal research is desired. This position requires a BS/MS degree with 3 or more years' laboratory experience in immunology, cell, and molecular biology. Pharmaceutical industry experience is preferred.

SPRL is located in the midst of the fast-paced biotechnology center in **Cambridge, MA**. We offer generous equity participation, as well as a highly competitive compensation, reward, and benefits package. Please send your resume and references by e-mail and place Job Code as Subject. Send applications to: **HR@sprlus.com, Attn: Job Code #113 or #224, Human Resources, SPRL, One Kendall Square, Building 1400W, Cambridge, MA 02139.** SPRL is an equal opportunity employer.



SPRL

VIRxSYS

VIRxSYS is a dynamic start-up gene therapy company focusing on novel lentiviral vectors using our patented technology. We are currently recruiting for three positions.

Development Scientist
This person will be responsible for process development in the production of recombinant lentivirus vectors for clinical trials. Candidates must have M.S. or B.S. and at least 2 years experience in the relevant areas of virus purification. Experience with live virus production and cGMPs is a plus.

Production Scientist/Manager
We have an immediate opening for a Production Scientist, who will be responsible for GMP production of lentivirus vectors for gene therapy clinical studies. Candidates must have B.S. or M.S. degree and at least 2 years of GMP production experience (5 years and M.S. for Manager position). Experience with live virus production and mammalian cell culture a plus.

Quality Assurance (QA) Specialist/Supervisor
Great opportunity for an experienced, energetic and motivated individual to provide regulatory compliance to our company. Successful candidate will create and maintain internal auditing and regulatory compliance systems, plus review/audit. Requires a BS in a scientific discipline, 3+ years QA experience and knowledge of GLPs and cGMPs.

We offer highly competitive salaries and great benefits. Please mail or e-mail CV and references to:

Ms. Kimberly Kalaska
Human Resources
VIRxSYS Corporation
200 Perry Pkwy., Suite 1A
Gaithersburg, MD 20877
kim@virxsys.com

Signal Pharmaceuticals, Inc., a growing, successful biotech firm, has the following career opportunity:

ONCOLOGY - Cell Biologist

As part of our Preclinical Development Department a highly motivated research team of cellular pharmacologists will develop assays for drug discovery and validation of new small molecule anticancer drugs. The focus will be on developing novel hormonal agents and protein kinase inhibitors for treatment of cancer.

Scientist position is available for a Ph.D. with a minimum of 3 years industrial/post-doc experience. A strong background in tumor biology is required. You will demonstrate a proven record of accomplishment in establishing cell based assays for evaluating the effect of compounds on proliferation, apoptosis, migration/adhesion and angiogenesis of tumor cells. Molecular biology skills to perform immunocytochemistry, immunofluorescence, ELISA, western blotting, RNA analysis and cell transfections are required. A good understanding of mouse and rat tumor models is desired. Good communication and problem solving skills and the desire to work in a team environment are essential.

Signal offers a competitive compensation package that includes equity participation. Please send resume, **indicating code to:**
Signal Pharmaceuticals, Attn: H.R., (Code: URMS), 5555 Oberlin Dr., San Diego, CA 92121; fax: (858) 623-0870; email to: lcain@signalpharm.com
AA/EOE

SIGNAL
PHARMACEUTICALS, INC.

Creating Drugs That Regulate Gene Expression

Tularik Inc. is an established leader in the biopharmaceutical industry, dedicated to the discovery and development of novel therapeutic agents that regulate gene expression. A combination of exciting scientific developments and recent successes has created several opportunities for a number of talented scientists to join our expanding multidisciplinary R&D team in South San Francisco.

Scientists, Metabolic Diseases

We are looking for several highly motivated individuals with broad expertise in molecular biology, biochemistry, enzymology and assay development to build a new program in the area of Metabolic Diseases. As a founding member of this new team, you will be involved in all aspects of target identification and characterization, assay development and high throughput screening. Qualified candidates must have a Ph.D. and at least two years of postdoctoral experience. (Job Code: TPC)

Scientists, Lead Discovery

Our Lead Discovery group is searching for talented Scientists who will drive the development of novel assays and the integration of novel technologies into our lead identification process. The successful candidates will be responsible for the development, implementation and continued evolution of state-of-the-art assay and detection technologies that will enhance our ability to identify novel drug leads. These Scientists will interface with members of our drug discovery project teams in carrying out these technology development efforts. Qualified individuals will have a Ph.D. and three years of industry experience with a focus on assay and technology development. This position demands outstanding collaborative and interpersonal skills. (Job Code: KL)

Director, Bioinformatics

As Director, Bioinformatics, you will be responsible for the development and implementation of informatics technologies that will directly impact our ability to identify and characterize novel drug discovery targets. A key aspect of this position will be to interface with members of Tularik project teams to identify the best opportunities upon which to focus these research efforts. You will also be responsible for developing and executing a long-term strategic plan that will allow the ongoing integration of leading-edge informatics into our target identification efforts. Qualified candidates will have a Ph.D. in Biology or Computer Science and a proven background in computer-assisted DNA and protein sequence analysis. We also require experience with UNIX operating systems and relational databases, as well as knowledge of HTML/CGI programming, Perl, C/C++ and Java. (Job Code: TH)

In addition to challenging and empowering our employees, Tularik offers experienced leadership, employee stock options and a competitive salary and benefits package. Tularik's collaborative and stimulating research environment recognizes the achievements of individuals and project teams.

If you are interested in joining our R&D team, please send your CV, complete with source code, either by email or mail to one of the addresses below.

resume@tularik.com
or
Human Resources
2 Corporate Drive
South San Francisco, CA 94080

Tularik

www.tularik.com

COMPARATIVE GENOMICS GROUP LEADER

The DOE Joint Genome Institute (JGI) was formed in 1997, the result of the merger of the DOE Genome Centers at Los Alamos National Laboratory (Los Alamos, NM), Ernest O. Lawrence Berkeley National Laboratory (Berkeley, CA) and Lawrence Livermore National Laboratory (Livermore, CA). In addition to the National Laboratories, there is a state-of-the-art laboratory facility in Walnut Creek, CA, which has extensive sequencing capabilities - currently > 450 million raw bases per month. Approximately 10,000 sq. ft. at this facility will be dedicated to the Functional Genomics program.The primary present focus of the JGI is production genomic sequencing of both vertebrate and microbial genomes. The JGI is now seeking to augment its genomic research efforts with a significant program in functional genomics. A key initial component of the Functional Genomics Program will be an effort in comparative genomic sequencing and analysis encompassing both vertebrate and microbial systems. A group leader is being sought for this initiative.

A large fraction of the future JGI sequencing effort will be directed to comparative genomic sequencing designed to provide functional insight through comparative sequence analysis. A substantial scientific challenge exists, however, both in designing the experimental strategy (which organisms, which regions, how sequenced, which scientific questions should have priority, etc.) and in developing analytical tools and approaches for the optimal presentation and analysis of such data. In addition, other experimental approaches to comparative genomic analysis, not based on sequencing, will likely need to be developed. Under this program, both microbial and vertebrate systems would be addressed.

The occupant of this position would be expected to provide scientific and managerial leadership for this effort. This position will report to the Functional Genomics Director, and be responsible for oversight of the technical and operational aspects for the JGI's activities in comparative genomics. The candidate will directly oversee the operation of the comparative genomics activities in the JGI; have primary responsibility for the development of the comparative genomics program of the JGI, represent JGI in contacts with internal and external organizations and funding agencies; and provide scientific guidance in the biological applications of genomic sequence and of functional genomics capabilities and data.

Candidates for this position should have a Ph.D., and/or M.D. in Genetics, Biochemistry, Molecular Biology or closely related discipline, or equivalent experience. Extensive experience in the management of large research and/or research/production operations is desirable. Extensive experience with comparative genomics methods and approaches is essential. The candidate should demonstrate excellence in leadership and management of complex research efforts.

Letters of intent, resumes, and publication lists should be sent directly to Sarah Wenning, JGI Program Administrator, Reference Source Code **AJSCGAOBS**, DOE Joint Genome Institute, 2800 Mitchell Drive, Building 100, Walnut Creek, CA, 94598. These positions will be functionally attached to the JGI, but occupants will formally have an appointment at one (or conceivably more) of the three participating national laboratories. We are an Equal Opportunity Employer with a commitment to workforce diversity.

LIFE SCIENTISTS

Asthma & Metabolism

Entelos, Inc. is a leader in eR&D, the computerization of research-and-development processes, with a focus on the pharmaceutical and biotechnology industries. Our flagship products - Entelos® PhysioLabs™ - are complex mathematical models that simulate the physiology of health, disease, and the consequences of interventions against diseases such as asthma, obesity, diabetes, and HIV infection.

We are hiring Life Scientists for Systems Biologist positions in Asthma and Metabolism in our Professional Services Team. In collaboration with dynamics engineers & scientists, system biologists translate specific customer problems into PhysioLab simulations, interpret the results of those simulations in terms that are meaningful to customers, and refine the PhysioLab simulations as insights are gained by analyzing simulated and experimental results. System biologists frequently interact with customers and scientific consultants. Positions are available in New Jersey and California.

The **ideal candidate** will possess a Ph.D. in immunology, cell biology, physiology, diabetes, nutrition, endocrinology or a related discipline; Asthma position requires familiarity with respiratory physiology, asthma pathophysiology, cell bio, inflammatory mechanisms, and biochem. Metabolism position requires familiarity with obesity, lipid metabolism, or metabolic and endocrine dysfunctions in type 2 diabetes; over 2 years experience with pharma, biotech, govt, or academic research; strong interest in working with computer simulations of disease from a whole-body perspective, and strong understanding of normal, whole body physiology; an eagerness to travel and work as part of a diverse team in a challenging, multidisciplinary, entrepreneurial environment; and strong verbal/written communication, facilitation, presentation, and organizational skills.

Entelos, Inc. is an equal opportunity employer. Upon hiring, proof of eligibility to work in the United States is required. For more information, please contact: **Entelos, Inc., HR Dept, 4040 Campbell Avenue, Suite 200, Menlo Park, CA 94025; fax: (650) 330-5252; or email: jobs@entelos.com**

entelos

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MAYO CLINIC
POSTDOCTORAL RESEARCH ASSOCIATE
GASTROINTESTINAL NEUROSCIENCE

A postdoctoral research associate position in gastrointestinal neuroscience is immediately available for an outstanding scientist to work on the molecular basis underlying the role of G-protein coupled receptors in human gastrointestinal function and diseases. The applicant should have a strong background in protein chemistry and/or molecular biology and previous experience in receptor biology. The successful applicant will participate in a collaborative translational research effort among world-recognized clinical investigators and basic researchers. Research facilities include several state-of-the-art biochemistry, genetics, morphology, structural biology, and transgenic mouse cores.

Mayo Clinic offers very competitive salary and benefits packages. Send a curriculum vitae, a description of research experience, and three academic references to:

Raul Urrutia, MD/Michael Camilleri, MD
Mayo Clinic
Alfred 2-435
200 First Street SW
Rochester, MN 55905
E-mail: urrutia.raul@mayo.edu

Mayo Foundation is an affirmative action and equal opportunity employer and educator

BIOINFORMATICS IN THE RESEARCH TRIANGLE

The three research universities in the Research Triangle of North Carolina have established research and teaching programs in bioinformatics. Together with Triangle companies and research organizations, these programs provide ***unparalleled opportunities for training and employment in the quantitative aspects of genomic science.*** The universities invite inquiries from prospective students and faculty members, and the other organizations invite inquiries from professionals who wish to locate in one of the fastest growing areas of the United States.

THE UNIVERSITIES

Duke University has established a Center for Bioinformatics & Computational Biology and a Center for Genome Technology (www.stat.duke.edu/bioinformatics/) under the university-wide Institute for Genome Sciences and Policy. Participating faculty are from the departments of Biology, Computer Science, Mathematics and Statistics along with other Basic Medical Science departments and the newly created Department of Biostatistics & Bioinformatics within the School of Medicine. A graduate curriculum in Bioinformatics and Genome Technology has been established. For information about new faculty positions in bioinformatics contact Dr. James Siedow (jsiedow@duke.edu) or Dr. Joseph Nevins (j.nevins@duke.edu).

North Carolina State University has established a graduate program in bioinformatics leading to masters and doctoral degrees(www.genomics.ncsu.edu). Graduate student stipends are available from NSF and NIEHS training grants and from industrial internships. A bioinformatics research center is located on the new Centennial campus. Bioinformatics faculty are affiliated with the departments of Computer Science, Forestry,Genetics, Mathematics, Plant Pathology and Statistics. Additional faculty are sought with preference given to applicants with strength in genomic database design, computational biology, or statistical genomics. Contact Dr.Bruce Weir (weir@stat.ncsu.edu).

The University of North Carolina at Chapel Hill. The School of Medicine at UNC-CH invites applications for up to four tenure-track faculty positions in bioinformatics, Ph.D. required. Outstanding applicants at all levels with promising or established research programs will be considered. Laboratory space and competitive start-up package. Focus areas of the university initiative in genomic sciences include, but are not limited to evolutionary modeling, computational biology, high-throughput expression analysis, proteomics, structural genomics, functional genomics, and genetic screens in model organisms. Contact Dr. Dede Corvinus (dede_corvinus@med.unc.edu).

THE RESEARCH ORGANIZATIONS

Chemical Industry Institute of Toxicology (CIIT) CIIT is an independent, not-for-profit toxicology research institute dedicated to improving scientific understanding of the potential adverse health effects of chemicals on human health. Opportunities exist for postdoctoral research fellows and visiting scientists to work in the area of genomics and bioinformatics applied to understanding chemical action. An application can be obtained from CIIT's web site at www.ciit.org. Applications and curriculum vitae should be directed to the HR Director, 6 Davis Drive, P.O. Box 12137, RTP, NC 27709-2137.

Research Triangle Institute (RTI) (www.rti.org) has 1800 employees who conduct research for public and private clients on human and environmental health, pharmaceuticals and biological systems. Collaborations with Triangle universities include research that combines bioinformatics, proteomics and neuropsychology along with epidemiology, health and treatment. RTI is recruiting statisticians and computer scientists for its bioinformatics program. Contact Dr. Judith Lessler (Lessler@rti.org) or Mr. Joseph Pratt (jpratt@rti.org).

National Institute of Environmental Health Sciences (NIEHS, NIH) The NIEHS microarray center is in the process of developing a quality database of gene expression responses following exposures to multiple agents in a variety of biological systems (http://dir.niehs.nih.gov/microarray). This will allow the generation of signatures of toxic responses and the identification of potential surrogate markers of safety. For details on employment opportunities contact Dr. Cynthia Afshari (afshari@niehs.nih.gov) or Dr. Richard Paules (paules@niehs.nih.gov).

THE COMPANIES

GlaxoWellcome, Inc. (www.glaxowellcome.com) The goals of the company include fully exploiting the content of the human genome to identify new opportunities for target discovery, including disease susceptibility genes and genes that are indicative of drug safety and efficacy. High volumes of quality data are being generated and tools to store, link, retrieve and manipulate large volumes of genetic and genomic data are being established to ensure a strong intellectual property position. For details on employment opportunities, contact Ms. Robin DeMent (rmd4357@glaxowellcome.com).

Novartis Agribusiness Biotechnology Research, Inc. (NABRI) (www.us.novartis.com) Researchers at NABRI, a subsidiary of Novartis, are committed to integrating the disciplines of genetics, genomics, molecular biology, chemistry and biochemistry in support of the company's worldwide Crop Protection and Seeds business. Members of the Bioinformatics group are responsible for adapting software to facilitate the assembly, analysis, annotation, and function of DNA and protein sequence information.

Applications for internships and professional positions are welcomed, with a preference for individuals with a background in a biological science or chemistry and computer science. Contact Nancy Torkewitz (biotech.jobs@nabri.novartis.com).

Paradigm Genetics, Inc. (www.paragen.com) The company has designed GeneFunction Factory™ to discover and modify genes, measure the consequences of modification and to determine the function of those genes. The company's FunctionFinder™ bioinformatics system is used to collect, store, analyze and retrieve information. Positions available for professionals with strong backgrounds in life and computer sciences, including biostatisticians, database administrators and software engineers. Contact Mr. Slade Chandler (schandler@paragen.com).

PPGx, Inc. (www.ppgx.com) Combining genetic research technologies from its computational and research divisions, GLP/CLIA global laboratory services, and a comprehensive bioinformatics platform (GeneTrials™, PPGxperforms pharmacogenomic solutions for biotechnology and pharmaceutical companies to optimize and accelerate drug discovery and development. PPGx has positions open in bioinformatics and computational biology. For details contact Dr. Josh Baker (Josh.Baker@ppgx.com).

SAS Institute, Inc. (www.sas.com) Pharmaceutical companies have used SAS® software for many years to warehouse and analyze data. SAS's expertise in data warehousing, data mining, knowledge management and Web-enablement will allow companies to handle the coming deluge of genomic data and to search for genetic sequence signals for human disease. Contact Dr. John Brocklebank (sascjb@unx.sas.com) or Mr. Chris Glass (Chris.Glass@sas.com).

An Equal Opportunity Employer

PHARMACIA

Though our merger is based on hard science, we're

CREATING SPECIAL EFFECTS.

Changing the big picture of the pharma industry, the merger of industry leaders Monsanto and Pharmacia & Upjohn has resulted in the formation of a new first-tier organization known as Pharmacia Corporation. Uniting the ambitions and talents of 60,000 professionals under our $17 billion company with an R&D pipeline of exceptional strength and depth allows us to have a positive effect upon countless lives. With breakthrough drugs including Detrol® for overactive bladder control and Celebrex® to treat arthritis, we feel that our work is truly special. Discover the unique effect your skills can have by joining our team.

SKOKIE, IL OPENING:

Senior Inflammation Biologist, Ph.D.

We are seeking a uniquely qualified Senior Inflammation Biologist to assist our drug discovery and new target identification efforts. The selected candidate will design, oversee and participate in the evaluation of novel compounds and mechanisms in models of arthritis and other inflammatory diseases. A Ph.D. plus at least 3 years of postdoctoral experience in the in vitro and/or in vivo assessment of inflammatory processes and mechanisms are required. We need an aggressive, independent and creative thinker with the skills and drive to champion novel projects in a multidisciplinary team environment. Experience in molecular and cellular assays as well as a strong record of innovative research, as evidenced by publications in leading journals, is critical.

To apply for this position in our Skokie facility, submit your resume to: monsanto@aon-hros.com indicating Job # 00-0771 in the subject header.

CHESTERFIELD, MO OPENING:

Protein Biochemistry/Impurity Analysis

Working in a team-based environment, you will isolate/characterize impurities to identify & evaluate safety/bioactivity; develop protocols for quantization of impurity levels; and determine the ability of orthogonal analytical methods to resolve impurities. Requirements include an MS or Ph.D. w/considerable experience in HPLC isolation of minute levels of impurities and protein handling/concentration methodologies and 3-5 years of industry experience. Knowledge of mass spectrometry and electrophoretic methodologies, PC proficiency, and strong time/project management and communication skills are essential.

To apply for this position in our Chesterfield, MO facility, submit your resume to: Pharmacia Corporation, 700 Chesterfield Pkwy North, BB4D, Chesterfield, MO 63198. FAX: 636-737-6419. Please indicate Job # 00-1672.

KALAMAZOO, MI OPENINGS:

Ph.D. Macromolecular Crystallography Scientist • Position #900913

As a Research Scientist, you will conduct research on the structural biology of novel pharmaceutical targets to expand an existing structure-aided drug design effort. In collaboration with crystallographers, medicinal chemists and other program team members, you will crystallize proteins and solve/interpret structures to support drug discovery. Joining an established, well-equipped crystallography group, you must have a Ph.D. in Chemistry, Biochemistry or related field with extensive research laboratory experience and a strong record of success in crystallographic structure determination. Experience with molecular biology, protein chemistry or crystallization that complements existing crystallography group expertise highly desirable. You will collaborate with a diverse assembly of protein chemists, molecular biologists and synthetic chemists on drug discovery program teams, and must have strong communication skills and command the respect of your peers.

BS/MS Crystallization Associate • Position #900087

Working as a member of the macromolecular crystallography laboratory, your responsibilities will include the preparation of biological macromolecules and ligand complexes for crystallization experiments. Requires the ability to set up and analyze a variety of macromolecular crystallization experiments, to collect single crystal data, and to process the data for structure determination with minimal supervision. You will analyze protein samples for purity by SDS-PAGE, isoelectro-focusing, gel filtration chromatography, ion exchange chromatography and dynamic light scattering. Position requires the direct interaction with crystallographers and other researchers, including protein suppliers. You will be expected to work with the supervisory scientist to expand the existing repertoire of crystallization methodology, to assist in the development of alternative crystallization strategies for specific macromolecule targets, and to communicate the results of biochemical analysis and crystallization efforts to other researchers. A BS/MS in Biochemistry and experience in routine biochemical and biophysical techniques including dynamic light scattering; preparation of protein/nucleic acid–protein/ligand complexes and membrane protein crystallization required. Synchrotron data collection experience desired.

Ph.D. Integrative Neuroscientist • Position #900026

You will develop an innovative preclinical drug discovery research program focused at treatment of neurological and psychiatric diseases. Requires a strong background in integrative neurobiology and molecular neuroscience in order to build a successful discovery research strategy that is based on CNS targets identified by genomic platforms. The ideal candidate will have an in-depth knowledge of the pathophysiology and pharmacotherapy of CNS diseases. In addition, a proven track record of designing/implementing a multidisciplinary research program aimed at probing the functions of neural systems associated with pathophysiology is desired. Qualified applicants will work in a multidisciplinary team environment that utilizes cutting-edge science and technology to develop novel therapeutic agents for schizophrenia, major depressive disorder, anxiety disorders and migraine. Applicants will have a Ph.D. in Neuroscience or a related discipline and a minimum of 3 years relevant postdoctoral experience. Our CNS Discovery Program Teams offer an exciting and challenging research environment and provide opportunities to incorporate innovative research paradigms within individual laboratories.

BS/MS Cell Biologist • Position #900959

Requires a BS or MS degree in Biology or a Neuroscience-related discipline w/2-3 years of relevant laboratory experience and a demonstrated working familiarity with basic cell biological techniques: immunoassays, protein separation and detection, cell culture required. Experience with basic molecular biology techniques such as plasmid construction, cell transfection, protein expression and PCR is a plus. Position involves an analysis of intracellular structural rearrangements involved in neurodegenerative processes.

BS/MS Research Associate, Genomics Research Unit • Position #900937

As a member of a multidisciplinary team with a focus on efficacious therapeutic agents related to CNS function, the Biology/Biochemistry Associate will use functional genomics to identify and characterize novel genes. Expertise in molecular biology required, prior exp. w/bioinformatics, genotyping, gene/protein expression profiling and analysis, and high throughput/robotic operations desirable; proficiency in phage display, cloning, PCR, and the development & application of quantitative and qualitative analyses helpful. In addition to the ability to communicate effectively and to work productively in a team setting, candidates should be reliable, creative, self-motivated, and have high work standards.

Bioinformatics Scientist • Position #900415

Experience in genomics database development, database interface programming and genomic data analysis to support our functional genomics efforts required. Responsibilities include the implementation and further development of a comprehensive, multi-site Oracle-based bioinformatics relational database system, and enhancement of novice-user, expert-user, and batch-oriented programs to interface with the database system. Additional responsibilities include interfacing microarray, proteomics and pharmacogenomics data with sequence and genomic information. Requires an advanced degree in life sciences and/or computer science with a successful track record in scientific programming and 3+ years exp. with Oracle relational database development on UNIX systems. Strong programming skills in SQL, Perl, and UNIX as well as working knowledge of bioinformatics tools are essential.

To apply for one of these Kalamazoo, MI openings, you may do so online at www.pharmacia.com or send your resumes, indicating appropriate Position #, to: Pharmacia Corporation, 7000 Portage Rd., 5003-024-001, Attn: Human Resources, Kalamazoo, MI 49001.

Pharmacia can improve your future, with outstanding compensation, excellent benefits and the realization that you've reached the height of the industry. An equal opportunity employer, we value a diverse combination of ideas, perspectives, and cultures.

PHARMACIA

Robert W. Franz Cancer Research Center
Making a Difference *in Oregon*

Providence Health System is the second largest private employer in Oregon, named among the country's 100 Best Hospitals, and recognized as a quality leader in both health care and in the work environment. We offer the most advanced technology, competitive salaries and a generous flexible benefits program.

The Robert W. Franz Cancer Research Center needs to fill several positions to support recent growth and new federal grant funding. The Center's focus is on the immunology of melanoma, renal cell, prostate and breast cancer. The goal of our research is to translate promising laboratory findings into new therapies for patients with cancer, with an emphasis on vaccine development.

Post-doctoral (Human Tumor Immunology)

A Post-doctoral position is available immediately to study T cell-mediated immune responses in prostate cancer patients. Studies will employ novel paired prostate tumor and prostate normal cell lines derived from patients with advanced prostate cancer to generate tumor-specific CD8+ and CD4+ T cells, study anti-cancer T cell responses to tumor antigens and support ongoing efforts to develop vaccines for prostate cancer. Candidates with a strong background in human T cell biology (culture and assay techniques), and experience with basic molecular biology methods are encouraged to apply.

Post-doctoral (Differential Gene Expression)

A Post-doctoral position is available immediately to study differential gene expression in human prostate cancer toward the identification of antigens for the development of anti-cancer vaccines. Studies will employ novel paired prostate tumor and normal cell lines derived from patients with advanced prostate cancer to identify and characterize differentially expressed genes in human prostate tumor cells. Candidates with a strong background in molecular biology with emphasis on methods of analyzing differential gene expression (e.g. DD-RT-PCR, SAGE, cDNA subtraction library generation) and experience with quantitative PCR are encouraged to apply.

Visit our website at: **www.franzcancer.org**

Please send a CV with cover letter describing research interests and experience, and three references to: **Dr. Robert Bright, Chief, Prostate Cancer Biology, Robert W. Franz Cancer Research Center, Earle A. Chiles Research Institute, Suite 5F60, 4805 NE Glisan St., Portland, OR 97213**; fax: **(503) 215-6841**; e-mail: **rbright@providence.org**; or phone: **(503) 215-5842**. We are an Affirmative Action Employer in a Culturally Diverse Workplace.

100 BEST COMPANIES TO WORK FOR IN OREGON

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University of Minnesota

DEAN

School of Public Health

The University of Minnesota is searching for a dynamic leader to serve as Dean of the School of Public Health. The successful candidate will be an articulate spokesperson for students, faculty and staff; an effective advocate for public health research and related policy issues; able to manage a complex organization and build collaborative partnerships that promote service, educational and research activities at the local, regional and national levels. The successful candidate will create a climate that inspires students, staff and faculty to excellence, will thrive as a leader in a structure of shared governance, will promote visibility of the School of Public Health and will lead with vision, passion, integrity and compassion.

The Dean is the chief academic and administrative officer of the School of Public Health, reports to the Senior Vice President for Health Sciences of the Academic Health Center and works collaboratively with deans and administrators of the six other schools and colleges in the Academic Health Center. The candidate must have an earned academic or professional doctorate degree, substantial administrative and leadership success, a record of outstanding impact on public health through a combination of education, research and practice, and a sustained record of outreach and service.

To find additional information about this position and the School, please see our website at **www.sph.umn.edu.**

Applications should be mailed to:

University of Minnesota

School of Public Health Dean Search c/o Ms. Mary Tydings, Russell Reynolds Associates
1700 Pennsylvania Avenue, N.W., Suite 850, Washington, D.C. 20006-4709

Please include a letter outlining interest and relevant experience, a curriculum vitae, and the name, postal and email address and telephone number of five references. Applications received by July 3, 2000 will be ensured consideration. However, the search will continue until the position is filled.

UNIVERSITY OF MINNESOTA

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LARGE SCALE BIOLOGY

Large Scale Biology Corporation (LSB™) provides protein-focused technologies and bioinformatics to enable the accelerated identification, development, and production of new and improved products for the life sciences industry. We are located in N. California near the San Francisco Bay Area. We are currently seeking qualified candidates for the following positions:

Scientific Programmer

Responsibilities include automation of gene discovery pipelines, functional analysis, SNP discovery and data mining tools. Requires a BS/MS, Ph.D. or equivalent in biological, physical or computer science. Excellent working knowledge of UNIX, PERL/C/C++, and relational database programming. Familiarity with current algorithms in bioinformatics and with public domain sequence analysis tools is a plus. Jobcode: SC-SPRO

Senior Software Engineer

Responsible for developing web applications, network programming and web connectivity to relational databases. Requires a BS in computer science or equivalent, with 3-5 years of experience in UNIX, C/C++, PERL, Java Script, and Apache. Jobcode: SC-SENG

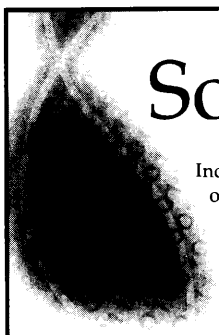
Bioinformatics Scientist

Individual will be responsible for data processing and method development necessary for sequence analysis and data mining. Requires MS or Ph.D. or equivalent in biological, physical or computer science. Experience with one or more of the following is required: PERL, C/C++, UNIX, shell script. Jobcode: SC-BSCI

Desktop Support

Responsibilities include hardware and software technical support of PC (Windows 9x/NT) and Macintosh (Mac0S7/8/9) computer systems on a 10/100 / Ethernet network. The successful candidate must be familiar with general networking concepts such as workstation configuration, network printing, TCP/IP and Internet connectivity. A+ or MCP certification a plus. Jobcode: SC-DSUP

Candidates may send resumes to: **Large Scale Biology Corporation, 3333 Vaca Valley Parkway, Ste. 1000, Vacaville, CA 95688**, e-mail: careers@lsbc.com or fax (707) 455-1648. Please include the jobcode of interest. No phone calls please. Only those under consideration will be contacted.



Solutions for Genomic Research

Incyte Genomics is a leading provider of an integrated platform of genomic technologies designed to aid in the understanding of the molecular basis of disease. Our platform includes database products, genomic data management software, microarray-based gene expression services, and related reagents and services — information management tools critical to the pharmaceutical and biotechnology industries for drug discovery and development. The employees of Incyte provide the tremendous energy, talent and expertise that will help us revolutionize the world of healthcare. We're looking for individuals who share our vision and want to play a role in defining a new industry as we build our global organization. All of the positions below except the VP/Sr. Director, Operations are located at one of our San Francisco Bay Area offices in Palo Alto and Fremont.

VP/Sr. Director, Operations

For our St. Louis operations, we seek a scientific professional to oversee genomics reagent and service businesses, responsible for gene-related services and products in cDNA/Genomic Screening, clone distribution/inventory, genomic automation, custom sequencing, gene expression, and transgenics. Requires a PhD or equivalent, and experience in industrial genomics operations in molecular biology, functional genomics, transgenics, and bioinformatics. Technical expertise with cDNA screening, cloning, PCR, gene expression, bioinformatics and/or transgenics preferred. Ability to manage numerous employees and industry experience essential. FOR THIS POSITION ONLY, fax resume to 314/506-6429, ref. Job #DSM011.

Bioinformatics Scientist, Database Discovery

Responsible for capturing a comprehensive view of secreted molecules at the bioinformatics level, which involves datamining for novel receptors, ion channels, and secreted enzymes; curating structural motifs and expression data; and coordinating with bench and bioinformatics scientists to close a sequence family. Requires a PhD with expertise in secreted biology, experience in sequence search tools, and computer literacy (UNIX). Perl programming experience is desired. REF: SD4180JY1500, SD4181JY1500

Bioinformatics Scientist, Computational Biology

Participate in design, implementation and benchmarking of novel algorithms for problems in computational biology, such as fast homology search tools, improved gene-finding algorithms, and genomic-to-genomic sequence comparisons. Requires MS or PhD or equivalent in Computer Science, Bioinformatics, or Math; strong analytical and computational skills; and substantial programming experience with C/C++. Experience with Perl, Tcl/Tk and Java is desirable. Familiarity with current algorithms in computational biology and public domain sequence analysis tools and biological sequence databases a plus. REF: SD4015EG1500

Therapeutic Area Directors

These key Directors will lead development of a leading-edge expression database, utilizing RNA microarray and proteomics technologies, in therapeutic research involving Cardiovascular diseases. Candidates will have a PhD and postdoctoral training in a biological science with 7-10 years experience and a record of research in CV diseases. You should be able to adapt to a market-driven approach to basic research and work with Business Development to build a network of internal and external collaborative relationships. Industrial experience with a commercial science perspective desirable. REF:SDTADSS

Scientist/Sr. Scientist

Perform scientific validation of user interface functionality of new dataflow processes. Requires MS plus 4 years experience in Biology or related; or PhD in Biology or related. Must be familiar with bioinformatic tools and proficient in UNIX. Perl or SQL is desirable. REF: TY4118MB, TY4117MB

Scientist/Sr. Scientist

Provide scientific leadership to edit full-length genes using all available sequence data. Requires a PhD or equivalent in Biology or related field or MS with 4 years of related experience, proficiency in UNIX, and experience with bioinformatics and sequence analysis tools. Knowledge of Perl or SQL desired. REF: TY4132MG, TY4133MG

Scientific Programmer

Support the scale-up of contract sequencing deliverable by optimizing search algorithms for identifying high value sequences. Requires a BSCS/MSCS or equivalent with working knowledge of UNIX, Perl and C/C++ programming. Experience with sequence analysis programs, including gene finding and motif analysis tools, as well as molecular biology knowledge are a must. A degree in Molecular Biology or equivalent is a plus. REF: TY3724JS, TY4148JS, TY4158JS, TY4159JS

Scientific Programmer

Automate and optimize complex programs in a production environment. Requires a BSCS/MSCS or equivalent, with excellent knowledge of UNIX, Perl/C/C++ and Oracle Pro*C programming. Experience with sequence analysis programs (gene finding and bioinformatic analysis tools) desired. REF: TY3880AJ

Scientific Programmer

Responsible for scientific programming and software development to support DNA sequence dataflow. Interact with dataflow and product science groups and others in bioinformatics to identify dataflow steps that can be automated or otherwise optimized; design and implement software to accomplish improvements; and maintain and improve existing software. Requires a BS or equivalent in Computer or Biological Science, strong programming, Perl, and C++. 2+ years work or graduate-level experience utilizing these skills, knowledge of molecular biology and bioinformatics, database experience (Oracle, SQL, Perl, DBI/DBD), and web HTML/CGI/Java required. REF: TY4189SP

Bioinformatics Associate/Sr. Bioinformatics Associate

Requires a Bachelor's degree or equivalent in Molecular Biology or related field with 1-2 years related experience or MSc with no experience. Good computer skills with either PC or Mac. Basic UNIX skills and familiarity with sequence analysis tools (BLAST) are required. Familiarity with Perl or SQL and good communications are highly desirable. REF: TY4141CP, TY4208CP

Business Development Director

Build a strong pipeline of new business and qualified leads with strategic alliances, OEMs and technology. Requires 7+ years of business development experience in IT or healthcare/life science; strong research, business and planning skills; excellent negotiation and presentation skills; and ability to travel. MBA or other advanced degree and in-depth understanding of pharmaceutical, healthcare or life science industry desired. REF: 4218

Product Marketing Manager

Guide a product from conception to shipment and throughout its life cycle in the marketplace. Advanced degree in the Life Sciences or equivalent required, along with superior marketing vision and exceptional presentation and communication skills. MBA and 5+ years product marketing experience with technical, biotech or pharmaceutical products desired. REF: 4157

Sr. Director of Client Business

Sales and account management for 3-6 large pharmaceutical clients, orchestrating client-related activities, managing relationships, and leading multidisciplinary teams to close new opportunities. Responsible for developing new clients in a territory. Requires a BA/BS or equivalent in Business, a Life Science, Bioinformatics or Engineering (MBA and advanced Life Science degree preferred); 12+ years large account sales experience; 5+ years complex sales experience; leadership and management experience; a track record of performance; broad knowledge of customer service and support; basic business and finance knowledge; and exceptional presentation and communication skills. REF: 2871

Sr. Market Research Manager

Develop market research focusing on our Genomics and Expression businesses. Requires 7+ years experience in increasingly senior research roles and a track record in market research in technology. Familiarity with biotech and healthcare markets desirable. REF: 4068

www.incyte.com

You'll find we offer competitive salaries, an outstanding benefits package and significant opportunities for professional growth. Please reply with your resume to: Incyte Genomics, Inc., 3174 Porter Dr., REF: _____, Palo Alto, CA 94304, fax 650/845-4176, email employ@incyte.com. Incyte Genomics is proud to be an EOE, and recognizes the talent of its diverse workforce.

IncyteGenomics

United States Food and Drug Administration, Center for Veterinary Medicine (CVM), Office of New Animal Drug Evaluation (ONADE), Rockville, MD is seeking candidates to fill three senior level positions: Deputy Director, ONADE; Deputy Director for Science Policy; and Senior Advisor for Risk Assessment.

CVM, ONADE evaluates new animal drugs for safety and effectiveness and, on the basis of such evaluation, approves or refuses to approve the use of a new animal drug for proposed intended uses and conditions of use. These positions may be filled in the fields of Biology, Microbiology, Pharmacology, Chemistry, Toxicology, or Animal Scientist. The salary range is $84,638 - $110,028 for GS-15, $80,658 - $151,800 for SBRS. All vacancies close on July 21, 2000.

The Deputy Director, ONADE serves as the technical expert and advisor in management and administration and in efficient use of resources; advises the Director in the planning and execution of the budget and in the setting of performance goals; participates in planning, managing, organizing, and directing the regulatory review operations. Status candidates apply to FDA-0-4022 for Interdisciplinary Scientist and FDA-0-4025 for Veterinary Medical Officer. Non-status candidates apply to FDA-0-0132 for Interdisciplinary Scientist and FDA-0-0131 for Veterinary Medical Officer.

The Deputy Director for Science Policy, for ONADE is responsible for developing scientific policy with respect to the new animal drug approval process; coordinating, evaluating, and improving the Agency policy on new animal drugs with respect to human food safety and target animal safety and effectiveness standards. Provides authoritative advice and information on scientific evaluation of new animal drugs. Status candidates apply to FDA-0-4023 Interdisciplinary Scientist and FDA-0-4024 for Veterinary Medical Officer. Non-status candidates apply to FDA-0-0134 for Interdisciplinary Scientist and FDA-0-0133 for Veterinary Medical Officer. This position is also open through the Senior Biomedical Research Service (SBRS), vacancy #FDA-00-2-RS, and requires a doctoral degree.

The Senior Advisor for Risk Assessment, ONADE serves as the Center's Strategic Manager for Risk Assessment Policy. Provides leadership in the development and coordination of risk assessment policy involving the implementation of broad scale risk-based initiatives, including antimicrobial resistance and other potential health hazard issues. Serves as Project Manager for Risk Assessment policy, and leads and coordinates efforts to implement the Center's strategic initiative for a Risk-based Food Safety Program. Develops risk assessment models and initiates and directs studies to collect risk assessment data. Status candidates apply to FDA-04019-Veterinary Medical Officer, FDA-04018,Interdisciplinary Scientist, FDA-04017-Mathematical Statistician. Non-status candidates apply to FDA-0-0112 Veterinary Medical Officer, FDA-0-0111-Interdisciplinary Scientist, FDA-0-0118-Mathematical Statistician.

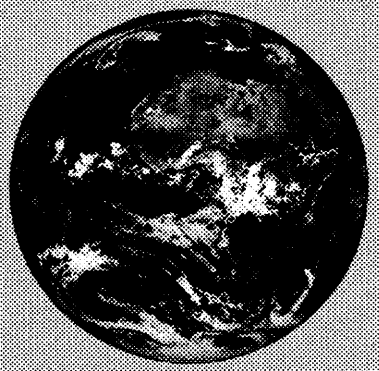
Graduates of foreign colleges/universities must provide proof of U.S. education equivalency certification. U.S. Citizenship required. All positions are permanent Career or Career-Conditional Appointments and open to All Sources, i.e., status and non-status candidates.

To receive a faxed copy of any of these announcements, call FAXBACK at (301) 827-4287. For further information on General Schedule positions, contact Sharon Chartos at (301) 827-1593; for Senior Biomedical Research Service positions, please contact John Anderson at (301) 827-4179. All vacancy announcements can be viewed on the Internet at http://www.usajobs.opm.gov/a9.htm.

FDA is an equal opportunity employer and has a smoke free environment.

Science for the Real World

Where on Earth will Science take You?



Biochemistry

Hair Care

Unilever is a leading consumer products company with world sales exceeding $40 billion. Our Hair Care team supports our global business with a dominant position in much of Asia and Latin America, as well as a leading position in the United States behind such brands as Therma Silk, Finesse and Suave. Unilever's US laboratory employs over 300 scientists at our Edgewater, New Jersey location on the Hudson River, within 20 minutes of midtown Manhattan's diverse entertainment, arts and cultural resources.

Our success is built on innovation through collaborative scientific research and product development efforts, resulting in a consistent record of technological excellence. To support our continued success and growth, Unilever Research, US now offers new opportunities in the exciting world of Hair Science and Technology for high calibre individuals with expertise in the following areas:

Biochemistry

The successful candidates will expand our expertise base in Hair Coloring Science targeted to developing innovative hair care products addressing the needs of the consumers. The job responsibilities involve understanding the relationship between consumer perceived changes in hair with its molecular and material properties and developing ways to modulate them.

• Protein Biochemist

To qualify, you must have a PhD or equivalent in Biochemistry, Bio-organic Chemistry, or a related discipline with research experience in one or more of the following areas: Protein Chemistry, Protein damage mechanisms, Biochemical oxidative processes. You should have hands-on experience in, but not necessarily limited to, amino acid analysis, protein assays, 2-dimensional electrophoresis, and HPLC. Prior research experience in structure-function relationships in complex biological systems is important.

• Lipid Biochemist

To qualify, you must have a PhD or equivalent in Biochemistry, Bio-organic Chemistry or a related discipline with research concentration in lipid biochemistry and/or lipid oxidative processes. You should have hands-on experience in, but not necessarily limited to, analytical methods including TLC, GC, and HPLC. Additional experience in physical characterization of lipid structures or lipid/protein interactions is desirable.

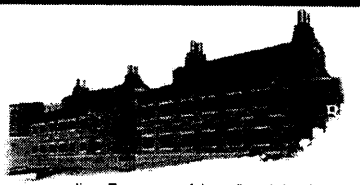
Unilever employees are totally committed to exceptional standards of performance, working together effectively with a willingness to embrace new ideas and learn continuously. We encourage our people to broaden their perspective and think beyond conventional scientific boundaries. We offer a competitive salary, flexible benefits and excellent opportunities for both personal and professional growth. If you would like to be a part of this dynamic team-based environment, we invite you to respond. For consideration please use position code BCS as the subject in your e-mail response or in the address on your envelope. Forward your resume to: Human Resources Dept., Unilever Research US, 45 River Road, Edgewater, NJ 07020 or E-Mail: job.mca@unilever.com We appreciate your interest in our company and will contact applicants who most closely meet our immediate requirements. Applicants must be authorized to work in the U.S.A. Unilever is an Equal Opportunity Employer m/f/d/v.

Unilever

Unilever Research

For more information about Unilever Research and Unilever visit our Internet Web Site at http://www.unilever.com

The Jackson Laboratory



The Jackson Laboratory is an independent, not-for-profit mammalian genetics research institution, a major resource for the research community and a center for training in mammalian genetics. Designated a Basic Cancer Center by the National Cancer Institute, the Laboratory offers its more than 30 principal investigators the opportunity to conduct basic research in an interactive environment with excellent collaborative opportunities, unparalleled mouse and genetic resources, and an outstanding shared scientific services program.

STAFF SCIENTISTS

The Jackson Laboratory is currently recruiting faculty members in Computational Biology and Cancer-genetics. The successful applicant should have a Ph.D., M.D., or D.V.M., Postdoctoral Training, a record of research excellence, and be able to initiate a competitive independent research program. **Applicants for Staff positions should cite ad S-06 and send a curriculum vitae, statement of research interests and the names of at least three references to The Director's Office: The Jackson Laboratory, 600 Main Street, Bar Harbor, Maine 04609 or e-mail: rsp@jax.org.**

THE LABORATORY OFFERS:

- **Excellent Collaborative Opportunities** - An interactive staff with ongoing research in Cancer, Developmental Biology and Aging, Genomics, Hematology and Immunology, Metabolic Diseases, Neurobiology and Sensory Deficits, and Bioinformatics/Computational Biology.
- **Unparalleled Mouse and Genetic Resources** - Over 2,000 genetically defined JAX mouse strains are available, DNA Mapping Panel Resource, Cytogenetic Models Resource, Genetic Information Resource, Mouse DNA Resource, Mouse Genome Database, and Gene Expression Information Resource.
- **Outstanding Shared Scientific Services** - Equipped with state-of-the-art technology, staffed by personnel trained in Biological Imaging, Cell Biology, Flow Cytometry, Microchemistry (including DNA sequencing, allele typing, expression profiling and protein services), Transgenic and Targeted Mutant Preparation, Multimedia Services and Research Computing.
- **Major Meeting Center** - The Jackson Laboratory hosts a series of conferences featuring the mouse as a model for human disease, and several courses, most notably, the annual Short Course in Medical and Experimental Mammalian Genetics.
- **Grants Management Support** - Our research is supported largely by Federal grants and/or private funding to individual principal investigators. A highly qualified staff is available to aid in grant preparation and submission.

POSTDOCTORAL TRAINING

The Jackson Laboratory has a coordinated training program that provides broad experience in the skills necessary to fulfill the emerging and growing needs of academic and industrial programs in mammalian genetics and genomics. In addition to carrying on independent research projects and improving their oral and written presentation skills, participants gain wider experience in the principles and practices of mammalian genetics, analysis of complex traits, genomics and positional cloning, bioinformatics, and the essentials of animal husbandry through a series of on-site courses, workshops, seminars, and laboratory programs. **Applicants for Postdoctoral Training positions should cite ad PD-06 and send a curriculum vitae, statement of research interests and the names of at least three references to The Training Office: The Jackson Laboratory, 600 Main Street, Bar Harbor, Maine 04609 or e-mail: sbs@jax.org.**

THE JACKSON LABORATORY is one of the world's foremost centers for mammalian genetics research. Located in Bar Harbor, Maine, the lab is adjacent to Acadia National Park. Mountains, oceans, forest, lakes, and trails are all within walking distance.

The Jackson Laboratory is an EOE/AA Employer

http://www.jax.org

Agriculture

At Monsanto, we share a common goal - to help people lead longer, healthier lives. We are pioneering the use of life-science technologies to understand how the connections between human health, nutrition and agriculture can be used to develop products to improve the quality of life for everyone, everywhere.

Analytical/Protein Biochemist - Renessen

St. Louis, MO Ad Code: 00-2174

Join a multi-disciplinary, team-based research group working on improved animal feed. Successful candidates will leverage state-of-the-art knowledge and tools in their approaches leading to nutritionally improved seeds. Responsibilities will include both discovery and support of product-driven research focusing on analysis of plant metabolites for plant pathway engineering approaches.

We require a MS in biochemistry, chemistry, biology, or related discipline, or BS with 5 years experience. Research experience with assay development or high throughput assay development, small molecule separations on an analytical scale, and HPLC or GC analysis is essential. Experience working with proteins, including expression in heterologous systems, Western blot, enzyme assays, purification and enzyme kinetics is a plus.

Molecular Biochemists - Renessen,

St. Louis, MO Ad Code: 00-1567

You will be part of a multi-disciplinary team involved in the nutritional quality improvement of corn and seeds. Responsibilities may include cloning, analysis of proteins, collection and analysis of tissue from transgenic and non-transgenic plants. In addition, you will become an integral part of a product-oriented team that is working on the cutting edge of plant biotechnology.

We require a BS or MS degree in biology, botany, molecular biology, biochemistry, plant physiology, or a related field, with at least two years of hands-on research experience in an academic or industrial laboratory, hands-on experience in at least some of the following areas: plasmid construction, gene cloning, promoter characterization, Southern, Northern and Western blot analysis, enzyme activity assays, ELISA, HPLC, and transgenic plant analysis. Good organizational skills, computer literacy, and strong self motivation are required.

These positions are located in **St. Louis, MO.** We offer a competitive compensation and benefits package. For fastest consideration, please submit your resume in scannable format to: **Ad Code, (specify from above) Attn: Staffing, 800 N. Lindberg, Mail Zone E3SJ, St. Louis, MO 63167.** EOE/AA Employer. M/F/D/V.

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PROFESSOR OF PEDIATRICS AND CHAIR OF THE DEPARTMENT OF PEDIATRIC ONCOLOGY

AT DANA-FARBER CANCER INSTITUTE, HARVARD MEDICAL SCHOOL

Harvard Medical School, Dana-Farber Cancer Institute and the HMS Department of Pediatrics at Children's Hospital seek a candidate to serve as Chair of the Department of Pediatric Oncology at DFCI. The candidate should have a strong record of research, training accomplishments and a capacity to provide visionary leadership to the program. Interested candidates should send a CV to:

Dr. Stanley J. Korsmeyer
Chair of Search Committee
Dana-Farber Cancer Institute
44 Binney St.
Boston, MA 02115

Dana-Farber Cancer Institute, Children's Hospital and Harvard Medical School are affirmative action/equal opportunity employers. Women and minorities are particularly encouraged to apply.

HARVARD MEDICAL SCHOOL

PEW
Latin American FELLOWS PROGRAM in the BIOMEDICAL S·C·I·E·N·C·E·S

The Pew Latin American Fellows Program in the Biomedical Sciences provides support for young scientists from Latin America for post-doctoral training in the United States.

Ten Fellows will be selected in 2001. An award of $50,000 will be provided as a salary stipend for the fellow during the period of training (2 years) and will be administered by the sponsoring U.S. institution. The sponsoring institution is expected to supplement the stipend with at least $5,000 a year and to provide medical benefits for the fellow. Following the two year fellowship, the Program will issue an additional $35,000 award to the sponsoring institution to purchase equipment and supplies for the fellow to establish a laboratory in his or her home country.

Applicants must have held a Ph.D. and/or M.D. degree, or equivalent, for no more than five years as of July 1, 2001. Applicants may not have had previous post-doctoral training outside of Latin America nor may they already hold a post-doctoral position in the U.S. Applicants are not required to have a commitment of a position and laboratory space after the fellowship. However, applicants must submit a written statement of intent to return to Latin America. Fellows must accept a position and have confirmed laboratory space in Latin America by the end of the fellowship period in order to obtain the $35,000 portion of the award.

Fellows will be selected on the basis of their promise as outstanding investigators, as well as the scientific merit of their research proposal, their record of training and how well their interests coincide with the laboratory of their sponsor in the United States. If potential applicants need assistance with the identification of an appropriate sponsoring laboratory in the United States, they may contact the Program Office before August 1, 2000. The program will accept applications from Mexico, Central and South America. Applications may be obtained from the Regional Committee contact listed here for each country or from our website at **http://futurehealth.ucsf.edu/pewlatin.html**

The application deadline is October 1, 2000. Winners will be notified in April 2001 and the fellowship should begin no later than August 2001.

APPLICATION DEADLINE IS OCTOBER 1, 2000

ARGENTINA
Ana Belen Elgoyhen, Chair
Instituto de Investigaciones en Ingenieria Genetica y Biologia Molecular
Phone: (5411)(4) 783-2871
Fax: (5411)(4) 786-8578
E-mail elgoyhen@dna.uba.ar

BRASIL
Sergio T. Ferreira, Chair
Universidade Federal do Rio de janeiro
Departamento de Bioquimica Medica, ICB/CCS
Phone: (021)270-5988 ext 161; Fax: (021)270-8647
E-mail: ferreira@bioqmed.ufrj.br

CHILE
Manuel Kukuljan, Chair
Programa de Fisiologia y Biofisica
Instituto de Ciencias Biomedicas
Facultad de Medicina
Universidad de Chile
Tel: (56)(2) 678-6310 Fax: (56)(2) 777-6916
email kukuljan@bitmed.med.uchile.cl

MEXICO
Mario Zurita, Chair
Instituto de Biotecnología. UNAM
Mexico.
Phone: (52)(5) 6227659 Fax: (52)(73) 172388
E-mail: marioz@ibt.unam.mx

All Other Countries
Silvia Montano de Jiménez
The Pew Latin American Fellows Program
3333 California Street, Suite 410
San Francisco, CA 94110
Tel: (415) 476-5116 Fax: (415) 476-4113
E--mail: montano@itsa.ucsf.edu

Postdoctoral Position

Unique Postdoctoral opportunity at Boston University School of Medicine (BUSM), Department of Biochemistry. Immediate opening for recent Ph.D. in the biomedical sciences interested in teaching an innovative biotechnology curriculum to pre-college students from grades 7-12 and helping implement community based adult programs related to our medical school outreach efforts. Experience is not required but applicants must be willing to learn and participate in developing new and unusual approaches to teaching K-12 bioscience. Applicants who complete the program will have acquired excellent teaching and communication skills and be capable of designing new teaching tools for a variety of biomedical applications. They will be well qualified for industrial teaching positions related to employee and/or customer training as well as academic teaching positions at the college and pre-college level. A minimum 2-year commitment is required.

You can e-mail your application or inquiries to **franzbla@bu.edu** or mail your application to:

Dr. C. Franzblau
Department of Biochemistry
Boston University School of Medicine
715 Albany Street
Boston, MA 02118

Research Technician

Howard Hughes Medical Institute seeks a **Research Technician** to work in its laboratory of Molecular Neurobiology and Biophysics at the **Rockefeller University** in **New York.** The main focus of the laboratory is studying the structure/function of ion channel proteins using biochemical methods/x-ray crystallography.

Experience with protein expression in bacteria/cell culture, centrifugation, and column chromatography is required. Knowledge of protein expression, purification and crystallization is desirable. A Master's degree in Biological/Chemical Science is preferred, but will consider a BS/BA with extensive experience.

Please send a letter of application, names and addresses of 3 references, and a current CV to: **Dr. Roderick MacKinnon, HHMI, Laboratory of Molecular Neurobiology and Biophysics, The Rockefeller University, 1230 York Avenue, New York, NY 10021, Fax: (212) 327-7289, or E-mail: chinwe@rockvax.rockefeller.edu**

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St. Jude Children's Research Hospital
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POSTDOCTORAL RESEARCH ASSOCIATE

A newly funded position is available to examine the developmental regulation of hematopoiesis. Current projects include the molecular characterization of two novel families of transcription factors utilizing gene disruption, transgenesis and protein biochemical approaches. The position is ideal for a Ph.D. or M.D. with laboratory experience, who would like to pursue training in developmental biology.

Qualified applicants should submit their curriculum vitae, and names of three references to:

John Cunningham, M.D.
Division of
Experimental Hematology
St. Jude Children's
Research Hospital
332 N. Lauderdale Street
Memphis, TN 38105
eo/aae

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KENILWORTH

Manager, Scientific Systems – Discovery (XHXRI2008)

Responsible for developing strategy to meet Discovery Research's needs for information systems. Requires MS/Ph.D. level scientific track record in the life sciences or physical sciences or equivalent experience and 10 years development and support of scientific software systems. Supervisory and project leadership experience a must.
Job Code: XHXRI2008

Scientific Systems Project Manager – Drug Safety and Toxicology (XHXRI9913)

Requires MS/Ph.D. in Life Science and experience in project leadership/supervision for the development, maintenance and support of vendor and proprietary research software for complex scientific systems. Experience in software validation and information systems regulatory compliance a must. **Job Code: XHXRI9913**

Senior Scientific Systems Analyst – Structural Chemistry (XHXRI9938)

Responsible for development, maintenance and support of vendor and proprietary research software for computer aided drug design, protein NMR and protein crystallography. Requires MS/Ph.D. in Chemistry and experience in development, maintenance and support of computational chemistry software. **Job Code: XHXRI9938**

Senior Scientific Systems Analyst – Bioinformatics (XHXRI2016B)

Responsible for development, maintenance and support of vendor and proprietary research software for bioinformatics. Requires MS/Ph.D. in Life Science and experience in development, maintenance and support of computational biology software. **Job Code: XHXRI2016B**

Senior Scientific Systems Analyst – Drug Metabolism (XHXRI2016A)

Responsible for development, maintenance and support of vendor and proprietary research software to provide lab automation and data analysis for Drug Metabolism and Pharmacokinetics research. Requires MS/Ph.D. in Life Science and experience in development, maintenance, support of scientific and lab automation software. Experience in information systems regulatory compliance a must.
Job Code: XHXRI2016A

Senior Scientific Systems Analyst – Discovery Research (XHXRI2016D)

Responsible for development, maintenance and support of vendor and proprietary research software for lab automation and data analysis in support of a variety of pharmaceutical discovery research and technology programs. Requires MS/Ph.D. in Life Science and experience in development, maintenance, support of scientific and lab automation software. **Job Code: XHXRI2016D**

Senior Scientific Systems Analyst – Discovery Informatics (XHXRI2016C)

Responsible for development, maintenance and support of vendor and proprietary research software for lab automation and information management in support of pharmaceutical discovery research. Requires MS/Ph.D. in Life Science and experience in development, maintenance, support of scientific and lab automation software. **Job Code: XHXRI2016C**

LAFAYETTE

Section Leader/Associate Director – Preclinical Bioanalytical Drug Safety (XHXDD9160)

Provide overall direction to and daily supervision of the activities of the Drug Safety Evaluation Center's Bioanalytical Support Staff. Will also be responsible for providing timely support to all preclinical safety studies, including analytical methods development/validation, sample analysis, and issuance of bioanalytical reports. Requires Ph.D. in a directly related scientific field and a minimum of 7 years related experience. Strong analytical background with extensive LC/MS experience (5+ years in methods development) in a GLP environment; laboratory management experience; multi-tasking skills and familiarity with LIMS and data acquisition systems are needed. **Job Code: XHXDD9160**

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Postdoctoral Research Scientists Needed to Advance the Frontiers of Biomedical Research

The Biology and Biotechnology Research Program at Lawrence Livermore National Laboratory (LLNL) has two exciting opportunities for postdoctoral researchers.

The first position will conduct research into the biomedical applications of accelerator mass spectrometry (AMS). The successful candidate will work on exploring the use of AMS in the analysis of DNA damage. This is an opportunity to play a role in the development and application of a new technology and a chance to work with a large international group of collaborators in a very interdisciplinary environment. The position requires a recent PhD in chemistry, biochemistry, toxicology/pharmacology or related area. Experience in mass spectrometry or DNA adduct analysis is desirable. Reply to **turteltaub2@llnl.gov**.

The second position will be responsible for examining the function of a novel DNA repair protein. The successful candidate will define protein partners and examine the role of the protein within the recombinational repair pathway and breast carcinogenesis. The position requires a recent PhD in biochemistry, molecular or cellular biology. A strong background in protein biochemistry, recombinant protein expression, and immunocytochemistry is required. Knowledge in the fields of DNA repair and/or cancer biology is advantageous. Reply to **albala1@llnl.gov**.

For either position, reference Department **AJSC690BS**. LLNL offers a challenging environment and a competitive salary/benefits package. Located in the scenic Livermore Valley, we are within easy driving distance to San Jose, San Francisco, and the surrounding Bay Area communities. LLNL is an equal opportunity employer with a commitment to work force diversity.

University of California
Lawrence Livermore National Laboratory

www.llnl.gov.jobs

The Jackson Laboratory

The Jackson Laboratory is one of the world's foremost centers for mammalian genetics research. Located in Bar Harbor, Maine, the lab is adjacent to Acadia National Park. Mountains, oceans, forests, lakes, and trails are all within walking distance. If you're looking for a more natural environment, this could be the opportunity you've been searching for.

Technical Information Scientists

There are professional positions available in the expanding Technical Information Services program in Jax Research Systems (JRS) at the Jackson Laboratory. This group provides technical information related to JAX MICE and services to the scientific community. Responsibilities include responding to scientific inquiries by phone and email; technical writing; attending scientific meetings as a representative of the Jackson Lab; presenting seminars; and database design, implementation and curation.

The positions require a Ph.D. or M.S. with appropriate experience, and excellent written and verbal communication skills. A working knowledge of laboratory mice and familiarity with on-line databases is essential. Research experience in mouse models of cancer or immunology is preferred.

Applicants please contact Human Resources,
The Jackson Laboratory, 600 Main Street, Bar Harbor, Maine 04609.
Phone: (207) 288-6103, **Fax:** (207) 288-6106
or **Email:** jobs@jax.org.

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http://www.jax.org

UNIVERSITY OF MICHIGAN COMPREHENSIVE CANCER CENTER & DEPARTMENT OF DERMATOLOGY

TENURE-TRACK FACULTY POSITION
MELANOMA RESEARCH PROGRAM

A new tenure-track faculty position is being created by the University of Michigan Comprehensive Cancer Center and Department of Dermatology. Applicants should possess an MD, PhD, or MD/PhD, and have a strong interest in developing a comprehensive basic research program focusing on malignant melanoma. We are seeking a highly-interactive individual who will interface with scientists in our outstanding clinical, translational, and genetics melanoma research programs. Abundant clinical material representing multiple stages in melanoma progression will be available; individuals interested in incorporating genomic and proteomic analysis in their research programs are especially encouraged to apply. The successful applicant will be a vital member of the Comprehensive Cancer Center's Cutaneous Oncology Program, which is partially supported by an NCI Core Grant. Applicants should send a CV, one-page summary of research interests, and three letters of reference to:

John J. Voorhees, M.D., Professor and Chairman
Univ. of Michigan Department of Dermatology
1910 Taubman Center, Ann Arbor, MI 48109-0314

We encourage applications from candidates who will enrich and contribute to the cultural diversity of our University community.

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M.L. CHER prostate cancer & bone metastasis	**F. SARKAR** molecular biology of solid tumors
R. FRIDMAN metalloproteinases & tumor metastasis	**L. SCHUGER** smooth muscle myogenesis
H.R. KIM growth factor signaling & apoptosis	**S. SHENG** tumor suppressor genes & tumor invasion
T.H. KUO mechanisms of cell death	**J.R. TURNER** tight junction regulation and wound healing
A. RAZ mechanisms of cancer metastasis	**R. VANDERHEIDE** cell injury & adaptation cardiac pathology

Please contact investigators at: **Dept. of Pathology, 540 E. Canfield, Detroit, MI 48201**
www.med.wayne.edu/Pathology/pathresearchers.html

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Tenure-Track Investigator
Interventional Magnetic Resonance Program
National Heart, Lung and Blood Institute (NHLBI)
National Institute of Health (NIH)

The Interventional Magnetic Resonance Program is a new initiative in the Division of Intramural Research, NHLBI. It is anticipated that this program will facilitate the development of MR technology as a clinical tool for interventional procedures. An emphasis will be placed on clinical research and clinical protocols. The program will include collaborations with other investigators interested in applications of MRI, vascular biology and cardiology.

The Interventional Magnetic Resonance Program is located in the Clinical Center (Building 10) on the NIH Campus in Bethesda, Maryland. A state-of the-art MRI scanner will be co-located with a bi-plane fluoroscopy system for the development of novel interventional procedures. Compensation will be commensurate with education and experience. The successful candidate may be eligible for other incentive programs such as the loan repayment program.

All applications should include the following: a current curriculum vitae and bibliography, a one- page summary of research accomplishments and research plans, and the names, addresses, and telephone numbers of five professional references. Completed applications should be sent to:

Ms. Lisa Nadzam, National Heart, Lung and Blood Institute
National Institutes of Health, Building 10, Room 8C103
Bethesda, Maryland 20892

Applications must be received no later than **July 15, 2000**. Requests for additional information may be obtained by contacting Dr. Robert Balaban, the Search Committee chairman, at the above address.

Applications from women, minorities, and persons with disabilities are strongly encouraged. The NHLBI/NIH is a smoke-free workplace.

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Postdoctoral Positions in B-Cell Biology

National Institute of Arthritis and Musculoskeletal and Skin Diseases

Positions are currently available in the Autoimmunity Branch of NIAMS to study functional and molecular aspects of B-Cell biology and autoimmunity. The laboratory utilizes multi-parameter flow cytometry as well as functional and molecular approaches to explore the regulation of B-Cell function. Candidates must have a Ph.D. or M.D. degree with course work/experience in immunology, signaling and/or molecular biology. Competitive salary and loan repayment programs available. Send your complete CV and arrange to have 3 letters of reference sent to:

Dr. Peter E. Lipsky
c/o Scott Sigley, NIAMS, HRMB
Bldg. 31, Room 4C13
31 Center Drive, MSC 2350
Bethesda, MD 20892-2350
or email ss403p@nih.gov

Applications must be postmarked by 07-01-00
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Conferences

SAGE 2000

Frontiers in Gene Expression Analysis

September 18-20, 2000
Baltimore MD, USA

Sponsored by:

genzyme molecular oncology

National Cancer Institute

Scientific Organizers:

Victor Velculescu	Johns Hopkins University, Baltimore MD
Greg Riggins	Duke University, Durham NC
Kathy Klinger	Genzyme Molecular Oncology, Framingham MA
Frank Baas	Academic Medical Center, Amsterdam, NL
Bob Strausberg	National Cancer Institute, Bethesda MD

Meeting Topics:

- Application of SAGE in human and animal disease, plant studies and in elucidation of gene function.
- Advances in SAGE and complementary methodologies
- Advances in bioinformatics for the analysis of gene expression data

Abstracts are invited and should be sent to Dr. Victor Velculescu at velculescu@jhmi.edu

Registration:
Registration fee - $400.00
Postdoc./Student fee - $300.00

Accommodation:
Book direct with hotel, specify SAGE 2000 for preferential room rate.

Hyatt Regency, Baltimore MD
Telephone: (410) 528-1234

Contact:
Mary Lanzillo
Genzyme Molecular Oncology
PO Box 9322
Framingham, MA, USA

Telephone: (508) 271-2627
Fax: (508) 271-2804
Web:
http://www.sagenet.org/SAGE2000

Announcements

KERN ASPEN LIPID CONFERENCE
Given Biomedical Institute: Aspen, Colorado

For registration, please contact Monica Gaya, Conference Coordinator 619-594-5353, mgay@sciences.sdsu.edu

"New Insights into Atherosclerosis: Pathogenesis, diagnosis, and treatment"
Co-Chairs, M. Gimbrone and A. Tall

August 19, 2000 (1:15 P.M.–5:45 P.M.) *Chair, Linda Curtiss*
I. Pathogenesis at the Level of the Vessel Wall/Gene Regulation:
- Endothelial dysfunction in atherogenesis/lessons from high throughput genomics. *Michael Gimbrone*
- Gene expression profiling. *Raju Kucherlapati*
- Regulation of gene expression in endothelial cells and vascular smooth muscle cells. *Tucker Collins*
- SREBPs in lipid metabolism and diabetes. *Jay Horton*

August 20, 2000 (8:30 A.M.–3:30 P.M.) *Chair, Donald Small*
II. Lipoprotein–Vessel Wall Interaction:
- Oxidation theory of atherogenesis. *Jay Heinecke*
- Response to retention of lipoproteins. *Ira Tabas*
- Chemokines and their receptors. *Israel Charo*
- The immune system and atherogenesis. *Andrew Lichtman*

August 21, 2000 (8:30 A.M.–3:30 P.M.) *Chair, John Dietschy*
III. Reverse Cholesterol Transport and Atherosclerosis
- ABC transporters and the cell biology of lipids. *Gerrit Van Meer*
- Nuclear receptor regulation of cholesterol transport and metabolism. *Joyce Repa*
- Mechanisms and regulation of HDL catabolism. *Alan Tall*
- Lipases and HDL. *Dan Rader*

August 22, 2000 (8:00 A.M.–12:30 P.M.) *Chair, Scott Grundy*
IV. Risk Predictors/Genetics
- Atherosclerosis susceptibility genes in the mouse. *Jan Breslow*
- SNPs and coronary heart disease. *Helen Hobbs*
- Genetics of complex diseases: Advantages of special populations. *Leena Peltonen*
- Fine-mapping, founder effects, and mutational analyses for the gene defective in sitosterolemia. *Shailesh Patel*

www.kernconference.sdsu.edu

Workshops

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Apply by February 18, 2001

Proteomics
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Edmonton
Apply by March 13, 2001

Genomics
July 16 - 21, 2001
Fredericton
Apply by April 13, 2001

Developing the Tools
August 27 - September, 2001
Toronto
Apply by June 29, 2001

Co-ordinated by Francis Ouellette (UBC) and Stephen Herst (CGDN)
Visit : www.bioinformatics.ca for more information

Canadian Genetic Diseases Network (CGDN)
NCE Building at UBC,351 – 2125 East Mall,
Vancouver, BC, V6T 1Z4, Canada Tel: 604-822-1386 Fax: 604-822-7945

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NATIONAL CANCER INSTITUTE

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THE NATIONAL CANCER INSTITUTE (NCI) sponsors the Cancer Prevention Fellowship Program (CPFP). Its purpose is to train individuals from a multiplicity of health and biomedical science disciplines in the field of cancer prevention and control.

What will I get out of the program?

- Master of Public Health degree
- NCI Summer Curriculum in Cancer Prevention
- Mentored research at the NCI
- Brief field assignments at other institutions

Research opportunities include chemoprevention, clinical epidemiology, diet, nutrition and other lifestyle-factor studies, evidence-based decisionmaking, intervention studies, outcomes research, special populations, screening and early detection (including genetic and other biomarkers), smoking cessation, social and behavioral research, statistical and epidemiological methodology, and translational research.

Am I eligible?

You must have a doctorate degree (M.D., D.D.S., D.O., Ph.D. or equivalent) from a U.S., territorial or Canadian institution. Foreign medical graduates must have current USMLE or ECFMG certification.

You must also be either a citizen or resident alien of the U.S. eligible for citizenship within 4 years.

How long is the program?

Fellows are accepted for up to 5 years of training beginning in July.

When are applications due?

Applications are due September 1, 2000 for entry into the program July 1, 2001.

How do I apply?

To receive a catalog, contact:*

Douglas L. Weed, M.D., M.P.H., Ph.D.
Director
Cancer Prevention Fellowship Program
National Cancer Institute
Executive Plaza South, Suite T-41
6130 Executive Blvd MSC 7105
Bethesda MD 20892-7105

*Please provide home address and where you heard about the program.

Further inquiries:

Mrs. Barbara Redding
☎ (301) 496-8640
Fax (301) 402-4863
E-mail br24v@nih.gov

Visit our Web site at:
http://dcp.nci.nih.gov/pob

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Fax: 703-934-4201
Email: ccatoggio@srclarke.com

CHIEF OF RESEARCH

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Keith I. Marton, M.D., Chief Medical Officer
Sr. Vice President, Chairman, Search Committee
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Fax (503) 413-5145
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A strong scientific/medical background, a PhD, MD, or PharmD in a scientific/medical discipline, plus a minimum of five years of experience in a related scientific/medical/pharmaceutical area required. A minimum of four years of experience must include medical writing. Demonstrated ability to interpret and present scientific and clinical trial data, and excellent editorial and interpersonal skills essential. Must be independent, creative, innovative and able to juggle a variety of projects. Must also be a self starter and be able to maintain a high level of productivity with minimal supervision. Ability to supervise consultants and motivate individuals. Job Code ASMW0866

SCIENTIFIC EDITOR

You will support the Associate and Assistant Directors by writing and editing scientific articles, poster and slide presentations for national conferences, and other educational materials. You will perform literature searches, track project development, revise publications based on critical review and interface with medical publishers and opinion leaders.

Requires a strong scientific background, a PhD or PharmD in a scientific/medical discipline, plus a minimum of 3 years experience in a related scientific/medical/pharmaceutical area, at least two of which must include medical publishing, or a Master's degree plus a minimum of five years of experience in a related scientific/medical/pharmaceutical area, at least two years in medical publishing or equivalent education and experience required. Requires an excellent ability to interpret scientific and clinical trial data, strong scientific writing ability, editorial skills, and excellent interpersonal skills. Must be independent, creative and able to handle a variety of projects simultaneously. Job Code ASMW0910

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Group Leader/ Senior Group Leader

Preclinical Therapeutics/Oncology

You will participate in/direct drug discovery project teams, a process that involves lead identification/optimization of inhibitors of novel kinases. You will also play a pivotal role in subsequent IND filings and early clinical trial "proof of concept" studies; develop novel, target-directed in vitro and in vivo models (including transgenic and knockout approaches) to determine the mechanism of action of novel, small molecule anti-cancer agents; develop novel in vivo disease (cancer) models; identify surrogate markers (using genomics and proteomics approaches) for evidence of biological activity in preclinical models and successfully translate them into clinical trial use; coordinate with other groups at SUGEN and Pharmacia such as drug discovery, pharmacokinetics/toxicology, research, clinical and regulatory on special projects; manage a group of scientists and research associates; and maintain relationships with other companies and academic collaborators. Candidates must possess 4-6 years of drug discovery/development experience; a strong publishing record; the ability to excel in a deadline-driven environment; and excellent organizational & written/verbal communication skills. Knowledge of external competition is mandatory. FDA filing experience is desired. (Job Code: JC50370-SCI)

Scientist: Surrogate Markers

Preclinical Therapeutics

We are seeking a highly motivated, team-oriented individual to participate in the identification of predictive indicators and surrogate markers of drug efficacy for multiple preclinical and clinical drug development programs, with an emphasis on oncology indications. Multiple molecular strategies are being pursued, utilizing both preclinical models and clinical samples, with a primary emphasis on analysis of clinical samples. Experience or interest in novel methods for analyzing gene and protein expression, such as the use of microarrays or proteomics, is required. A background in toxicogenomics or pharmacogenomics, and experience with database management and computational analysis of gene expression patterns is a plus. Desire to contribute intellectually to the project, and to approach problems using multiple experimental strategies is essential. Requires strong written and oral communication skills and computer skills. Ph.D. in Biochemistry, Cellular or Molecular Biology, or related field, with 1-3 years post-doctoral experience, required. (Job Code: BS-SCI)

We will reward you with an attractive compensation and benefits package that includes a 1st class pension plan, a generous profit sharing/bonus program, and a collaborative work environment that encourages creativity and achievement. Please forward resumes and cover letters to: **SUGEN, Inc., HR Department, Attn: (Job Code: ___), 230 East Grand Avenue, South San Francisco, CA 94080; FAX: (650) 553-8301; email: jobs@sugen.com (NO ATTACHMENTS, PLEASE).** *We also have openings for Scientists, Research Associates, Chemists, and I.T. Engineers. Please see our website for more details.*

SUGEN

Vision...Leadership...Discovery

Exelixis, a rapidly growing, well-funded biopharmaceutical company, is seeking Research Scientists to join us in a variety of areas. All positions are based at our new facility in South San Francisco.

Informatics Research Scientist, Computational Biology
You will design and develop in-house software, work with users to implement solutions, and perform analysis with data sets. Requires a BS, MS, PhD or equivalent in computer science, and 2+ years practical software development experience in C, C++, Perl, Python and/or Java. (Job#: 00-195)

Informatics Research Scientist, Computational Chemistry
You will develop and support software platforms and systems for drug discovery research. Requires a BS, MS, PhD or equivalent in computer science, electrical engineering, or computational chemistry, and knowledge of Visual Basic, C/C++, OO-design and algorithms. (Job#: 00-194)

Research Scientist, Biology Technology
You will play a direct role in expressing proteins in supporting molecular target research, assay development, high throughput screening and crystallography efforts at Exelixis. Requires a PhD or equivalent with 2+ years experience in biochemistry, molecular biology and in-depth knowledge in expression technology. (Job#: 00-130/131)

Research Scientist, Drug Discovery
You will be part of a fast-paced, multidisciplinary team focusing on assay development and high throughput screening of small molecule compounds. Requires a PhD or equivalent with 3+ years experience in molecular biology, cell biology, enzymology, and/or receptor biology, and familiarity with high throughput screening instrumentation and drug discovery applications. (Job#: 00-178)

Research Scientist, Oncology
You will identify and validate oncology targets, design and execute experiments and present your conclusions to the Oncology group. Requires a PhD or equivalent with 2+ years experience in molecular biology, cellular biology, oncology, or transduction. (Job#: 00-135/136)

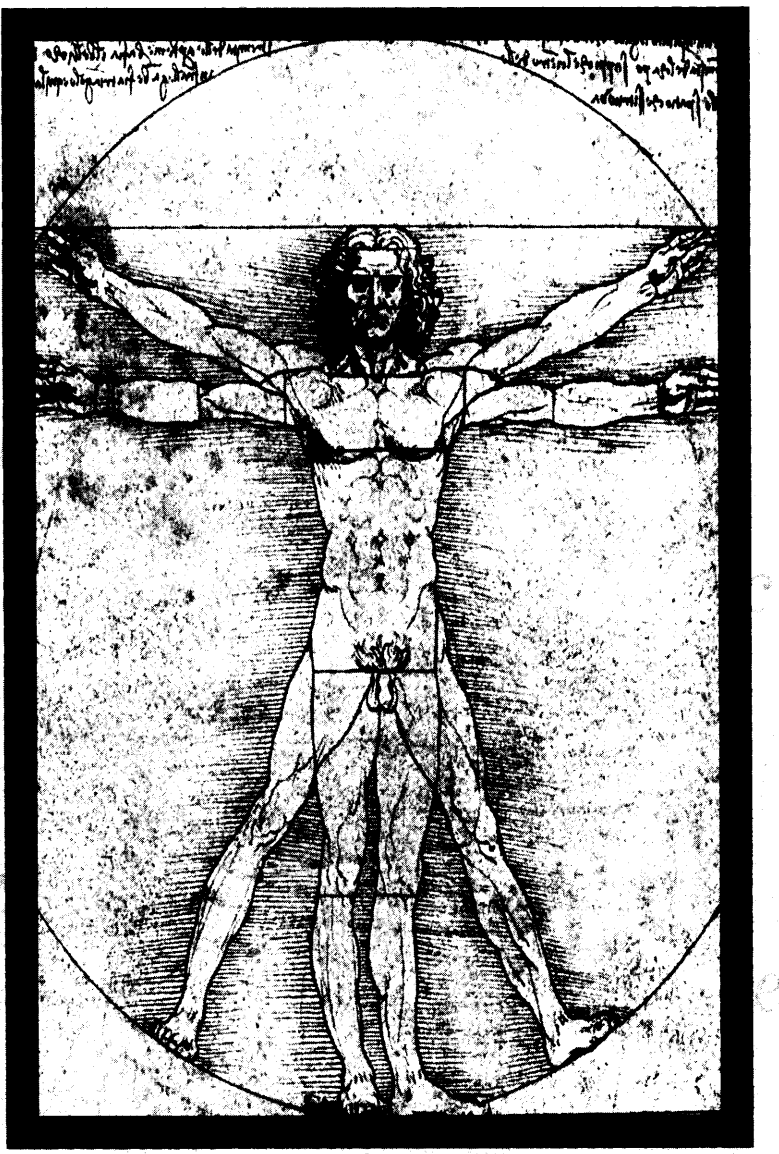
Research Scientist, Biotherapeutics
You will develop models for *in vitro* validation of biotherapeutic targets discovered in our internal programs, generate target-specific assays and perform *in vitro* target validation studies. Requires a PhD or equivalent with 2-4 years experience in assay development, cell biology, angiogenesis development and/or oncology model development. (Job#: 00-202)

Research Scientist, Angiogenesis
You will determine the function of novel human homologs identified in model system genetic screens as potential drug targets. Requires a PhD or equivalent with 2+ years experience in cell biology, molecular biology, or biochemistry. Hands-on experience with mammalian tissue culture, vertebrate angiogenesis and/or endothelial cell biology is desired. (Job#: 00-139)

Research Scientist, Plant Biotech
You will establish and utilize genetic and genomic strategies in model fungal systems to elucidate the mechanism of action of pesticides and drugs. Requires a PhD or equivalent with 3+ years experience in yeast genetics and a strong background in molecular biology. (Job#: 00-196)

Research Scientist, *C. elegans* Genetics
You will assist in preparing and carrying out genetic screens in *C. elegans* for the Oncology group. Requires a BS, MS, PhD or equivalent in genetics, biology and/or molecular biology. (Job#: 00-142)

Exelixis offers highly competitive salaries and benefits, generous equity participation, and a stimulating, highly interactive research setting that recognizes and rewards achievement. Please send your resume/CV to: Exelixis, Inc., HR Department, Fax (650) 837-7226; or email: careers@exelixis.com. EOE.



Please visit our website for further information on these positions and other opportunities at Exelixis:

www.exelixis.com

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Sr Staff Scientist/ Research Scientist

The ideal candidate will have demonstrated experience in molecular, biochemical and/or cell biological techniques. Knowledge of intracellular receptors, transcription and/or signal transduction is required. Experience with nuclear receptors - cofactor interactions a plus. Background in bone biology and/or inflammation desired. Candidate should have a BS/MS degree with 7 or more years relevant experience or a Ph.D. with 0-3 years relevant experience. **Code: AMS-BA**

Staff Scientist

The ideal candidate will have demonstrated experience in molecular, biochemical and/or cell biological techniques. Experience in development and execution of cell-based assays and data management required. Intracellular receptor or transcription background a plus. Candidate should have a BS with 3 or more years relevant experience. **Code: AMS-EA**

Our commitment to our employees includes an excellent salary and a comprehensive benefits package. To apply, please forward your cover letter and resume to: **DuPont Pharmaceuticals Company, Attn. Human Resources, Job Code:_____, E400/2413, PO Box 80400, Wilmington, DE 19880-0400; e-mail: svdresume@dupontpharma.com.** An Equal Opportunity Employer.

DuPont Pharmaceuticals Company

UK **FACULTY POSITION**
University of Kentucky
College of Pharmacy

Pharmaceutics/Drug Delivery

The Division of Pharmaceutical Sciences in the College of Pharmacy at the University of Kentucky has an opening for a tenure-track position at the **assistant professor** level in the area of pharmaceutics and drug delivery. Candidates should possess a Ph.D. degree, preferably have a background in pharmacy, and have a commitment to interdisciplinary research in the pharmaceutical sciences. Responsibilities include establishing a strong extramurally funded research program and a commitment to innovative teaching at the professional, graduate and postdoctoral levels. Send curriculum vitae, statement of teaching and research interests, up to three reprints, and the names of three references to: **Dr. Michael Jay, Pharmaceutical Sciences, University of Kentucky, Lexington, KY 40536-0082.** E-mail: jay@pop.uky.edu. For full description, see Web: www.uky.edu/Pharmacy/

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Hematologist Faculty Positions

The Division of Hematology at the University at Stony Brook is seeking two physician/scientists for full-time academic positions at the Assistant or Associate Professor level.

Primary responsibilities will be in research (75%) and patient care/teaching. Preference will be given to candidates with independent funding whose research interests are broadly related to genetics, vascular biology, hemostasis/thrombosis, and hematopoiesis.

Must be board-certified in Internal Medicine and board-eligible/certified in Hematology and/or Oncology. Considerable start-up funds and laboratory space are available to support this expanded research effort.

Please send letter of interest and CV to:
Dr. Wadie F. Bahou, Chief of Hematology
Health Sciences Center T15/040
University at Stony Brook
Stony Brook, NY
11794-8151
AA/EOE

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Research Scientists in Chemoinformatics

to join our Chemoinformatic teams in Frankfurt, Bridgewater and Vitry. Members of these teams work closely with bioinformatic scientists and synthetic chemists as well as with IT and screening experts in lead generation.

Successful candidates will possess a Ph.D. in Chemistry, Informatics or a related discipline. At least 2 years of post-doctoral or industrial experience in the following areas is beneficial: design of chemical libraries including diversity analysis, data mining, analysis of screening results, database experience (MDL, Tripos), programming on UNIX machines, virtual screening, prediction of physicochemical properties and ADME data.

Strong communication skills with the ability to work in multidisciplinary teams are essential.

We offer a creative scientific and international environment, which will allow you to further develop your skills very quickly. In addition we offer a competitive salary and an attractive bonus package which will suit your qualifications.

To be considered, please submit your resume, indicating salary requirements, to your prefered location:

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Postdoctoral Fellowship Positions

Program in Cell Signaling
Institute of Molecular Medicine
Medical College of Georgia

James R. Goldenring, MD, PhD: 1) Molecular characterization of RabII family of small GTPases and their downstream targets in regulating apical epithelial trafficking; 2) characterization of large scaffolded signaling complexes associated with A-kinase anchoring proteins (AKAP350). **jgolden@mail.mcg.edu**

Catherine S. Chew, PhD: Definition of the role of recently identified, novel signaling proteins in the regulation of gastric parietal cell HCl secretion. **cchew@mail.mcg.edu**

Steven Vogel, PhD: Investigations to study calcium triggered exocytosis and compensatory endocytosis using multiphoton microscopy, two-electrode voltage-clamp, and patch-clamp. **stevev@immagene.mcg.edu**

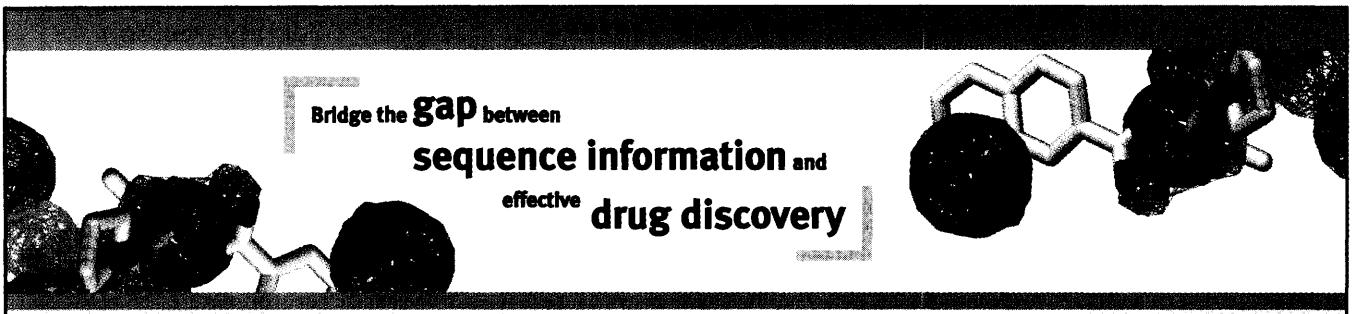
Paul McNeil, PhD: Investigations to study the molecular mechanism of resealing of plasma membrane disruptions in muscle cells. **pmcneil@mail.mcg.edu**

Wendy Bollag, PhD: Investigations to study the role of lipid signaling pathways in the regulation of epidermal keratinocyte proliferation and differentiation and skin morphogenesis. **wbollag@mail.mcg.edu**

Richard Cameron, PhD: Investigations directed toward determining 1) the role that myr 8a and 8b, novel unconventional myosins, play in neuronal motility; 2) the function of caveolin-1 in cell signaling events during neocortical development. **rcameron@mail.mcg.edu**

The Institute of Molecular Medicine and Genetics was founded in 1993 at the Medical College of Georgia in Augusta, Georgia. The Institute now comprises 26 peer-review funded investigators in the fields of Cell Signaling, Developmental Biology, Molecular Immunology, Neurobiology and Gene Regulation. The Institute and MCG have an extensive system of core facilities for DNA sequencing and synthesis, peptide sequencing and synthesis, transgenic and knockout mouse production, fluorescence microscopic imaging (confocal, multiphoton, and video microscopy), electron microscopy, histopathology, gene chip analyses, flow cytometry, and zebrafish transgenesis. More information about individual investigators and IMMAG can be found through the research website: **http://www.mcg.edu/Institutes/IMMAG/index.html**.

Salaries are based on experience. Interested applicants should contact investigators directly through their email addresses. *MCG is an Equal Employment Opportunity/Affirmative Action Employer.*



Bridge the gap between sequence information and effective drug discovery

Inpharmatica - a young business set to be the world's leading supplier of protein structure-function data for the pharmaceutical industry. Join us in one of these new roles and you'll be part of a 30-strong team that's set to double by the end of the year - and double again during 2001. We've recently won our first multi-million pound contract and are fielding advances from the premier league pharmaceutical companies. Led by Professor Janet Thornton, you'll gain exposure to every aspect of this cutting edge business and your contribution will be rewarded with a highly competitive salary and benefits including stock options.

High-level Bioinformatics Scientists - R&D

These roles involve exploring new algorithms and approaches for maintaining and expanding the capabilities of the Biopendium™ system. Day-to-day you'll liaise with colleagues throughout the business, particularly in Product Development and Production, and will work on projects likely to involve sequence clustering, structure comparison, database integration, and the implementation of bioinformatics algorithms. A proven track record in bioinpharmatics should be backed by at least four years' programming experience, preferably in C, Perl and/or Java. One of the roles requires a good background in SQL/database design. **Ref: MD9412D**

Software Engineer

Working together with our domain experts, you'll create novel tools enabling customers to access information and use it in a meaningful way - areas of particular interest include visualisation and integration of genomic and 3D structural data. You'll have at least four years' experience in applying computational techniques within a scientific discipline. HTML/XML, Java and C/C++ will be the main technologies used. Successful candidates will have a track record employing these tools in an inventive manner, especially in the context of object-orientated GUI design. **Ref: MD9412B**

Please send your CV and current remuneration details, including which position(s) you are interested in, to Martin Gouldstone, Bernard Hodes, Salisbury House, Bluecoats Hertford SG14 1PU. Tel: 01992 514 326. Fax: 01992 505 301. Email: mgouldstone@hodes.co.uk Also advertised on www.careermosaic-uk.co.uk

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Consultant Clinical Scientist & Head of Stem Cell Biology and Immunotherapy

£52,127 - £60,255 Ref: NBS08

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Location: Any NBS centre with an active laboratory in the field of Stem Cell Immunotherapy

Applications are invited for this new position within the restructured National Blood Service with a specific remit to manage and give direction to its Haemopoietic Stem Cell and Immunotherapy Services.

The successful applicant will be expected to continue to develop these services in collaboration with the relevant Hospital Trusts. The applicant will also be extensively involved in the formulation of a National Strategy for the NBS Stem Cell & Immunotherapy Laboratories. An essential component of this is to maintain and further develop quality systems that meet the requirements of the Regulatory Authorities.

The successful applicant will work closely with the Lead Consultant, Dr D H Pamphilon within the newly established directorate of Diagnostics, Development & Research (DDR), headed by Professor Marcela Contreras. He/she will have a PhD and extensive postdoctoral experience in cellular biology and immunology with a track record of publications in this area. Previous management experience and the ability to effectively control budgets is essential.

Application forms and further details are available from the Personnel Department, National Blood Service - Trent Centre, Longley Lane, Sheffield, South Yorkshire S5 7JN. Telephone the 24 hour answerphone on 0114 203 4912 or e-mail at alison.smith@nbs.nhs.uk

Please quote reference number NBS08. Applicants wishing to discuss the post informally can contact Dr Derwood Pamphilon Tel: 0117 991 2096.

The closing date for receipt of applications is: 23rd June 2000.

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Center for Biologics Evaluation and Research

Food and Drug Administration

SERVICE FELLOWSHIP PROGRAM

The mission of the Center for Biologics Evaluation and Research (CBER) is to protect and enhance the health of the public by assuring the safety, purity, potency, and efficacy of biological products. This broad range of products includes vaccines, blood products, certain diagnostic materials, and other biological and biotechnological agents.

Service Fellowships provide for the employment and development of promising research/regulatory review scientists to accelerate and enhance scientists' careers through close associations with lead authorities in health-related research. These fellowships also serve to strengthen the research community by assuring a continuous exchange of talent between the Center and other scientific facilities.

- Initial appointments for 2 years, with possible extensions up to a maximum duration of 7 years;
- Ph.D. or equivalent degree (e.g., M.D., D.V.M., or Sc.D.) in the health sciences.

Salary: $35,310 - $110,028 based upon qualifications.

Location: Positions are located on the campus of the National Institutes of Health or in close proximity.

Applications are accepted throughout the year and will be made part of an applicant supply file for current and future vacancies.

Interested applicants should send a current Curriculum Vitae with cover letter to:

Food and Drug Administration
Center for Biologics Evaluation and Research
Recruitment Staff, SFP-00-01
1401 Rockville Pike, HFM-123
Rockville, Maryland 20852-1448

The Food and Drug Administration is an Equal Employment Opportunity Employer and Has a Smoke Free Environment.

This agency provides reasonable accommodations to applicants with disabilities.

Participants, other than U.S. citizens, under the Service Fellowship Plan, must have valid working visas.

Faculty position in Neurophysiology

The Department of Neurobiology at Harvard Medical School invites applications for a faculty position in the area of neurophysiology. Areas of particular interest are the neurophysiology of small circuits in the central nervous system, the cellular basis of sensory and behavioral function, and synaptic physiology and plasticity.

Applications for the Assistant Professor level are preferred but appointment at a more senior level is also possible. Candidates must have a PhD or equivalent degree. Send a letter of application including a curriculum vitae, brief description of research interests, and the names, addresses, email addresses, and phone numbers of at least three references to:

Neurophysiology Search Committee
c/o Vickie Monta
Department of Neurobiology
Harvard Medical School
220 Longwood Avenue
Boston, MA 02115

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DIRECTOR, Bioinformatics, MC006
You will be responsible for leading a diverse bioinformatics program centered on microarray technology. You will develop microarray information systems, including databases, data collection, analysis, and visualization tools. **Qualifications:** Ph.D. in Bioinformatics or related field with 8+ years experience in bioinformatics/computational genomics, including algorithm and software development, and database design and implementation. Excellent analytical and organizational skills, with an exceptional track record of scientific and technical accomplishment. Expertise in microarray data analysis and data management is a strong plus.

SCIENTIST, Bioinformatics, MC003
You will work closely with experimental scientists to identify, characterize, and prioritize large sets of sequences for assay development. You will also be involved in the design and development of interfaces for database query and data presentation, and data visualization and analysis tools. **Qualifications**: Ph.D. in Bioinformatics or related field with 3+ years experience in database design and implementation, or similar qualifications. Expertise with Oracle or Microsoft SQL Server required, and experience with web-based browser interface design and Java programming are desired. You should have excellent analytical and organizational skills, with proven experience in designing/managing complex databases of biological sequence information. Expertise in array-based data sets and analysis are strong pluses.

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Research Positions

The **Department of Biochemistry at the Faculty of Medecine** seeks to fill two research positions that could lead to faculty positions.

Functions
Successful appointees are expected to develop and maintain an active and competitive research program and have a commitment to teaching at the graduate and undergraduate levels. Research in the Department of Biochemistry covers the major areas of molecular and cellular biology.

Requirements
The candidates should hold a Ph.D. in a relevant discipline and post-doctoral experience. Demonstrated teaching experience will be considered an asset. The teaching language is French, but a non-francophone has up to two years to develop his capacity to teach in French.

Salary
Université de Montréal offers a competitive salary and a complete range of fringe benefits.

Starting date
April 2001.

Interested candidates should send their complete C.V., a description of their proposed research program and at least two recommendation letters before ***June 30th, 2000 to :***

Dr Luc DesGroseillers
Search Committee Chairman
Department of biochemistry
Université de Montréal
C.P. 6128, succursale Centre-ville
Montréal QC H3C 3J7

Université de Montréal

In accordance with Canadian immigration requirements, priority will be given to Canadian citizens and permanent residents of Canada. The University is committed to equal employment opportunity for women. The University nomination is conditional to obtaining a personal research scholarship.

(1178)

fellowships

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

AAAS Science + Technology Policy Fellowships 2001:02 >>>

What >>> Help shape science and technology policy in Washington, DC: Contribute scientific and technical information and external perspectives to federal decisionmaking, while learning how government works. The AAAS fellowship programs provide a unique participatory public policy experience for scientists and engineers, through one-year assignments involving domestic and international science policy issues in the Congress and several executive branch agencies. Stipends typically begin at $50,000.

Who >>> Applicants must have a Ph.D. or equivalent doctoral level degree at the time of application in any physical, biological or social science, any field of engineering, or any relevant interdisciplinary field. Engineers with a master's degree and three years of post-degree experience also may apply. U.S. citizenship is required. Federal employees are not eligible. Approximately 50 fellowships are awarded each year, in eight different programs.

When >>> The fellowship year begins September 1, 2001. Fellows attend a two-week orientation before beginning their assignments, and participate in a yearlong seminar series on topics relevant to science, technology, and public policy. **Application deadline is January 10, 2001.**

Where >>> Fellows are placed in the Congress, the National Science Foundation, the Department of State, the Department of Defense, the Agency for International Development, the Environmental Protection Agency, the Department of Agriculture, the Food and Drug Administration, and other federal offices.

Why >>> AAAS sponsors these programs to provide the opportunity for accomplished and societally aware scientists and engineers to participate in and contribute to the public policymaking process of the federal government. The programs include:

+ Congressional Science and Engineering Fellowship Program
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+ Science, Engineering, and Diplomacy Fellowship Program
+ Risk Policy Science and Engineering Fellowship Program
+ Defense Policy Science and Engineering Fellowship Program
+ Technology Policy Science and Engineering Fellowship Program
+ Environmental Science and Engineering Fellowship Program
+ AAAS/NSF Science and Engineering Fellowship Program

How >>> For application instructions and further information: fellowships.aaas.org. AAAS Public Policy Fellowship Programs, 1200 New York Avenue, NW, Washington, DC 20005 • *Phone* 202/326-6700 • *E-mail* science_policy@aaas.org
Underrepresented minorities and persons with disabilities are encouraged to apply.

fellowships.aaas.org

AAAS

POSITIONS OPEN

The Rollins School of Public Health of Emory University, Department of Environmental and Occupational Health, announces a major faculty expansion. RSPH, founded in 1990, has rapidly emerged as a leading school of public health. We have a vibrant 110-member faculty; over 800 students; excellent collaborative relationships with nearby agencies including CDC, health departments, the American Cancer Society, the Carter Center, and CARE; and one of the most livable cities in the country.

The Department of EOH seeks to build faculty expertise in toxicology, industrial hygiene, risk assessment, EOH policy, and general environmental health science. We anticipate hiring several **FACULTY MEMBERS** at a range of seniority levels. The ideal candidates will have excellent training; be dedicated to the school's mission of research, teaching, and service; be experienced at securing external grant support for research; enjoy collaborative, cross-disciplinary work; and have research interests that complement those of the current faculty.

Salary and rank commensurate with experience. Interested persons should mail a hard-copy letter of interest and curriculum vitae to: **Howard Frumkin, M.D., Ph.D., Chair, Department of Environmental and Occupational Health, Rollins School of Public Health, 1518 Clifton Road, Atlanta, GA 30322.** *Equal Opportunity/Affirmative Action Employer. We especially welcome applications from members of minority groups.*

The Department of Psychology at Princeton University has **FOUR FACULTY POSITIONS** available at the junior and senior levels in the areas of cognitive psychology, cognitive neuroscience, and systems neuroscience. Preference will be given to applicants who work at the interface of cognitive psychology and systems neuroscience, using methods such as direct neuronal recording techniques in behaving animals, human brain imaging, and computational modeling. However, strong applicants with a focus at one end of the continuum or the other are encouraged to apply. The positions will carry an optional affiliation with the newly formed Center for the Study of Brain, Mind, and Behavior. All positions are immediately available and will remain opened until filled. Applicants should submit curriculum vitae and three letters of reference to: **Search Committee SBV4, Department of Psychology, Princeton University, Green Hall, Princeton, NJ 08544-1010.** *Equal Opportunity/Affirmative Action Employer.*

The Thomas E. Starzl Transplantation Institute and the Department of Surgery, University of Pittsburgh, seeks junior faculty candidates at the **SENIOR RESEARCH ASSOCIATE** or **INSTRUCTOR** level in the area of pancreatic islet cell transplantation. Responsibilities of the qualified candidate will include isolation, purification, functional assessment, and transplantation of pancreatic islets. The qualified applicant must hold an M.D., Ph.D., or an equivalent degree with experience in small and large animal pancreatic islet isolation and transplantation. Individuals with experience in human pancreatic islet isolation will be given special consideration. Position available immediately and is funded by a Juvenile Diabetes Foundation International grant for a period of five years. Please send curriculum vitae and names of three references to: **Faculty Manager, Thomas E. Starzl Transplantation Institute, University of Pittsburgh, 4 Falk Medical Building, 3601 Fifth Avenue, Pittsburgh, PA 15213. FAX: 412-647-5480; e-mail: dudichhh@msx.upmc.edu.**

SABA UNIVERSITY SCHOOL OF MEDICINE

Immediate openings: several full-time medical school faculty positions in all areas of the basic sciences (anatomy, histology, biochemistry, microbiology, neurosciences, physiology, medical psychology, genetics, pharmacology, pathology, clinical medicine, physical diagnosis). Salary range: $36,000 to $45,000 USD, tax-free. Ph.D. or M.D. required with teaching potential. All positions are on the Caribbean island of Saba. Write or call: **Dr. David Fredrick, P.O. Box 386, Gardner, MA 01440. E-mail: drfredrick@yahoo.com; website: www.saba.org.**

POSITIONS OPEN

ASSISTANT, ASSOCIATE, OR FULL PROFESSOR IN PLANT CELL BIOLOGY
Department of Botany and Plant Sciences
University of California, Riverside

The Department of Botany and Plant Sciences invites applications for an open-level position (Assistant, Associate, or Full Professor) in plant cell biology. The candidate will join an active and collegial Department with broad interests in plant biology. Individuals should work at the forefront of contemporary plant cell biology in an area such as (but not limited to) cell cycle regulation, cell wall or cytoskeleton dynamics and function, programmed cell death, protein targeting, or signal transduction. The successful candidate would be expected to establish and maintain a vigorous, innovative research program, have a strong commitment to excellence in teaching at the undergraduate and graduate levels, and participate in interdepartmental graduate programs. The position includes an appointment in the Agricultural Experiment Station and will be available July 1, 2001. Applicants must hold a Ph.D., and postdoctoral experience is essential for candidates at the Assistant level. Evaluation of applications will begin August 15, 2000, and continue until the position is filled. Interested individuals should: (1) submit curriculum vitae, (2) provide a statement of research interests, and (3) have letters from three references sent (Assistant level) or provide names and addresses of three references (Associate and Full level) to: **Dr. Elizabeth M. Lord, Chair, Department of Botany and Plant Sciences, University of California, Riverside, CA 92521-0124.** For additional information on the Department and campus, visit **website: http://cnas.ucr.edu.** *The University of California is an Equal Opportunity/Affirmative Action Employer.*

ASSOCIATE OR FULL PROFESSOR SANDERS–BROWN CENTER ON AGING

A faculty position is available at the Associate Professor/Full Professor level at the Sanders–Brown Center on Aging at the University of Kentucky Medical Center. We are seeking a neuroscientist with an interest in Alzheimer's disease and related neurodegenerative disorders and brain aging to join a vigorous and active research group. Individuals interested in mechanisms of neuron degeneration, cellular and molecular neurobiology, molecular genetics, and signal transduction will be given special consideration. Applicants should possess a Ph.D., M.D., or M.D./Ph.D. degree.

The candidate must have a strong extramural funding and publication record. Applicants should submit curriculum vitae, names of three references, and three reprints that best reflect their research work to: **William R. Markesbery, M.D., Director, Sanders–Brown Center on Aging, University of Kentucky Medical Center, Lexington, KY 40536.**

University of Kentucky is an Equal Opportunity/Affirmative Action Employer. Women and minorities are encouraged to apply.

Multinational chemical company seeks international marketing manager for Care Chemicals and Oleo-Chemicals Business Units. Responsible for customers and affiliates in Central and South America. Must have degree in chemistry or chemical engineering and international marketing experience or degree in business and chemist/chemical engineering experience. Spanish fluency required. Send résumé and salary requirements to: **Elizabeth P. Gradel, Human Resources Manager, Cognis Corporation, 300 Brookside Avenue, Ambler, PA 19002.**

UTAH STATE UNIVERSITY ASSISTANT PROFESSOR/ SURFACE HYDROLOGIST

See **website: http://personnel.usu.edu (2-127)** for full description. *Affirmative Action/Equal Opportunity Employer.*

POSITIONS OPEN

SENIOR AND STAFF SCIENTISTS (molecular/cellular biology) at the Sigfried and Janet Weis Center for Research, Henry Hood Research Program. Outstanding candidates are sought for Staff Scientist (equivalent to **ASSISTANT** or **ASSOCIATE PROFESSOR**) or Senior Scientist (equivalent to **PROFESSOR**) positions at the Weis Center for Research. The Weis Center is located on the Danville campus of the Geisinger Health System, adjacent to the Geisinger Medical Center, a tertiary care teaching hospital. The Weis Center is a modern biomedical research facility that includes 65,000 square feet of laboratory, office, animal facility, and conference areas. The Center is located in a semirural area that affords an outstanding quality of life plus convenient access to major metropolitan areas. We are seeking candidates with proven records of accomplishment in conducting innovative research that addresses medically important problems at the cellular, molecular, or genetic level. The primary criterion for selection will be the quality of the applicant's research as evidenced by publication in peer-reviewed journals. Candidates for Senior Scientist positions are also expected to have a history of extramural funding. Substantial resources are available for start-up and ongoing research support. Qualified individuals should submit curriculum vitae, statement of research interests, and the names and addresses of three references to: **Ms. Julie Brosius (djc), Sigfried and Janet Weis Center for Research, Geisinger Clinic, 100 North Academy Avenue, Danville, PA, 17822-2600.** *Affirmative Action/Equal Opportunity Employer.*

TENURE-TRACK FACULTY POSITION

The Center for Extracellular Matrix Biology at the Institute of Biosciences and Technology, Texas A&M University System Health Science Center, Houston, Texas, invites applications for a full-time tenure-track faculty position at the level of **ASSISTANT** or **ASSOCIATE PROFESSOR**. The successful candidate will be expected to establish an independent extramurally funded research program, participate in graduate training, and engage in collaborative research within the Health Science Center and the Texas Medical Center. Candidates studying any aspect of extracellular matrix biology will be considered, although some preference will be given to investigators using molecular approaches studying the structure, function, or development of skeletal tissues.

Applicants should submit curriculum vitae, brief statement of research interests, and the names and addresses of three individuals who may be contacted for letters of reference to:

Magnus Höök, Ph.D.
Director, Center for Extracellular Matrix Biology
Institute of Biosciences and Technology
2121 West Holcombe Boulevard
Houston, TX 77030
Website: http://www-ibt.tamu.edu

Texas A&M University System Health Science Center is an Affirmative Action/Equal Opportunity Employer.

CONSERVATION GENETICIST: Henry Doorly Zoo's Center for Conservation and Research (CCR) is currently seeking qualified applicants for a Conservation Geneticist position. The Biologist will assist with the direction/management of ongoing studies and will develop independent projects in accordance with the Genetics Department's goals of conservation and research. The applicant should have a Ph.D. in genetics or in a related biology program. Experience with sample collection and field work is preferred. The CCR is a fully equipped molecular laboratory with three ABI automated sequencers and all necessary support equipment. The CCR's Genetic Department is presently staffed by four full-time technicians. Additional information can be obtained by contacting: **Dr. Ed Louis** at **e-mail: edlo@omahazoo.com**. Résumés will be accepted through July 1, 2000. Please send curriculum vitae, introductory letter, and three recommendations to: **Henry Doorly Zoo, Center for Conservation and Research, Genetics Department, 3701 South 10th Street, Omaha, NE 68107-2200.** *An Equal Opportunity Employer.*

Faculty Positions in Cancer Research
LSU Health Sciences Center

The Stanley S. Scott Cancer Center at LSU Health Sciences Center in New Orleans invites applications for tenure track or tenured positions at the Associate Professor or Professor level. Candidates should possess a Ph.D. or M.D. degree and have demonstrated excellence in their research as indicated by both publications and a track record of externally funded research grants. The successful applicants will be expected to pursue an independent, yet collaborative approach, addressing broad issues that relate to oncologic science. Research interests in prostate and/or lung cancer are encouraged but not required.

The search will give full consideration to applications that include a curriculum vitae (including funding grant history), four representative publications, and the names of three individuals that may be contacted for letters of reference.

Joint appointments in the Cancer Center and an appropriate Department at the LSU Medical School are anticipated. The individual Departments will be dependent on the successful applicants' expertise and interests. Laboratory space will be provided in a new state of the art facility in the heart of the Medical School complex. LSUHSC is an EOE/AA.

Interested candidates should submit their curriculum vitae to **Dr. Oliver Sartor, Director, Stanley S. Scott Cancer Center, Suite 620, 2025 Gravier Street, New Orleans, Louisiana 70112.**

Assistant Professor, Biophysical
NMR Spectroscopist

The Department of Biochemistry, Molecular Biology and Biophysics, University of Minnesota, invites applicants for a tenure-track Assistant Professor position. We are seeking outstanding candidates with demonstrated expertise in the application of NMR spectroscopy to fundamental problems in structural biology. A superb Structural Biology NMR Center is available to support this position, including an 800MHz, two 600MHz, and one 500 MHz fully configured Varian INOVA 4-channel NMR spectrometers. These NMR facilities are described in more detail at **http://www.umn.edu/nmr**. For more details about the positions and the department, see **http://biosci.cbs.umn.edu/BMBB/**. Successful candidates will be expected to develop strong, externally funded research programs and will contribute to the undergraduate, graduate and professional teaching programs of the department. Successful candidates will receive a substantial start-up package to establish their laboratories and a salary commensurate with education and experience.

Please send a curriculum vitae, statement of research interests, and three letters of recommendation that consider both research and teaching potential to: **BMBB Search Committee, c/o Mr. Jeff Schaub, University of Minnesota, Department of Biochemistry, Molecular Biology and Biophysics, 6-155 Jackson Hall, 321 Church Street, S.E., Minneapolis, MN 55455** or **schaub@biosci.cbs.umn.edu**. Review of applications will begin immediately and will continue until a suitable candidate is identified; applicants are strongly encouraged to apply by June 30, 2000.

European Opportunities

The Faculty of Science of the University of Zürich invites applications for a

PROFESSORSHIP IN PALAEOZOOLOGY

The position includes the directorship of the Institute of Palaeontology and the Palaeontological Museum. The professorship is also associated with the Department of Geology of the Swiss Federal Institute of Technology (ETH) Zürich.

Applicants should have an internationally competitive research program and outstanding scientific achievements in phylogenetic or biocenotic Palaeozoology. There are no restrictions concerning the animal groups to be investigated.

The successful candidate will be expected to establish a research group and to participate in general teaching of evolutionary biology as well as in more advanced courses at the University and the ETH. It is expected that the successful candidate will acquire proficiency in the German language within two years.

Zurich offers extensive palaeontological collections, an experienced staff and stimulating, close collaboration with colleagues in the recently established Consortium for Evolution and Biodiversity.

Applications including a curriculum vitae, a publication list, a short summary of current and future activities in research and teaching, copies of three recent key publications, and names and addresses of three referees, should be sent by end of July 2000 to:

Prof. Dr. V. Ziswiler, Dekanat der Mathematisch-naturwissenschaftlichen Fakultät der Universität Zürich, Winterthurerstr 190, CH-8057 Zürich
phone +41 1 635 4006, fax: +41 1 635 6806, e-mail: zis@zoolmus.unizh.ch
Paläontologisches Institut: www.palinst.unizh.ch

European Opportunities

UNIVERSITY OF BASEL
Institute of Zoology

Assistentship in molecular and developmental Zoology

This is a non-renewable academic position for up to 5 years. We are searching for a highly motivated developmental biologist with good background and interest in non-model organisms to join a group investigating the molecular control of regeneration and the evolutionary aspects of jellyfish development. Some assistance in teaching at advanced level is required. The candidate should have a PhD, at least one year of post-doctoral training and be experienced in standard molecular technology. Further information is under: www.unibas.ch/dib/zoologie/research/dev.html.

Starting date: November 1st, 2000 or by arrangement. Applications including a curriculum vitae, list of publications and the names of two referees should be sent until July 15th, 2000 to:

Prof. Volker Schmid, Institute of Zoology, University of Basel, Rheinsprung 9, CH-4051 Basel, Switzerland,
Phone +41 61-267 3477 / Fax: -3457,
Email: V. Schmid@unibas.ch.

UNI
BASEL

The Laboratory of Biophysics, Division of Bacterial, Parasitic, and Allergenic Products, is searching for a **POSTDOCTORAL CANDIDATE** to carry out molecular modeling to investigate the structure and function of virulence factors of *Bacillus anthracis*. Research will be part of a Division effort to provide a science base for regulating novel vaccine strategies as countermeasures to bioterrorism. The candidate should have experience with a variety of modeling, simulation, and bioinformatic techniques and will work closely with several experimental groups. The appointment is for one to three years with a salary of $30,000 to $35,000 depending on experience. Interested candidates should forward curriculum vitae along with a cover letter stating research interests and experence and the names and contact information for three references to: **Richard W. Pastor, Ph.D., 1401 Rockville Pike, HFM-419, Rockville, MD 20852-1448. E-mail: pastor@cber.fda.gov.**

The Laboratory of Biophysics, Division of Bacterial, Parasitic, and Allergenic Products, is searching for a **POSTDOCTORAL CANDIDATE** to carry out computer simulation studies to investigate the structure and dynamics of complex membranes and topics in membrane transport. The candidate should have experience with either computer simulation techniques (molecular dynamics or Monte Carlo) or membrane biophysics and a strong background in chemical physics. The appointment is for one to three years with a salary of $29,000 to $35,000 depending on experience. Interested candidates should forward curriculum vitae along with a cover letter stating research interests and experience and the names and contact information for three references to: **Richard W. Pastor, Ph.D., 1401 Rockville Pike, HFM-419, Rockville, MD 20852-1448. E-mail: pastor@cber.fda.gov.**

The Laboratory of Immunobiochemistry, Division of Bacterial, Parasitic, and Allergenic Products, is searching for a **POSTDOCTORAL CANDIDATE** to carry out basic research on immunomodulation, allergen structure/function, and/or allergen detection. Research will be part of a Division effort to provide a science base for regulating and standardizing allergen vaccines that are critical in the optimal diagnosis or management of asthma and allergies. The candidate should have experience in immunology, protein purification, and immunodiagnostics. A Ph.D. and less than three years postdoctoral experience is required. The appointment is for one to three years with a salary of $30,000 to $35,000 depending on experience. Interested applicants should forward curriculum vitae along with a cover letter stating research interests and experience and the names and contact information for three references to: **Jay E. Slater, M.D., 1401 Rockville Pike, HFM-422, Rockville, MD 20852-1448. E-mail: slaterj@cber.fda.gov.**

DEPARTMENT OF PATHOLOGY
COLUMBIA UNIVERSITY

Applications are requested for new faculty positions at the **ASSISTANT, ASSOCIATE,** and **FULL PROFESSOR** rank in the area of Alzheimer's disease, immunology, cell biology, and infectious disease. Applicants will be expected to provide evidence of ability to develop a vigorous, grant-funded research program. Preference will be given to those who have current funding and certification in pathology. Please send curriculum vitae, statement of research program, and names of three references to: **Cindy Kitzinger, Department of Pathology, 630 West 168th Street, New York, NY 10032. E-mail: ck523@columbia.edu/.** *Columbia University takes Affirmative Action toward Equal Employment Opportunity.*

POSITIONS OPEN

TENURE-TRACK, 12-MONTH, ASSISTANT/ASSOCIATE PROFESSOR
Aquatic Ecological/Ecosystem Modeler Position
Michigan State University

A collaborative position with National Oceanic and Atmospheric Administration's Great Lakes Environmental Research Laboratory (GLERL). Qualifications: Ph.D. in limnology, oceanography, fisheries, ecology, or other disciplines with strong emphasis on ecological or ecosystem modeling required. Strong quantitative and excellent communication/interpersonal skills essential. Prefer candidates with interest and experience in ecological or ecosystem modeling including physical and biological processes in large aquatic systems and in empirical verification of model predictions. Position description: Develop a coordinated research, teaching, and outreach program emphasizing development, testing, and use of models of aquatic systems. Research and outreach concentrating on applications to Great Lakes aquatic systems with additional opportunities to work in marine coastal and estuarine systems. Will build a research program taking advantage of computer/laboratory facilities and collaborators at GLERL; maintain an active presence in the Department of Fisheries and Wildlife at Michigan State University in East Lansing and at GLERL in Ann Arbor, Michigan. Collaborates extensively with both MSU and GLERL physical and biological limnologists and other scientists and builds an extramurally funded research program complementary to existing research at GLERL and MSU. Research interests should include community, population, and ecosystem ecology; limnology/oceanography; modeling of dynamic ecological systems; and aquatic ecology. Will teach courses in area of expertise; direct/advise graduate students; serve on committees; and provide extension and outreach to international, national, and state agencies involved in research and management of Great Lakes and coastal ecosystems. Application deadline: July 15, 2000, or until suitable candidate is found. Competitive salary commensurate with education, experience, and demonstrated ability. Applicants should submit a letter of application stating professional goals and objectives, statements of research interests and philosophy, curriculum vitae with supporting materials including transcripts and examples of scientific writing such as reprints of recent publications, and three letters of reference to: **James Bence, Search Committee Chair, Department of Fisheries and Wildlife, 13 Natural Resources, Michigan State University, East Lansing, MI 48824-1222. Telephone: 517-432-3812; FAX: 517-432-1699; e-mail: bence@msu.edu.** *MSU is an Equal Opportunity/Affirmative Action Employer. Minority and women candidates are encouraged to apply. Persons with disabilities have the right to request and receive reasonable accommodation.*

RESEARCH SCIENTIST/INJECTIONIST TRANSGENIC MOUSE CORE FACILITY
Purdue University Cancer Center

The NCI-designated Cancer Center at Purdue University has an immediate opening for a qualified individual to assume operational responsibility for the Cancer Center's newly expanded and fully operational transgenic mouse core facility (TMCF). The TMCF offers both knockout and conventional transgenic services to the Purdue University community. Responsibilities and duties for this position include the generation of transgenic mice by pronuclear injection, gene targeting in ES cells, and the derivation of chimeric mice plus supervision of all support staff. The qualified candidate will have an M.S. or Ph.D. degree (Ph.D. preferred) and experience in both ES cell culture and transgenic mouse procedures plus excellent communication and interpersonal skills. Qualified applicants should send their curriculum vitae and the names of at least three references to: **TMCF Position, Purdue University Cancer Center, Hansen Life Sciences Research Building, West Lafayette, IN 47907-1524.** See **website: http://www.pharmacy.purdue.edu/~ccenter/** for more information. *Purdue University is an Equal Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

SENIOR EXECUTIVE DIRECTOR POSITION
AMERICAN SOCIETY FOR INVESTIGATIVE PATHOLOGY

A consortium of four academic pathology societies, located in Bethesda, Maryland, invites applicants for the position of Senior Executive Director. Each society has distinct goals and objectives but they share a number of issues in common and have gained effectiveness and efficiency from their colocation and cooperative administrative environment. The Senior Executive Director establishes the administrative structure to serve each of the societies, including additional senior professional staff, midlevel managers, and talented support staff. Among the services the executive office provides to the constituent societies are governance support; fiscal management; organization of meetings and conferences; publication production and editorial support (journals, newsletters, freestanding publications and directories, and websites); membership services; meritorious awards; public affairs; and relationships with other scientific societies and organizations. The Senior Executive Director establishes the service orientation of the executive office and provides the infrastructure and resources to support the various society activities in a timely and constructive fashion. The successful applicant will have a Doctoral degree, demonstrated experience leading an independent research group, solid administrative experience, and a commitment to advancing research and education in pathology. This position is expected to be filled by January 2001. Interested individuals should submit curriculum vitae, statement of interests, and names of three references by August 1, 2000, to: **Tucker Collins, M.D., Ph.D., Search Committee Chair, Brigham and Women's Hospital Department of Pathology, 221 Longwood Avenue, Boston, MA 02115.** *Equal Opportunity/Affirmative Action Employer. In particular, women and minorities are encouraged to apply.*

FACULTY POSITIONS
UNIVERSITY OF PITTSBURGH
Division of Infectious Diseases/
Center for Viral Diseases

The Division of Infectious Diseases, Department of Medicine, University of Pittsburgh, is now recruiting three faculty at the **ASSISTANT, ASSOCIATE,** or **PROFESSOR** level to expand its clinical and basic research programs in HIV/AIDS and other viral diseases as part of a new Center for Viral Diseases. Candidates should have an M.D., Ph.D., or equivalent and have sufficient experience to establish an independent funded research program that integrates basic virology or clinical science with clinical medicine. Competitive salary and start-up packages are available including newly renovated laboratory and office space. Send curriculum vitae, summary of research interests, and names of three references to: **John W. Mellors, M.D., Chief, Infectious Diseases Division, Director, HIV/AIDS Program, University of Pittsburgh, Graduate School of Public Health, 603 Parran Hall, 130 DeSoto Street, Pittsburgh, PA 15261. Telephone: 412-624-8512; FAX: 412-383-7982. E-mail: fern@pitt.edu.** *The University of Pittsburgh is an Affirmative Action/Equal Opportunity Employer.*

ASSISTANT PROFESSOR for biological sciences. Search reopened. Tenure-track or visiting, dependent on interest and qualification. Human and Cellular Physiologist. Teaching will include a section of third-year medical physiology, cell biology, and topics in cell biology as well as introductory courses. Candidate is expected to develop a research program involving undergraduate students. Doctorate or A.B.D. required. Application letter including teaching philosophy, curriculum vitae, transcripts, and three letters of recommendation are required. Student and peer evaluations are acceptable evidence of teaching effectiveness. Applicant files must be received by July 3, 2000, for full consideration. Applications will be received until the position is filled. Mail to: **Terry Keiser, Chair, Biological Sciences, Ohio Northern University, Ada, OH 45810. E-mail: t-keiser@onu.edu.** *Affirmative Action/Equal Opportunity Employer. Women and minority candidates are encouraged to apply.*

Senior CNS Biologist Obesity Research

Major Pharma Company — *Europe*

The Company - one of the top 10 global pharma companies... with an outstanding record of drug discovery, development and commercialisation... with a market leading position in each of its core therapy areas... and a strong R&D pipeline and focused strategy for continued future success.

The Challenge - to provide scientific leadership to the obesity-related research effort aimed at understanding how appetite and satiety pathways work and could be altered... to develop new therapeutic targets... leading to novel approaches to the treatment of obesity.

The Individual - an outstanding brain biologist with expertise in the central regulation of feeding/control of food intake... with a background in industry or academia... with excellent leadership and communication skills... the ability to operate as part of a cross-functional team in a multicultural organisation.

The Environment - based at one of the Company's major state-of-the-art R&D sites... affording a high degree of scientific freedom... and excellent prospects for career progression... in an attractive European location. A highly competitive remuneration and benefits package will be offered.

If your profile fits and you could be interested in taking on this challenge, please send your C.V. to Vivien Yule at Ruston Poole International, Cording House, 34 St. James's Street, London SW1A 1HD. Fax: +44 (0)20 7930 3002. Email: vivien.yule@rustonpoole.com

RUSTON POOLE International

www.rustonpoole.com

As a major European pharmaceutical company, our success depends upon the dynamism of our research directed towards the discovery of new drugs. For our Research Centre situated near Paris, we wish to recruit an :

Electrophysiologist, Ph.D.

specialised in the Central Nervous System

Applicants should have a Ph.D. as well as relevant post-doctoral experience in central nervous system pharmacology. This position requires a strong background in *in-vivo* electrophysiology.

Working in our cerebral ageing department, the successful candidate will be responsible for initiating and developing *in-vivo* electrophysiology studies related to behavioural approaches and *in-vitro* electrophysiology.

You will also be in charge of the technical part of a small research team. Our material and technical facilities are excellent. You will join a high-level multidisciplinary team and evolve in a stimulating scientific environment.

Please send your application (CV, hand-written letter and passport-sized photo), quoting reference K1608, to PRESS EMPLOI, BP 513, 75423 Paris Cedex 09, France.

MEDIASYSTEM

E-Biosci is a new European based initiative in the area of electronic publication for the Life Sciences. Following a series of discussions with interested partners, led by EMBO (http://www.embo.org), the Governing Body of E-Biosci now invites applications for the position, which is immediately available, of:

E-BIOSCI MANAGER

The tasks of the Manager will be to put in place and develop E-Biosci as a service which will benefit scientists world wide and will identify new ways of communicating and interconnecting scientific data of relevance to the Life Sciences.

This high-ranking position will require:

- A record of Project Management Skills
- Proven ability to work in an International context
- A knowledge of Electronic Publication and its future capabilities
- The capacity to project the aims and interests of E-Biosci
- A knowledge of Life Sciences

The successful applicant will be based in EMBO in Heidelberg.

Applications together with a C.V., a summary of relevant experience and the names of 3 referees should be sent before **July 1st to Frank Gannon, Executive Director, EMBO, Postfach 1022.40, D-69012 Heidelberg, Germany** from whom further information may also be obtained ***by e-mail EMBO@embl-heidelberg.de* or *by phone +49 6221 383031.***

INVESTIGATOR, SYNTHETIC CHEMISTRY SMITHKLINE BEECHAM PHARMACEUTICALS

SmithKline Beecham, an international producer of pharmaceuticals and consumer health care products, is seeking an individual with a background in process development and organic chemical research to serve as Investigator, Synthetic Chemistry, at its research and development facility in King of Prussia, Pennsylvania. Principal duties include conceiving, planning, and executing chemical development research involving the total synthesis and large-scale preparation of pharmacologically active complex organic molecules and developing procedures for large-scale processes which are safe, reliable, and economical; and resolving project-related chemical and process development problems including the formulation of viable synthetic routes.

Minimum requirements are a Ph.D. degree in organic chemistry and at least two years of experience in the job offered or two years of postdoctoral experience in synthetic organic chemistry research including experience in (1) process chemistry; (2) the use of enzymes both in the laboratory and in scale up to pilot plant scale (20-500 gallons); (3) use of chromatographic methods including FCC, TLC, and HPLC; (4) use of spectroscopic methods including one- and two-dimensional 1H13CFT–NMR, polarimetry, FT–IR, and MS; and (5) evaluation of the purity of complex organic compounds against reference standards using HPLC assay methodologies.

SmithKline Beecham is dedicated to an innovative workplace and supports you with careerlong opportunities and learning. We offer a competitive benefits and compensation package. For confidential consideration, please forward your résumé to: **SmithKline Beecham Pharmaceuticals, ad code: 00612K, 709 Swedeland Road, Mail Code: UW2820, King of Prussia, PA 19406-0939**. Indicating ad code is essential. Principals only; no agencies, please. *We are an Equal Opportunity Employer; Minorities/Females/Disabled/Veterans.*

SOIL SCIENTIST/ RESEARCH HYDROLOGIST/ AGRICULTURAL ENGINEER

U.S. Department of Agriculture (USDA); Research, Education, and Extension (REE); Agricultural Research Service; Northern Plains Agricultural Research Laboratory; Agricultural Systems Research Unit in Sidney, Montana, is seeking a permanent, full-time **RESEARCH SCIENTIST** with demonstrated expertise in agricultural engineering, research hydrology, or soil science to serve as Research Leader. The incumbent will be responsible for all aspects of the unit's management including developing interdisciplinary teams and partnerships to address complex agricultural issues; develop and implement sustainable natural resource management practices and diversified agricultural systems that promote water use efficiency, soil and water quality, and reduce the negative impacts of plant pests and agrochemicals on the environment; interaction with USDA administrators and cooperators in universities and industry. The incumbent plans, conducts, and reports personal research addressing chemical and irrigation management strategies that improve soil and water quality by reducing erosion and chemical losses to surface and ground waters. *U.S. citizenship and a Ph.D. or equivalent is required.* Salary commensurate with experience ($70,457 to $107,738 per annum). Comprehensive benefits package includes paid sick and annual leave, life and health insurance, and a savings and investment plan (401[K] type) are available in addition to the federal retirement plan. For information on the research program and/or position, contact: **Dr. Will Blackburn; Telephone: 970-229-5557; e-mail: blackbuw@npa.ars.usda.gov**. Additional information about the position and application procedures can be obtained via the REE **website: www.ars.usda.gov/afm/hrd/resjobs**. *USDA/ARS is an Equal Opportunity Provider and Employer.*

POSITIONS OPEN

RESEARCH SCIENTIST INSTRUCTOR OR ASSISTANT PROFESSOR LEVEL University of Texas Southwestern Medical Center at Dallas Nephrology Division

The Division of Nephrology at the University of Texas Southwestern Medical Center has a new opening for an Instructor/Assistant Professor (research track). The successful candidate will conduct research on tissue-specific gene expression, kidney development, and polycystic kidney disease. Additional duties include supervision of core facilities and training of Postdoctoral Fellows and students. Applicants must have a Ph.D. and/or M.D. degree, two years of relevant postdoctoral experience, and demonstrable research accomplishments. Expertise in molecular biology, developmental biology, and transgenic mice is highly desirable. Qualified applicants should submit curriculum vitae, description of research interests, and names of three references to: **Peter Igarashi, M.D., Chief, Division of Nephrology, University of Texas Southwestern Medical Center, 5323 Harry Hines Boulevard, Dallas, TX 75390-8856. FAX: 214-648-2071**. More information is available at our **website: http://www.swmed.edu/home_pages/nephrology/**. *University of Texas Southwestern is an Equal Opportunity/Affirmative Action Employer.*

RESEARCH ASSOCIATE I: Conduct scientific research independently and in collaboration with other scientists in the area of plasmid engineering, with emphasis on improving expression of transfected DNA sequences in human cells. Plan and execute experiments; collect, analyze, and evaluate experimental data; and write and present reports to the research team and also with collaborating scientists and technicians. Requirements include a Bachelor's degree in life science or related field, with at least two years of experience in gene construction and expression. Thorough knowledge of standard recombinant DNA techniques, including plasmid construction skills, DNA sequencing and PCR technology, and also DNA analysis. *Applicants must have unrestricted authorization to work in the United States.* Salary: $61,513 per year. Forty hours per week. Respond with two copies of résumé to: **Case #19982976, P.O. Box 8968, Boston, MA 02114.**

HUMAN IMMUNOTHERAPY MASSACHUSETTS GENERAL HOSPITAL

The Hematology–Oncology Unit at Massachusetts General Hospital invites qualified applicants for a position as **RESEARCH TECHNICIAN**, a dedicated B.S./M.S.-level scientist, to assist with the development and performance of cellular assays (cell culture, CTL, proliferation, elispot, etc.) related to longitudinal monitoring of patients receiving dendritic cell vaccines for human melanoma. Other responsibilities include coordinating pickup and delivery of dendritic cell vaccines and blood samples as well as general laboratory organization and maintenance. Send curriculum vitae and three references to: **Dr. Frank G. Haluska, Division of Hematology/Oncology, Massachusetts General Hospital, GRJ1021, 55 Fruit Street, Boston, MA 02114. FAX: 617-726-6974; e-mail: haluska-frank@mgh.harvard.edu.**

RESEARCH ASSISTANT I: The Michigan State University, Department of Biochemistry, is searching for a Research Assistant to assist in the operations of a high-throughput sequencing facility. This would include maintenance and operation of biorobots for preparation of DNAs and sequencing reactions; performance of post-PCR cleanups; maintenance and operation of 3700 DNA analyzer; and use of computer software to edit, transmit, and store large amounts of data. Candidates will possess a Master's or Bachelor's degree in biochemistry, chemistry, or a closely related field and one to three years of related expansive work experience. Contact the **Michigan State University Employment Office** at **Telephone: 517-432-1662** to request an application. Refer to Position #P00427. Closing date for applications is June 30, 2000. *MSU is an Affirmative Action/Equal Opportunity Institution.*

POSITIONS OPEN

Applications are invited for two informatics positions at the University of California, Berkeley, to work with an LBNL/UCB team in developing gene expression analysis methodologies to identify and monitor potentially harmful environmental agents and to characterize their putative mechanisms of action. We are developing a variety of machine-learning techniques in order to develop highly sensitive and informative biosensors and markers for toxicity. We are recruiting for a **SENIOR SPECIALIST** to develop novel and apply existing analytical methods to gene expression and other data generated from cells, tissues, and organisms exposed to environmental agents. Requires an advanced degree in either the computational or life sciences with experience in statistical analyses. Must be proficient in a UNIX environment and have the ability to program in C/C++, Matlab, and basic shell scripts. Knowledge of SQL and PERL a plus. We are also recruiting for a **JUNIOR SPECIALIST** (B.S.) who will be responsible for the efficient implementation of analytical techniques developed in-house and installation of tools obtained from other sources. Please send résumés and inquiries by e-mail to: **Saira Mian; e-mail: smian@lbl.gov** or **Chris Vulpe; e-mail: vulpe@uclink4.berkeley.edu**. *The University of California is an Equal Opportunity/Affirmative Action Employer.*

SENIOR CUSTOMER SUPPORT ENGINEER BIOTECHNOLOGY Biotechnology Company with Offices in Foster City, California, and Norwalk, Connecticut

Work at various locations in New Jersey and on the East Coast. Responsible for supplying support services to customers through the installation, repair, and maintenance of high-pressure liquid chromatography mass spectrometers and instrumentation at customer sites in New Jersey and on the East Coast. Requires two years of college in electrical engineering or two years of experience in customer support engineering.

SALES ENGINEERS: Work at customer sites in California and Western states or Illinois and Midwestern states; sales and market development for protein analysis instrumentation products.

SCIENTISTS: Work in Foster City, California; research and development for DNA sequencing projects.

Send your résumé to: **PE Corporation, Human Resources Department, 850 Lincoln Centre Drive, Foster City, CA 94404. FAX: 650-638-5874; e-mail: pecorpad@resume.isearch.com. Website: www.pecorporation.com**. *Equal Opportunity Employer.*

RESEARCH ASSOCIATE I needed for institution of higher learning located in Dayton, Ohio. Job duties include: design, implement, and conduct experiments with isolated mammalian tissues and cells using microscopic and electrophysiological techniques; study the regulation of ion transport using patch clamp or imaging techniques; evaluate research results, prepare analysis of research for publications and grant proposals, and assist in preparation of research data for presentation at scientific meetings. Applicant must have Ph.D., M.D., or equivalent in physiology. Applicant must also have experience or coursework in the study of regulation of ion transport using patch clamp or imaging techniques. Forty hours per week; 8:30 a.m.–5 p.m., Monday through Friday; $33,992 per year. Send two résumés and cover letter (no calls) to: **Es SP Prgms, REF# 5696JD, Ohio Bureau of Employment Services, P.O. Box 1618, Columbus, OH 43216.**

ENGINEER, conversion tube design, wanted by manufacturer of electron tubes in Lancaster, Pennsylvania. Must have B.S. in engineering, physics, or related field and eight years of experience in electron optical and mechanical design of new conversion tube products. Engineering expertise with photomultiplier tube design is requisite for this position. Respond to: **Human Resources Department, Burle Industries, Inc., 1000 New Holland Avenue, Lancaster, PA 17601.**

European Opportunities

dkfz

Deutsches Krebsforschungszentrum
Stiftung des öffentlichen Rechts

Universität Heidelberg

Professorship (C3) for Molecular Genetic Epidemiology (No. 95/2000)

The Deutsches Krebsforschungszentrum (German Cancer Research Center, DKFZ) and the Faculty of Medicine at the University of Heidelberg will jointly appoint a scientist as head of the Division of Molecular Genetic Epidemiology within the Research Program "Cancer Risk Factors and Prevention".

Applicants should have excellent scientific records in molecular genetic epidemiology of human tumors and a sound knowledge in epidemiology as well as an experimental background in molecular genetics. "Habilitation" or equivalent scientific achievements are required. Applications from female scientists are encouraged.

Please send your application with a Curriculum Vitae, a list of publications, and references by July 31, 2000 to:
Deutsches Krebsforschungszentrum, Wissenschaftlicher Stiftungsvorstand, Im Neuenheimer Feld 280, D-69120 Heidelberg, Germany.

European Opportunities

International Max Planck Research School
PhD Program in
Structure and Function of Biological Membranes

Max Planck Institute of Biophysics
Max Planck Institute of Brain Research
Goethe University

Frankfurt am Main, Germany

A number of PhD fellowships are available in the newly established International Max Planck Research School in Frankfurt. The two Max Planck Institutes - *www.mpibp-frankfurt.mpg.de / www.mpih-frankfurt.mpg.de* - and research groups at Frankfurt University - *www.uni-frankfurt.de* - offer a unique environment for the study of biological membranes and membrane proteins. PhD opportunities exist in internationally leading laboratories in the areas of membrane protein structure determination, membrane biochemistry, molecular biology and functional studies by electrophysiological and spectroscopic methods as well as studies of whole membranes, cells and tissues.

Highly qualified candidates from all countries with degrees in biochemistry, chemistry, physics, biology, medicine or related subjects are invited to apply. Applications including a CV, a transcript of university courses taken, results of final examinations obtained or expected, a brief statement of research experience and scientific interests, and names and addresses of two academic referees should be sent before 31 July to:

Prof. W. Kühlbrandt
MPI of Biophysics
Heinrich-Hoffmann-Straße 7
D-60528 Frankfurt am Main
Germany

Tel: +49+69-96769-399
Fax: +49+69-96769-359
e-mail: Kuehlbrandt@mpibp-frankfurt.mpg.de
www.biophys.mpg.de

Global Opportunities

UNITED ARAB EMIRATES UNIVERSITY
FACULTY OF MEDICINE AND HEALTH SCIENCES

Full-time faculty positions: Assistant/Associate/Full Professor

Established in 1986 and recently moved into a completely equipped new building, the FMHS offers an integrated problem-oriented undergraduate medical curriculum with English as the medium of instruction.

ALL APPOINTEES will be familiar with ECFMG and MCCEE and will join a dynamic team with academic balance in progressive medical education, basic science and clinical research, clinical care, and community and university service.

BASIC REQUIREMENTS for appointment in Departments of **ANATOMY, BIOCHEMISTRY, MEDICAL EDUCATION, MICROBIOLOGY, PATHOLOGY, PHARMACOLOGY, and PHYSIOLOGY:** PhD or MD obtained by research, experience teaching medical students, and research productivity.

BASIC REQUIREMENTS for appointment in **COMMUNITY MEDICINE, FAMILY MEDICINE, INTERNAL MEDICINE, OBSTETRICS AND GYNECOLOGY, PEDIATRICS, PSYCHIATRY, RADIOLOGY, and SURGERY:** MD or MBBS followed by well-supervised advanced training, higher professional recognition, experience teaching medical students and advanced trainees, research productivity, and understanding of GME accreditation and requirements of membership/fellowship/certification in North America, Australia, Europe and the Arab Board.

The UAE is open, tolerant, and highly attractive; faculty receive tax-free salary, support for accommodation/furnishings, annual air fares, educational assistance for up to three children, and international conferences, and generous leave.

Further information at http://www.uaeu.ac.ae or from the respective Department Chair: Tel: +971-3-7672000 or Fax: +971-3-7672001.

Applications should include letter indicating depth of interest, experience and suitability for the position sought, full CV/publication list and names/addresses/fax of four referees to:

The Dean (c/o Mr C. P. Nair)
FMHS, UAE University
P.O. Box 17666
Al Ain, United Arab Emirates

Applications closed 1 September 2000. Previous applicants need not apply.

MUSC
MEDICAL UNIVERSITY OF SOUTH CAROLINA

POSTDOCTORAL AND TECHNICAL POSITIONS IN MOLECULAR IMMUNOLOGY

Positions are available to study various aspects of complement biology. Projects include: (1) the role of complement in inflammation and strategies to target recombinant complement inhibitors to sites of complement activation and disease; (2) the molecular interaction between the complement inhibitor CD59 and its ligands; (3) the role of complement inhibitors in promoting tumorigenesis. Experience in molecular biological techniques and/or protein biochemistry is desirable. Applications (including curriculum vitae and names of references) should be sent to: **Dr. Stephen Tomlinson, Medical University of South Carolina, Department of Microbiology and Immunology, 173 Ashley Avenue, Charleston, SC 29425. E-mail: tomlinss@musc.edu.**

POSTDOCTORAL OPPORTUNITY IMMUNOLOGY

A dynamic laboratory, housed in a state-of-the-art research facility, is seeking a self-motivated and creative M.D. and/or Ph.D. Fellow with expertise in immunology, especially in immune suppression and immune activation by costimulation or the biology of tumor metastases. The selected candidate will participate in an exciting research program in immunemodulated cancer therapy. Apply with updated curriculum vitae and bibliography plus three letters of recommendation sent directly to: **Dr. Shu-Hsia Chen, Assistant Professor, Institute for Gene Therapy and Molecular Medicine, Mount Sinai School of Medicine, One Gustave L. Levy Place, Box 1496, New York, NY 10029. FAX: 212-803-6740; website: www.mssm.edu.** *We are an Equal Opportunity Employer fostering diversity in the workplace.*

Two **POSTDOCTORAL POSITIONS** available in bioanalytical chemistry. Both projects employ biomolecule-coated nanoparticles in detection schemes. The first involves application of Au nanoparticle-amplified surface plasmon resonance to study assembly of the multiprotein DNA replication fork, and the second involves a novel type of nanoparticle-based biosensing strategy. For either position, prior experience with surface-based optical techniques and/or surface-bound biomolecules is highly desirable. To apply, send curriculum vitae and references to: **Dr. Christine Keating, Department of Chemistry, The Pennsylvania State University, University Park, PA 16802. E-mail: keating@chem.psu.edu.**

POSTDOCTORAL/RESEARCH ASSOCIATE POSITION is available to study the regulation of gene expression and signal transduction by oxidative stress and glutathione. The project involves analysis of microarray and yeast two-hybrid data. Applicants should have a Ph.D, M.D., or equivalent degree and a strong background in cellular and molecular biology. Please send curriculum vitae with three references to: **Michael W. Lieberman, M.D., Ph.D., Department of Pathology, Baylor College of Medicine, One Baylor Plaza, Houston, TX 77030. FAX: 713-798-6001; e-mail: mikel@bcm.tmc.edu.** *Baylor College of Medicine is an Equal Opportunity/Affirmative Action/Equal Access Employer.*

POSTDOCTORAL/RESEARCH ASSOCIATE position is available immediately to study mechanisms of pulmonary vascular reactivity. Experience with standard and confocal fluorescent microscopy, patch clamping, or tension/diameter measurements in isolated microvessels is required. Send curriculum vitae and three letters of reference to: **J. T. Sylvester, M.D., Division of Pulmonary and Critical Care Medicine, The Johns Hopkins Asthma and Allergy Center, Baltimore, MD 21224. FAX: 410-550-2612; e-mail: jsylv@welch.jhu.edu.**

POSITIONS OPEN

POSTDOCTORAL FELLOWSHIP IN AQUATIC ANIMAL MEDICINE AND PATHOLOGY

An 18-month Postdoctoral Fellowship commencing January 1, 2001, will be offered by the Division of Marine Mammal Research and Conservation, Harbor Branch Oceanographic Institution (HBOI), Ft. Pierce, Florida. The Division of Marine Mammal Research and Conservation has multifaceted programs involving marine mammal strandings, manatee rescue and rehabilitation, free-ranging bottlenose dolphin photo identification, and broad research investigating the pathologic basis of disease in marine mammals. The HBOI Marine Mammal Stranding Center provides temporary or long-term care for various marine mammal species. Animals that can be treated successfully are rehabilitated, released, and typically monitored postrelease via telemetry devices. Collaborative programs in medicine exist with the Miami Seaquarium and marine mammal facilities in Mexico, Belize, Argentina, and Brazil. Pathologic studies involve the gross and histopathologic characterization of diseases in marine mammals with special emphasis on the effects of biotoxins in these species. Collaborative programs in pathology exist with the Wildlife and Avian Laboratory, Division of Comparative Pathology, Department of Pathology, and University of Miami School of Medicine, Miami, Florida. An opportunity is also available for the Postdoctoral Fellow to interact with the Division of Aquaculture at HBOI, which has intensive programs in clam, shrimp, and tropical fish aquaculture.

An original research project, the results of which will be written for publication in a peer-reviewed scientific journal, is required for successful completion of this program. In addition, the Postdoctoral Fellow will be responsible for coordinating marine mammal rescues, handling all aspects of clinical care for marine mammal patients, and completing necropsies with the supervision of the HBOI marine mammal staff. Follow-up histopathologic tissue evaluations will be done with the resident comparative pathologist or at the University of Miami School of Medicine. Applicants must possess a D.V.M. or equivalent degree. Selection of the successful applicant will be based on a combination of academics, relevant interest and experience, and an assessment of the candidate's career goals and objectives. The stipend is currently $27,072 annually, and the Fellowship is nonrenewable.

Interested candidates should forward a letter of intent, curriculum vitae, official academic transcripts, three letters of recommendation, and a completed application to: **Gregory D. Bossart, V.M.D., Ph.D., c/o Personnel Services, Harbor Branch Oceanographic Institution, Inc., 5600 U.S. 1 North, Ft. Pierce, FL 34946.** Please request an application at **e-mail: personnel@hboi.edu.** For information about Harbor Branch, please consult our **website: www.hboi.edu.** Application deadline is October 1, 2000.

POSTDOCTORAL POSITION is available immediately to study the structure, biochemistry, and genetics of bacterial peptidoglycan synthesis and to address fundamental questions about the cell wall and bacterial physiology. Candidates should have a Ph.D. in the microbiological, biochemical, or chemical sciences and experience with the techniques of molecular and microbial genetics. To apply or to receive further information, contact: **Kevin Young, Department of Microbiology and Immunology, University of North Dakota School of Medicine, Grand Forks, ND 58202-9037. E-mail: kyoung@medicine.nodak.edu.**

POSTDOCTORAL POSITION. A Postdoctoral position is available to carry out protein expression and enzymatic analysis of novel proteins required for antibiotic biosynthesis in *Streptomyces*. Previous experience with protein expression and enzymology is required. Send curriculum vitae and names of three references to: **Dr. R. J. Parry, Department of Chemistry MS-60, Rice University, 6100 Main Street, Houston, TX 77005-1892. E-mail: parry@rice.edu.**

POSITIONS OPEN

PALATIN TECHNOLOGIES®

Palatin Technologies is a biopharmaceutical company dedicated to developing and commercializing cutting-edge technologies for diagnostic imaging and ethical drug development. Our research laboratory facility in Edison, New Jersey (Raritan Center area) currently has the following biopharmaceutical research career opportunity:

SENIOR RESEARCH SCIENTIST: Ph.D. in toxicology (preferred), pharmacology, or biology with at least two years of postdoctoral experience and supervisory experience in preclinical research projects and coordinating new drug safety studies.

We offer a competitive compensation and benefits package including company-paid employee medical, dental, and prescription, stock option and 401(k) plans. Please send your résumé and salary requirements to: **mthomaier@palatin.com** or **Human Resources, Palatin Technologies, Inc., 103 Carnegie Center, Suite 200, Princeton, NJ 08540.**

SCIENTIFIC DATA ANALYST (REF/SEQ CURATOR) NIH/National Center for Biotechnology Information

Computercraft Corporation, a team-oriented biotech consulting firm, has an opening for a Scientific Data Analyst (Ref/Seq Curator) working on-site at the NIH in Bethesda to participate in the Ref/Seq project at the National Center for Biotechnology Information (NCBI). This project provides reference sequence standards for chromosomes, mRNAs, and proteins and involves the use of state-of-the-art computer systems, specialized databases, bioinformatics software, and literature reviews to curate highly annotated sequence records for human and vertebrate model organisms. Responsible for reviewing available sequence data to generate the most complete accurate representative reference sequence possible and to expand the annotation associated with that reference sequence. See **website: http://www.ncbi.nlm.nih.gov/refseq.html** for additional information.

M.S. or Ph.D. in biology or molecular biology required. While not a laboratory position, extensive molecular biology laboratory experience is needed. Excellent verbal and written skills required. Experience with UNIX operating systems and DNA sequence analysis software important.

Qualified candidates are invited to submit cover letter, résumé, salary history and requirements, and a list of references via **e-mail to: hr@computercraft-usa.com; FAX: 301-493-1288; mail: Computercraft Corporation, Attention: HR, 6701 Democracy Boulevard, Suite 401, Bethesda, MD 20817.** For additional information and molecular biologist positions, see us at **website: www.computercraft-usa.com.**

Neuroimmunologist/neurobiologist at **POSTDOCTORAL/RESEARCH ASSOCIATE** level to join in studies of the molecular and/or cellular mechanisms underlying the neuroprotection associated with suppression of inflammation in cerebral microvessels/microglia elicited by brain stimulation in rat. Strong experience in cytological and molecular basis of cerebral inflammation, regional neuroanatomy, and use of small animals. Contact: **D. J. Reis/J. Anrather, Division of Neurobiology, Weill Medical College of Cornell University, 411 East 69th Street, New York, NY 10021. E-mail: kkoenig@mail.med.cornell.edu.** *Equal Employment Opportunity/Affirmative Action; Minorities/Females/Disabled/Veterans.*

Computational neuroscience: **POSTDOCTORAL FELLOW** to investigate the dynamical properties of nonlinear systems with a particular emphasis on information processing and storage in gene networks and molecular pathways. Applicants should send a letter of application, curriculum vitae, and names of three references to: **Dr. John H. Byrne, Department of Neurobiology and Anatomy, The University of Texas–Houston Medical School, Houston, TX 77030.** *Affirmative Action/Equal Opportunity Employer.*

Lead Discovery Biology Scientists

AstraZeneca is one of the world's leading pharmaceutical companies, with approximately 50,000 employees. Operations are based on innovative research and development of pharmaceuticals in a number of major therapeutic areas. AstraZeneca has a highly developed marketing organisation around the globe, with a number of world-leading products. Production is conducted in some 20 countries. For further information, see: www.astrazeneca.com.

AstraZeneca R&D Mölndal conducts research on cardiovascular and gastrointestinal diseases. The unit has approximately 1,500 employees.

The Discovery Unit at AstraZeneca R&D, Mölndal is responsible for identifying candidate drugs in the Cardiovascular/Gastrointestinal Research Area. Within this unit the Lead Discovery group plays a key role, working with biological targets identified as being important in disease processes and identifying and characterising molecules (lead compounds) from which optimisation to candidate drugs can occur. This group works in close collaboration with other disciplines within the Research Area including Disease Area scientists.

We are currently seeking two people to join the Lead Discovery group at Department of Cell Biology & Biochemistry in Mölndal.

PhD Biologist

You will be responsible for the development of *in vitro* assay techniques, suitable for high- and medium-throughput screening. You will in due course be expected to take responsibility for one or more Lead Discovery targets ensuring that assay development, transfer to the corporate high-throughput screening groups and the subsequent evaluation and development of potential lead compounds is performed effectively and with high quality. You are an enthusiastic, well-motivated scientist with 0–3 years of post-doctoral experience with a solid background in biochemistry and cell biology and an interest in *in vitro* assay technologies. A desire to conduct your own experimental work and an ability to supervise the work of other bench scientists are essential. Knowledge of molecular biology and fluorescent techniques as well as an interest in data interpretation and computing will be an advantage. You should enjoy working at high tempo as part of a flexible team and should be able to collaborate effectively with groups outside Lead Discovery.

For more information please contact Jan Fryklund, phone +46 31-776 17 25, David Keeling, phone +46 31-776 15 28 or Vijay Chhajlani, phone +46 31-776 20 97.

Applications with full details should be marked with "105/00 PhD Biologist" not later than June 19 to AstraZeneca R&D Mölndal, Human Resources, Att: Victoria Persson, SE-431 83 Mölndal, Sweden

AstraZeneca

UNIVERSITY OF REGINA

NSERC UNIVERSITY FACULTY AWARD/ASSISTANT PROFESSORSHIP IN ANIMAL MOLECULAR BIOLOGY
University of Regina

The Department of Biology of the University of Regina invites applications for a National Sciences and Engineering Research Council of Canada (NSERC) University Faculty Award (UFA). These awards are made to *women only who are Canadian citizens or permanent residents of Canada.* Candidates should have an active research program in some area of animal molecular biology. NSERC guidelines may be consulted at **website: www.nserc.ca/programs/sf/UFA_e.htm**. The successful NSERC UFA candidate will be appointed to a tenure-track position beginning July 1, 2001. Candidates must have a recent Ph.D., postdoctoral experience, and a productive research record. As well as establishing an externally funded research program, the successful candidate will be expected to participate in the teaching of undergraduate and graduate students. Successful UFA applicants receive a research grant from NSERC; the University will provide start-up research funds as well. Teaching load is one course equivalent per academic year for the first five years. Further information about the Department is available on the Worldwide Web at **website: http://www.uregina.ca/science/biology**.

Applicants should send curriculum vitae, a letter outlining their proposed research program, three letters of recommendation, and copies of recent publications by August 15, 2000, to: **Dr. H. Weger, Chair, Selection Committee, Department of Biology, University of Regina, Regina, Saskatchewan S4S 0A2 Canada. Telephone: 306-585-4479; FAX: 306-585-4894; e-mail: harold.weger@uregina.ca**.

NSERC UNIVERSITY FACULTY AWARD IN BIOCHEMISTRY

The Department of Chemistry and Biochemistry invites applications for a University Faculty Award (UFA) from the National Sciences and Engineering Research Council of Canada (NSERC). The Award, which is *only available to women who are Canadian citizens or permanent residents of Canada on November 1, 2000,* is concomitant with a tenure-track **ASSISTANT PROFESSORSHIP** beginning July 2001.

Although we welcome applicants with expertise in all areas, we urgently need a biochemist and an analytical chemist. Applicants should hold a Ph.D. degree and have at least one to two years of postdoctoral experience. The appointee is expcted to teach at the undergraduate and graduate levels as well as carry out research. Applications should include a research proposal (NSERC format) and the names and addresses of three references. They should be sent before August 15, 2000, to: **Head, Department of Chemistry and Biochemistry, University of Regina, Regina, Saskatchewan S4S 0A2 Canada. E-mail: margaret.friebel@uregina.ca**. UFA details are obtainable from **website: www.nserc.ca/programs/sf/UFA_e.htm**, while details of the Department's faculty and research activity can be seen at **website: www.chem.uregina.ca.**

Several **POSTDOCTORAL POSITIONS** are available immediately to study population coding in primate visual cortex. One line of research looks at distributed neural codes in visual motion perception. Another project focuses on multielectrode stimulation in visual cortex with the goal of developing efficient parallel stimulation algorithms. Both projects involve a combination of behavioral and electrophysiological techniques. Please send curriculum vitae and three letters of reference to: **Dr. David Bradley, Psychology Department, The University of Chicago, 5848 South University Avenue, Green 314, Chicago, IL 60637**. *The University of Chicago is an Affirmative Action/Equal Opportunity Employer.*

POSITIONS OPEN

AtheroGenics, Inc.

SCIENTIST/SENIOR SCIENTIST MOLECULAR/CELLULAR BIOLOGY

AtheroGenics, Inc., is a biopharmaceutical company engaged in the discovery and development of products for the diagnosis and treatment of cardiovascular inflammatory diseases. Currently, we have an opening for a highly motivated individual to fill the position of Scientist or Senior Scientist in the Genomics group. Your major responsibilities will include the proposal and implementation of new approaches to identify and validate new therapeutic targets for inflammatory diseases. The qualified candidate will possess a Ph.D. and three to five years of extensive molecular and cellular biology experience working in the areas of genomics and inflammation. These should include highly developed skills in various state-of-the-art technologies including gene identification (expression array technologies, gene database searching, subtractive libraries, etc.) and *in vitro* and *in vivo* gene validation strategies (antisense, ribozyme approaches, construction and use of viral expression constructs, etc.). Experience in oxidative stress and redox-mediated signaling pathways as they relate to vascular biology and inflammation is preferred. A strong capacity for self-motivation, excellent communication skills, and the ability to interact successfully in a cooperative team environment are required. AtheroGenics offers an innovative and exciting scientific environment with competitive salaries, stock option plan, and a generous benefits package. To apply, FAX or send résumé to: **AtheroGenics, Human Resources, Job Code: CK–3, 8995 Westside Parkway, Alpharetta, GA 30004**. Apply via our **website: www.atherogenics.com; FAX: 678-393-8616**. No phone calls please. *Equal Opportunity Employer.*

POSTDOCTORAL POSITION YEAST SCIENTIST

A Postdoctoral position will be available in the fall for an individual who is currently completing his/her requirements for the Ph.D. degree using yeast. The individual should be experienced in working with yeast and preferably with producing and mutating a protein therefrom for study. The individual recruited would join a research group interested in molecular studies on the mitochondrial ATP synthase, a remarkable enzyme operating via two types of motors to produce ATP. Send complete curriculum vitae and three letters of recommendation to: **Dr. Peter L. Pedersen, Department of Biological Chemistry, Johns Hopkins University School of Medicine, 725 North Wolfe Street, Baltimore, MD 21205-2185. FAX: 410-614-1944.** *Equal Opportunity Employer.*

JUNIOR RESEARCHER position supported by National Institute of Neurological Disorders and Stroke is available immediately to study the pathogenesis of HIV-associated dementia. Project will focus on defining HIV-1-specific cytotoxic T lymphocyte responses in the CNS of HIV-infected subjects. Master's degree (Ph.D. desirable) required; individuals with experience in cellular immunology and molecular cloning techniques are encouraged to apply. Minimum annual salary: $33,312. Send curriculum vitae with names and addresses of three references to: **Dr. Allison Imrie, Pacific Biomedical Research Center, 1993 East-West Road, University of Hawaii at Manoa, Honolulu, HI 96822**. Closing date: July 18, 2000. *Equal Employment Opportunity/Affirmative Action Institution.*

POSITIONS OPEN

SMITHSONIAN TROPICAL RESEARCH INSTITUTE

The Smithsonian Tropical Research Institute (STRI) announces an international search for the position of **DEPUTY DIRECTOR**. The individual selected will help create and implement the policies necessary to fulfill the Institute's mission, which is primarily research but includes conservation biology and education outreach.

STRI operates a variety of terrestrial and marine laboratories throughout the Republic of Panama and maintains cooperative agreements with other research and educational institutions throughout the world's tropics. The Deputy Director will be involved in all aspects of STRI operations but with a focus on external policies and development. He/she will be expected to strengthen STRI's leadership in research on the world's tropics. We seek an individual with a combination of experience in one or more of the disciplines relevant to STRI's research programs and strong managerial skills. The candidate will be required to build cross-disciplinary programs in the areas of tropical science including environmental monitoring, climate change, forest dynamics, paleoecology, canopy biology, marine sciences, anthropology, ecology, and animal behavior. A knowledge of the Spanish language is desirable.

In addition to a scientific staff of 35, STRI hosts several hundred visiting scientists each year. Additional opportunities to work with North American and European universities are being developed through cooperative agreements to support graduate programs focused on the Tropics.

Applicants must have a Ph.D. in a field related to STRI research interests. Please submit a letter of interest; a résumé with publications, funding history, and administrative experience; and names and addresses with telephone numbers of at least three references to: **Luz Latorraca, Office of Human Resources, STRI, Unit 0948, A.P.O. AA 34002. Telephone: 507-212-8094; FAX: 507-212-8150; e-mail: latorrac@tivoli.si.edu**. STRI will make an appointment without regard to race, religion, gender, or handicap.

Review of applications will begin in July 2000 and will continue until vacancy is filled.

POSTDOCTORAL POSITION IN MOLECULAR ENDOCRINOLOGY

An NIH-funded position is available to clone and characterize novel coregulatory proteins which function as transcriptional coactivators for nuclear hormone receptors. Applicants must have experience with (1) recombinant DNA and cloning, (2) mammalian cell culture and transfections, and (3) expression and purification of recombinant proteins. Applicants should send curriculum vitae and a list of three references to: **Dr. Joseph D. Fondell, Department of Physiology, University of Maryland School of Medicine, 660 West Redwood Street, Baltimore, MD 21201. FAX: 410-706-8341; e-mail: jfond001@umaryland.edu.**

A **POSTDOCTORAL POSITION** is available immediately to study the organization and replication of a novel form of mitochondrial DNA (kinetoplast DNA). Research focuses on the mechanism of cell cycle regulation of DNA replication genes, the identification of new genes involved in kinetoplast DNA replication, and the role of histone-like proteins in the organization and segregation of kDNA networks. See *Mol. Cell. Biol.* **19**:6174–6182, 1999; *PNAS* **96**:2579–2581, 1999; *Mol. Cell. Biol.* **16**:564–576, 1996. Send curriculum vitae and the names of three references to: **Dr. Dan S. Ray, Molecular Biology Institute, UCLA, Los Angeles, CA 90095-1570. E-mail: danray@mbi.ucla.edu.**

Assistant Professor of Plant Developmental Biology

As part of a University-wide genomics initiative, Cornell University is soliciting applications from outstanding candidates whose research focuses on the genetic analysis of developmental processes in plants. The appointee will join an interactive group of faculty who utilize genomic approaches and the latest techniques in genetics, cell and evolutionary biology, biochemistry, and analytical chemistry. Contribution to teaching in the area of plant developmental biology is expected.

Applicants should send curriculum vitae, statement of research interests and names of at least three references to:

Plant Search Committee
228 Plant Science Building
Cornell University
Ithaca, NY 14853-1901

Attn: Sandra Brown
(sgb2@cornell.edu)
Phone 607-255-8507, Fax 607-255-5407

Position open until filled; review of applications to commence on August 4, 2000.

CORNELL
UNIVERSITY

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http://www.cornell.edu

R&D SYSTEMS

SCIENTIST

R&D Systems, Inc., a well-established leading manufacturer of biological products has an immediate opening for a Scientist in its Mammalian Expression Group. Our goal is to provide the highest quality research reagents and to support them with prompt and reliable technical service. Due to the rapidly growing pool of genomic information, an opportunity exists for a motivated individual to play a key role in expanding our cutting edge technology for recombinant protein expression in mammalian cells. The ideal candidate will possess a Ph.D. in molecular biology, biochemistry or related discipline with at least 2 years applied experience in molecular biology and cell biology techniques. Strong working knowledge of vector design and recombinant protein expression is critical. Previous experience in an industrial setting is a plus. Must be able to interact efficiently with other team members and contribute to team goals in an interdisciplinary environment.

Candidates wishing to be considered for this position please submit your curriculum vitae or resume to:

R&D Systems, Inc.
ATTN: SCI/88 Human Resources
614 McKinley Place NE
Minneapolis, MN 55413

hr@rndsystems.com
No Agencies Please
Equal Opportunity Employer

European Opportunities

"Our employees are the key to success"

Excerpt from our Vision 2010

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BASF is an innovative transnational chemical company. With products and services in the Health & Nutrition, Colorants & Finishing Products, Plastics & Fibers and Oil & Gas segments, BASF is helping to meet the needs of a growing population worldwide.

Our bioinformatics group is looking for a young, dynamic and enthusiastic

Research Associate Bioinformatics (m/f)

to augment our team in the field of functional genomics.

Your qualifications:

- Doctoral degree in the fields of bioinformatics or biology with a clear relationship to bioinformatics or informatics with a plain understanding of biology
- Experiences with standard biological databases and tools for computational biology
- Strong interest/experience in programming

Your work:

As a member of our committed team, you will support genome projects and the building and maintenance of project databases. If you enjoy working in a team and would like to build and maintain international contacts and are looking for a challenge in an innovative environment, we look forward to talking to you.

BASF Aktiengesellschaft
University Relations
Dr. Rainer Bürstinghaus
ZOH - B 1
Reference number SC-N-00525
67056 Ludwigshafen

Dr. Carsten Jacobi
(telephone number +49-621-60 42 408)
is available to answer any specific questions you have.

Think innovatively, act responsibly.

BASF

GENE EXPRESSION BIOINFORMATICIST

InforMax, Inc., is the leading provider of bioinformatics software to academia and industry. We are offering an exciting opportunity for a talented **SCIENTIST** to take charge of research and development partnerships with scientists at customer sites. This person will collaborate to develop and implement novel data mining and analysis protocols in the area of high-throughput gene expression analysis. Direct experience with large-scale gene expression data analysis is required. Requirements also include a Ph.D. in molecular biology or related field, over two years of postdoctoral experience, and demonstrated ability to solve biological problems using computer-based approaches. Familiarity with UNIX and a programming language is preferred.

For immediate consideration, please send your cover letter and résumé to: **InforMax, Inc., Attention: Peter, 6010 Executive Boulevard, North Bethesda, MD 20852. E-mail: peter@informaxinc.com.**

ALLERGY/IMMUNOLOGY FACULTY POSITION

The Allergy Section of the Division of Allergy and Infectious Diseases at the University of Washington is recruiting a full-time faculty member at the **ASSISTANT** or **ASSOCIATE PROFESSOR** level in the physician/scientist pathway. The closing date for applications is August 15, 2000. Desirable qualities include ABIM certification in internal medicine and ABAI certification in allergy and immunology. Applicant must have extensive labortory-based research training in allergy/immunology and would be expected to develop an independent research program and participate in clinical activities of the Allergy Section. Send curriculum vitae to: **William R. Henderson, Jr., M.D., Allergy, Department of Medicine, Box 356523, 1959 N.E. Pacific Street, University of Washington Medical Center, Seattle, WA 98195-6523. FAX: 206-685-9318; e-mail: joangb@u.washington.edu**. *The University of Washington is building a culturally diverse faculty and strongly encourages applications from female and minority candidates. The University is an Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL POSITIONS AVAILABLE AT SLOAN-KETTERING INSTITUTE

Seeking research scientists with expertise in studying transcription factor function or molecular events that underlie normal or malignant hematopoiesis. Applicants may have expertise in the creation and analysis of knockout or transgenic mice; in gene chip/microarray technology; or in the study of signal transduction pathways, protein-protein interactions, or cell cycle regulation. Send a description of your research interests, curriculum vitae, and the names and telephone numbers of three references to: **Dr. Stephen D. Nimer, Memorial Sloan-Kettering Cancer Center, 1275 York Avenue, Box 575, New York, NY 10021.**

POSTDOCTORAL POSITIONS. Available immediately to study small GTP-binding proteins in secretion (*Science* **252:**1553; *J. Cell. Biol.* **130:**1051, **131:**583, **137:**563; *Mol. Cell. Biol.* **18:**827). Experience in cell biology, biochemistry, or molecular biology is required. Send curriculum vitae and three references to: **Nava Segev, Laboratory for Molecular Biology (M/C 567), The University of Illinois at Chicago, 900 South Ashland, Chicago, IL 60607. Telephone: 773-702-3526; FAX: 773-702-3774; e-mail: ns15@midway.uchicago.edu.**

POSITIONS OPEN

POSTDOCTORAL POSITIONS EUNICE KENNEDY SHRIVER CENTER

A Postdoctoral position is available immediately for a NASA-funded study to investigate the influence of hypergravity on embryonic development and retinoic acid-regulated transcription. Candidates should have a Ph.D. with experience in molecular and cellular biology; knowledge of *in situ* hybridization techniques and cell culture would be desirable.

The Shriver Center, located in suburban Boston, is an affiliate of the University of Massachusetts Medical School. The Department of Biomedical Sciences provides extensive core facilities and many opportunities for scientific interaction.

Please send curriculum vitae and the names and telephone numbers of three references to: **Peter McCaffery, Eunice Kennedy Shriver Center, Biomedical Sciences, Room 118, 200 Trapelo Road, Waltham, MA 02452. FAX: 781-893-4018; e-mail: pmccaffery@shriver.org**. Visit our **website: www.shriver.org.**

POSTDOCTORAL RESEARCH OLIGODENDROCYTE LINEAGE CELLS

A two-year appointment is offered at a competitive salary, and continuation is possible with program development. Applications include CNS myelination and/or remyelination. The position is intended for a Postdoctorate building a career in CNS stem cell biology or regeneration. Experience is required in cell identification techniques such as immunocytochemistry and *in situ* hybridization. Contact: **Richard Wiggins, Professor of Anatomy, West Virginia University School of Medicine, P.O. Box 9128, Morgantown, WV 26505**. *West Virginia University is an Affirmative Action/Equal Opportunity Employer.*

JUNIOR POSTDOCTORAL FELLOW

The Research Institute for Children's Hospital, Oakland, California, has an immediate opening in **Dr. Stuart Smith**'s laboratory to study the structure and mechanism of action of the fatty acid synthase and related enzymes. (*J. Biol. Chem.* **274:**11557, 1999; *Biochem.* **38:**11643, 1999). Relevant experience in molecular biology and enzymology required. Please send résumé and cover letter to: **Children's Hospital Oakland, Human Resources Department, 747 52nd Street, Oakland, CA 94609. FAX: 510-428-3306; e-mail: Choemployment@mail.cho.org**. *Equal Opportunity Employer.*

Two **POSTDOCTORAL POSITIONS** with **T. W. Sturgill** in cellular signaling available now for either the regulation and function of downstream MAPKAP kinases by MAP kinases or the enzymology and function of Target of Rapamycin (TOR) kinase in cancer. Both mammalian and yeast systems in use; either background appropriate and protein biochemists are especially welcome. Send curriculum vitae and three references (e-mail and telephone numbers) to: **T. W. Sturgill, Box 800577, Health Sciences Center, Department of Pharmacology, University of Virginia, Charlottesville, VA 22908. E-mail: tws7w@virginia.edu**. *The University of Virginia is an Equal Opportunity Employer.*

POSTDOCTORAL POSITION is available immediately to study calcium sparks and spikes in cardiac excitation-contraction coupling using patch clamp and confocal fluorescence imaging techniques. Experience in electrophysiology in cardiac myocytes is preferred. Send curriculum vitae and three references to: **James S. K. Sham, Ph.D., Division of Pulmonary and Critical Care Medicine, Johns Hopkins Asthma and Allergy Center, Baltimore, MD 21224. FAX: 410-550-2612; e-mail: jsks@welchlink.welch.jhu.edu.**

POSTDOCTORAL POSITION in computational neuroscience available immediately to develop computer models of neural circuits in the primate retina. Send curriculum vitae and names of three references to: **David W. Marshak, Department of Neurobiology and Anatomy, University of Texas Medical School, Box 20708, Houston, TX 77225. Telephone: 713-500-5617; e-mail: david.w.marshak@uth.tmc.edu.**

POSITIONS OPEN

INTERESTED IN CLINICAL OR POSTDOCTORAL RESEARCH TRAINING?

The National Institutes of Health has both! For more information, visit our website which lists an array of clinical and postdoctoral opportunities, including tenure-track positions.

http://www.training.nih.gov

NIH is dedicated to building a diverse community in its training and employment programs.

POSTDOCTORAL FELLOW IN PHARMACOLOGY

Immediate opening at Southern Illinois University School of Medicine for a Postdoctoral Fellow. Will participate in NIH studies aimed at understanding brain mechanisms involved in alcoholism and epilepsy and investigating the actions of agents affecting amino acid neurotransmitters and new anticonvulsant drugs. Minimum qualifications: (1) Ph.D. in pharmacology or physiology; and (2) neurophysiology experience, especially in tissue slice and neuronal recordings in awake-behaving animals during convulsive seizures. Submit résumé with names and addresses of three references to: **Carl L. Faingold, Ph.D., Professor and Chairman, Department of Pharmacology, Southern Illinois University School of Medicine, P.O. Box 19629, Springfield, IL 62794-9629**. Applications must be received by July 9, 2000, or until filled. *Equal Opportunity/Affirmative Action.*

POSTDOCTORAL POSITION

A **POSTDOCTORAL FELLOWSHIP** position is immediately available to study structure, function, and mechanistic aspects of the molecular chaperones DnaK, GrpE, and DnaJ. We are interested in understanding how GrpE and DnaJ modulate the interaction of DnaK with substrates. Individuals with experience in molecular biology are especially encouraged to apply. Interested applicants should send their curriculum vitae, a brief description of research experience, and contact information with three references to: **Dr. Stephan N. Witt, Department of Biochemistry and Molecular Biology, Louisiana State University Health Science Center, Shreveport, LA 71130. E-mail: swittl@lsumc.edu**. *Louisiana State University Health Science Center is an Affirmative Action Employer.*

POSTDOCTORAL FELLOW FUNCTIONAL GENOMICS LABORATORY

The Functional Genomics Laboratory at the Mount Sinai School of Medicine has an immediate opportunity for a Postdoctoral Fellow to be responsible for the identification and characterization of key protein regulators in the control of cellular apoptosis. Qualifications include a Ph.D. with a strong background in molecular biology and cell biology. Experience in apoptosis, oncogenesis, and signal transduction is an advantage but not required. If you are interested, please FAX your curriculum vitae and the names of three references to: **Dr. Robert Desnick, Chairman, Department of Human Genetics, Mount Sinai School of Medicine. FAX: 212-360-1809; e-mail** to **Dr. Y. Zhao** at: **zhaoy01@doc.mssm.edu**. Visit us at **website: www.mssm.edu**. *We are an Equal Opportunity Employer fostering diversity in the workplace.*

POSTDOCTORAL POSITION available for studies of the mitochondrial phosphate transport protein (PTP). Current investigations utilize various biophysical/biochemical/molecular biology methods to obtain a high-resolution structure of PTP and to identify the molecular mechanism with which PTP catalyzes the electroneutral H+/Pi- cotransport. Please send curriculum vitae and names of three references to: **Dr. Hartmut Wohlrab, Boston Biomedical Research Institute/Harvard Medical School, 64 Grove Street, Watertown, MA 02472. E-mail: wohlrab@bbri.org.**

Tenured Position

Cellular and Molecular Neurobiology

As a major initiative in the Neurosciences, the Pasteur Institute in Paris invites applications for potential Group Leader. The successful candidate should be capable of establishing and maintaining a strong and internationally competitive research group focused on studies of functional and molecular properties of neurones and their related networks.

Priority will be given to investigations of sensory functions and of the cerebral cortex, including pharmacology and genetic or infectious disorders. The tools utilized will encompass electrophysiology, *in vitro* and/or *in vivo* imaging coupled with molecular biology, structural analysis and mathematical models.

The Pasteur Institute wishes not only to promote excellence in neuroscience research, but also to encourage collaborative projects with other groups in the fields of molecular genetics, immunology, infectious and viral diseases, molecular pharmacology, and biotechnology.

Applicants must have a Ph. D. or M.D. and research experience in one or more of the relevant areas listed above. They should send a CV, a 1-2 page statement of research interests, and the names of three references to: Dr. Alain Gouyette, Institut Pasteur, 25-28 rue du Dr. Roux, 75015 Paris, France

Royal Holloway
University of London

Professor of Plant Molecular Sciences

Applications are invited for a Chair in Plant Molecular Sciences to join our active and internationally recognised research group in Plant Cell and Molecular Biology.

Candidates from any relevant research area will be considered but applications from individuals with research programmes in plant developmental biology, cell signalling, functional genomics or metabolic regulation are particularly encouraged. The successful applicant will complement our existing research strengths in plant molecular cell biology, Arabidopsis molecular genetics, transgenics and metabolism. The Plant Cell and Molecular Biology research group comprises ten permanent staff members and their research teams, and is housed in newly-refurbished laboratories.

Applicants should have achieved an international reputation for the excellence of their research and have well-established track records for success in attracting research funding and in quality research output.

Royal Holloway is one of the five major multi-faculty sites of the University of London, situated in the Surrey Green Belt close to Windsor and Heathrow. Information about the College and School of Biological Sciences can be found at http://www.rhbnc.ac.uk and http://www.rhbnc.ac.uk/biosci/ respectively.

Informal inquiries may be made to the Head of School, Professor John Bowyer (tel: +44(0)1784 443803; fax: +44(0)1784 434326;e-mail: j.bowyer@rhbnc.ac.uk)

Application forms and further details are available from the Personnel Officer, Royal Holloway, University of London, Egham, Surrey TW20 0EX, UK. Tel: +44(0) 1784 443030; fax: +44(0)1784 473527; e-mail: c.warrington@rhbnc.ac.uk Please quote reference MHA/21.

The closing date for receipt of applications is 11th July, 2000, but the search will continue until an appointment is made.

We positively welcome applications from all sections of the community.

EMBO WORKSHOP ON SIGNAL TRANSDUCTION MEDIATED REGULATION OF NUCLEAR TRANSPORT

January 19 to January 22, 2001 at Strasbourg, France

Following themes will be dealt with:
- **Calcium regulation of nuclear transport**
- **Regulation of nuclear transport by phosphorylation**
- **Signal-dependent modulation of Ran-System**
- **Regulation of RNA transport**
- **Modulation of nuclear transport in cell cycle and apoptosis**
- **Alterations in nuclear transport during disease states**

Keynote address by **Professor Günter Blobel** (1999 Nobel Laureate in Physiology and Medicine)

Invited Speakers are (accepted):
O Bachs, H Bading, C Block, B Daneholt, C Dargemont, R J Davis, G Dreyfuss, W Earnshaw, E A Elion, G Elliott, M Gaestel, L Gerace, U Greber, J A Hanover, A Helenius, E Izaurralde, M Karin, H G Kraesslich, R Luehrmann, A N Malviya, I Mattaj, F McCormick, T J McDonnell, T Nishimoto, O H Petersen, J Pines, A Rao, P J Rogue, P A Silver, J Superti-Furga, M Zaidi.

Place is limited for 80 scientists and 20 student's participation. Those desiring to participate may fill out the application at the web site **(http://neurochem.u-strasbg.fr/embows.html)** giving a brief resume of their current research and background. The application will be scrutinized by the expert committee. The registration fees (waived for student participation) will be **800 US Dollars**, which include hotel accommodation and pension. The selected candidates will be required to submit an abstract with the registration fees not later than **October 1, 2000**. Students will be charged subsidised accommodation dues **(200 US Dollars)** and will be required to present posters. Two oral presentations will be selected from the poster abstracts received.

Organizers: A N Malviya, P J Rogue, D Aunis, B Ehresmann

Contact address: Professor A N Malviya
E-mail: embows@neurochem.u-strasbg.fr
Tel: (+33) 3 88 45 66 43

SPINAL RESEARCH
...ending the permanence of paralysis

The International Spinal Research Trust

Request for proposals

Spinal Research is a grant giving charity (number 281325) based in the U.K. with the sole purpose of funding research aimed at resolving the non or partial functioning of the injured spinal cord.

Continuing our successful strategic approach towards research funding, we now invite applications for project grants that relate specifically to one or more of the following themes (*Spinal Cord* (1996) 34:449-459):

- minimising the early cellular effects of spinal cord trauma
- minimising glial scar formation
- optimising the function of surviving axon fibres
- promotion of appropriate axonal sprouting and restoration of functional connections
- assessment of autonomic function in spinally injured patients and/or animal models

Preference will be given to applications that involve studies in the *adult mammalian* spinal cord, or that provide explicit justification for the use of other systems and how the results could be verified and translated.

Applicants should submit five copies of a letter of intent (c. two sides) summarising the proposed research and background of the laboratory, together with five copies of an approximate budget and curriculum vitae of the Principal Investigator(s) **by 21st July 2000**. No faxed or electronic letters will be accepted.

Copies of our draft updated Research Strategy are available on request. Awards are based on the level of a post-doctoral salary plus laboratory consumables over three years. Following a preliminary review, detailed proposals will be invited from a limited number of applicants.

Address letters of intent to: ISRT, 8a Bramley Business Centre, Station Road, Bramley, Guildford, Surrey GU5 0AZ, U.K.
Tel: +44 (0)1483 898786 Fax: +44 (0)1483 898763
E-mail: research@isrthq.demon.co.uk

BIOLOGICAL MASS SPECTROMETRY RESEARCH/TEACHING POSTDOCTORAL POSITION AT GRINNELL COLLEGE

Grinnell College is seeking a Postdoctoral-level **CHEMIST** or **BIOCHEMIST** with research interests in biological mass spectrometry and a strong interest in undergraduate liberal arts education. This unique two-year position is funded through an AIRE grant from National Science Foundation and *requires U.S. citizenship*. The successful candidate will be expected, in collaboration with one or more Grinnell College faculty members, to participate in an ongoing research program involving undergraduates. Research equipment includes an electrospray ion trap mass spectrometer and a new 400 MHz NMR. Research projects involve the use of mass spectrometry for biomolecule structure determination, including noncovalent complexes. The successful candidate will also be involved in teaching and curricular development for a new interdisciplinary biological chemistry major. Potential teaching opportunities are available in introductory, organic, or physical chemistry areas. Questions may be addressed to: **Elaine Marzluff, Department of Chemistry; Telephone: 515-269-4314; FAX: 515-269-4285; e-mail: marzluff@grinnell.edu.** Information about Grinnell College and faculty research programs is available at **website: http://www.grinnell.edu**. Applicants should submit curriculum vitae; a brief description of past, current, and planned research interests; and a statement describing their philosophy of undergraduate education and long-range career plans along with a list of references and copies of transcripts to: **Elaine Marzluff, Department of Chemistry, Grinnell College, Grinnell, IA 50112**. To be assured of consideration, all materials should be submitted by June 26, 2000.

Grinnell College is an Equal Opportunity/Affirmative Action Employer committed to employing a highly qualified staff, which reflects the diversity of the nation. No applicant shall be discriminated against on the basis of race, national or ethnic origin, age, gender sexual orientation, marital status, religion, creed, or disability.

TENURE-TRACK ASSISTANT PROFESSOR POSITION AVAILABLE IN LIVER CELL BIOLOGY AND PATHOPHYSIOLOGY

Preference will be given to basic scientists working in the following areas: cell biology of hepatocytes or nonparenchymal liver cells, liver-cell injury and apoptosis, viral hepatitis, and regulation of liver cell gene expression.

Expectations include the establishment of a funded research program, teaching of medical and graduate students, and participation in a multidisciplinary liver and viral hepatitis research group.

A competitive start-up package will be available to the successful candidate. Interested individuals should send detailed curriculum vitae and publications list, statement of research interest and goals, and the names and addresses of three references to: **Luis Reuss, M.D., Professor and Chair of Gastrointestinal/Liver Search Committee, University of Texas Medical Branch, 301 University Boulevard, Galveston, TX 77555-0641. FAX: 409-772-3381; e-mail: lreuss@utmb.edu.**

University of Texas Medical Branch is an Equal Opportunity/Affirmative Action Employer; Minorities/Females/Disabled/Veterans. UTMB is a smoke-free, drug-free workplace and hires only individuals authorized to work in the United States.

Several **POSTDOCTORAL** (four), **RESEARCH ASSISTANT** (three), and **GRADUATE ASSISTANT** (two) positions available in plant and animal genomics at Texas A&M University. Must have Ph.D., M.S., or B.S. in molecular genetics/biology or other biological sciences. Salary will be commensurate with experience. Send résumé and names and telephone numbers of three references to: **Dr. Hongbin Zhang, Crop Biotechnology Center, Texas A&M University, TAMUS 2123, College Station, TX 77843-2123. Telephone: 409-862-2244; FAX: 409-862-4790; e-mail: hbz7049@pop.tamu.edu.**

POSITIONS OPEN

WAYNE STATE UNIVERSITY

The Department of Occupational and Environmental Health Sciences at Wayne State University seeks applications for a tenure-track faculty position in toxicology at the rank of **ASSISTANT/ASSOCIATE PROFESSOR**. The applicant should have a Ph.D. and/or M.D. degree in biomedical sciences. All outstanding candidates will be given serious consideration, but applicants with previous teaching experience and a record of excellence in research will be given preference. An ability to sustain extramurally funded research is expected. Adequate laboratory space and competitive start-up funds will be available to the appointee. Salary and rank are commensurate with experience. Qualified candidates should send curriculum vitae; a concise description of research interests and teaching experience; and names, addresses, and telephone numbers of three references to: **Chair, Search Committee, Department of Occupational and Environmental Health Sciences, 207 Shapero Hall Annex, Wayne State University, Detroit, MI 48202.**

Wayne State University is an Equal Opportunity/Affirmative Action Employer.

RESEARCH SCIENTISTS COMPUTATIONAL BIOLOGY AND BIOINFORMATICS

Mount Sinai School of Medicine, a leader in medical education and research, has opportunities for **JUNIOR** and **SENIOR RESEARCHERS** to join a large laboratory and work on state-of-the-art issues in computational biology and bioinformatics. The research addresses structure/function relationships in membrane proteins, protein-DNA interactions, and simulations of macromolecular assemblies. These long-term research positions are renewable annually and are based on performance. We offer a competitive salary and an excellent benefits package. Please send curriculum vitae to: **Dr. Harel Weinstein, Professor and Chairman, Department of Physiology and Biophysics, Mount Sinai School of Medicine, One Gustave L. Levy Place, Box 1218, New York, NY 10029. FAX: 212-860-3369; e-mail: hweinstein@inka.mssm.edu.** Departmental **website: URL http://www.mssm.edu/physbio**. Institute for Computational Biomedicine **website: http://icb.mssm.edu. H. Weinstein website: http://www.mssm.edu/physbio/local/primfac/weinstein.html. Visit us at www.mssm.edu.**

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SCIENTIST, POSTDOCTORAL, AND RESEARCH ASSOCIATE/ASSISTANT POSITIONS AVAILABLE

Pangene is a pre-IPO genomics company recruiting exceptional candidates for cancer, genetics, transgenics, and genomics programs. Our homologous recombination-based technology produces proprietary pharmaceutical products focused on DNA repair regulating drugs for cancer and integrated genomics services for pharmaceutical, biotechnology companies, and partners. For more information about Pangene and these positions, visit **website: www.pangene.com** or contact: **H. R. Pangene Corporation, 2375 Garcia Avenue, Mt. View, CA 94043. FAX: 650-903-3990.**

Experienced Ph.D.-level **MOLECULAR BIOLOGIST/BIOCHEMIST** sought for research and development position in private North Carolina biotechnology company. Preference is for a person capable of designing and testing probe-based RNA or DNA assays using enzyme labels. The company's research team is exploring varied applications of an innovative electrochemical platform for enzyme-linked detection of specific nucleic acid sequences. Competitive salary and benefits. Please send résumé and reference information to **FAX: 252-728-6824; e-mail: henkens@earthlink.net.**

POSITIONS OPEN

POSTDOCTORAL RESEARCH FELLOWSHIPS

Four Postdoctoral Fellowships available immediately in the Wellman Laboratories of Photomedicine, Massachusetts General Hospital, Harvard Medical School, for molecular and cellular studies directed at understanding the effects of light on cells and developing medical applications. (1) Effects of free radicals and reactive oxygen species (ROS) in biological systems. Experience required in organic synthesis and reactions of free radicals/ROS with biomolecules. Working knowledge of biological assays to assess cellular damage is desirable. (2) Chronic effects of sunlight on skin. Cell biological studies to identify key mechanisms for the increased elastin synthesis in photoaged skin. Background in molecular cell biology needed; experience in extracellular matrix proteins and cytokine biology desirable. (3) Biophysical studies of light-induced ROS in cells. Experience in confocal microscopy, two-photon microscopy and related imaging modalities, and the use of fluorescent probes is required. (4) Photochemical reactions of proteins. Experience in physical and biochemical analysis of proteins and their degradation products needed. Familiarity with fluorescence and transient absorption spectroscopy is advantageous. Please send curriculum vitae and names of three references to either: **Irene E. Kochevar, Ph.D.,** or **Robert W. Redmond, Ph.D., Wellman Laboratories of Photomedicine, Department of Dermatology, Massachusetts General Hospital WEL-224, Harvard Medical School, Boston, MA 02114. E-mail: kochevar@helix.mgh.harvard.edu** or **redmond@helix.mgh.harvard.edu.**

Massachusetts General Hospital and Harvard Medical School are Equal Opportunity/Affirmative Action Employers.

POSTDOCTORAL POSITIONS AVAILABLE
Between September 2000 and March 2001

To study the cell biology and enzymology of peptide hormone synthesis in neuroendocrine tissues and cell lines. Studies involve (1) production and enzymatic analysis of recombinant mutant prohormone convertase (PC) forms; (2) cell biological studies of PCs and their binding proteins (*J. Cell. Biol.* **139**:625, 1997; *J. Biol. Chem.* 1999, 2000); or (3) biochemical analysis of a knockout animal colony (*Cell* **96**:689–700, 1999), including adenoviral work. Independent, motivated individuals with recent Ph.D.s are encouraged to apply for this position in an established laboratory in New Orleans, an exciting, low-cost-of-living city. Funding secure for three years; laboratories are modern and well equipped. Competitive salary with yearly meeting travel.

Please send curriculum vitae with names, e-mail addresses, and telephone numbers of three references to: **Dr. Iris Lindberg, Department of Biochemistry and Molecular Biology, Louisiana State University Medical Center, 1901 Perdido Street, New Orleans, LA 70112. E-mail: ilindb@LSUMC.edu.** No attachments, please. **Website: http://www.lsumc.edu/campus/bioc/Lindberg/Lindberg.htm.**

Louisiana State University Medical Center is an Equal Opportunity/Affirmative Action Employer.

POSTDOCTORAL POSITION

Research position available to investigate the molecular events associated with multiple myeloma and plasma cell dyscrasias. Investigations involve the general areas of molecular genetics, apoptosis, and cellular immunology. Candidates with recent Ph.D. degrees emphasizing angiogenesis and tumor growth, apoptosis, B cell development, dendritic cell function, or T cell recognition are encouraged to apply.

Applicants for this position should hold a Ph.D. with a strong background in cell biology and immunology. Send curriculum vitae, brief description of research experience, and names of three references to:

Raymond L. Comenzo, M.D.
Memorial Sloan–Kettering Cancer Center
1275 York Avenue, New York, NY 10021
FAX: 212-717-3119
E-mail: louisong@mskcc.org

POSITIONS OPEN

POSTDOCTORAL SCHOLARS PROGRAM AT THE JET PROPULSION LABORATORY
California Institute of Technology

The California Institute of Technology Postdoctoral Scholars Program at the Jet Propulsion Laboratory (JPL) is inviting applicants to apply for positions at JPL's Center for Integrated Space Microsystems. Areas of interest are related to revolutionary computing technologies, including: neural networks (biological as well as artificial), evolutionary computing, quantum dots fabrication and characterization, quantom dots-based computing and memory architectures, quantum computing, DNA and molecular computing, optical computing, and ultralow-power architectures. Research activities include development of novel software and hardware architectures for optimization, classification, and pattern recognition applied to spacecraft data analysis and for sensory-motor processing algorithms applied to biomorphic robotics. Expertise in the area of neural networks and fuzzy expert reasoning, quantum mechanics, optical computing and holography, or biological computing is required. Experience in pattern recognition, signal processing, or nonlinear dynamics and control is highly desirable. Successful candidates will join the Revolutionary Computing Technologies program led by **Dr. N. B. Toomarian**.

Applicants should have a recent Ph.D. in physics, mathematics, electrical engineering, computer science, neurobiology, or a related field. Appointment is contingent upon evidence of completion of Ph.D. Annual salary starts at $42,000 and can vary according to applicant's qualifications and years of experience following the Ph.D. degree. Postdoctoral Scholars positions are awarded initially for a one-year period and may be renewed in one-year increments for a maximum of two additional years. Please send curriculum vitae, bibliography, statement of research interest, and a list of three references to:

Dr. Nikzad B. Toomarian
MS 303-310
Jet Propulsion Laboratory
California Institute of Technology
4800 Oak Grove Drive
Pasadena, CA 91109
FAX: 818-393-5013
E-mail: benny@clsm.jpl.nasa.gov

The California Institute of Technology and the Jet Propulsion Laboratory are Equal Opportunity/Affirmative Action Employers. Women, minorities, veterans, and disabled persons are encouraged to apply.

POSTDOCTORAL OPPORTUNITY available at St. Luke's–Roosevelt Hospital at the James Mara Center for Lung Disease in New York for a full-time Postdoctoral position in research in the area of inflammation immunology in relation to diseases such as asthma and pulmonary emphysema. Candidate should have expertise in techniques of molecular genetics and immunology. Academic appointments will be at the **ASSISTANT PROFESSOR** level at Columbia University College of Physicians and Surgeons. Send curriculum vitae to: **Dr. Gerald M. Turino, James P. Mara Center for Lung Disease, St. Luke's–Roosevelt Hospital, 1000 10th Avenue, New York, NY 10019. FAX: 212-523-3416.** *Equal Opportunity Employer; Minorities/Females/Disabled/Veterans. Women and minorities encouraged to apply.*

POSTDOCTORAL POSITION in experimental virology available to investigate molecular mechanisms of viral neuropathogenesis. Principles of viral CNS pathogenicity are exploited in novel strategies towards cancer therapy based on recombinant enteroviruses (*Proc. Nat. Acad. Sci.* 97:6803, 2000). Send curriculum vitae and contact information for two references to: **Dr. Matthias Gromeier, Department of Microbiology, Duke University Medical Center, Box 3020, Durham, NC 27710. FAX: 919-684-8735; e-mail: gromeier@abacus.mc.duke.edu.** *Duke University is an Equal Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

POSTDOCTORAL POSITION: National Institutes of Health, Bethesda, Maryland. Interactions of human herpes viruses with the host are being investigated. Studies include cellular receptors, role of viral genes in latency in humans and animals, and vaccine development. Applicants should have experience in virology and molecular biology or immunology and less than five years of postdoctoral experience. Salary will be determined upon experience and education. Applications will be accepted until August 15, 2000. Send curriculum vitae to: **Dr. Jeffrey I. Cohen, Laboratory of Clinical Investigation, Building 10, Room 11N228, NIH, Bethesda, MD 20892-1888. E-mail: jcohen@niaid.nih.gov.** *NIH is an Equal Opportunity Employer.*

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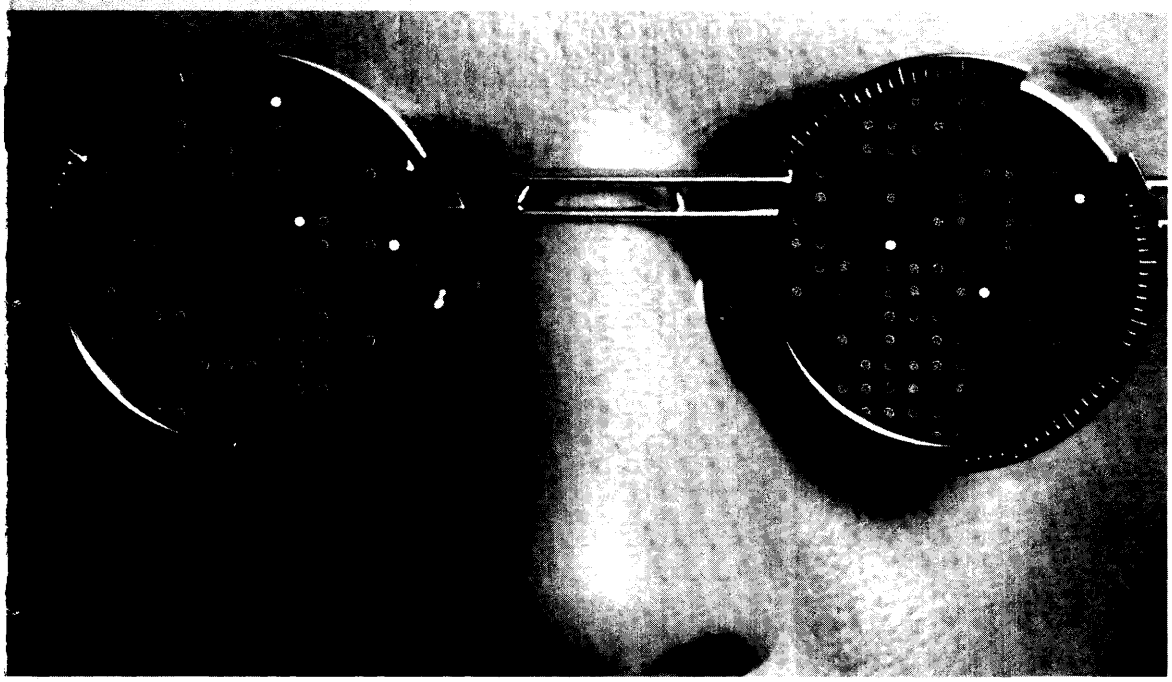

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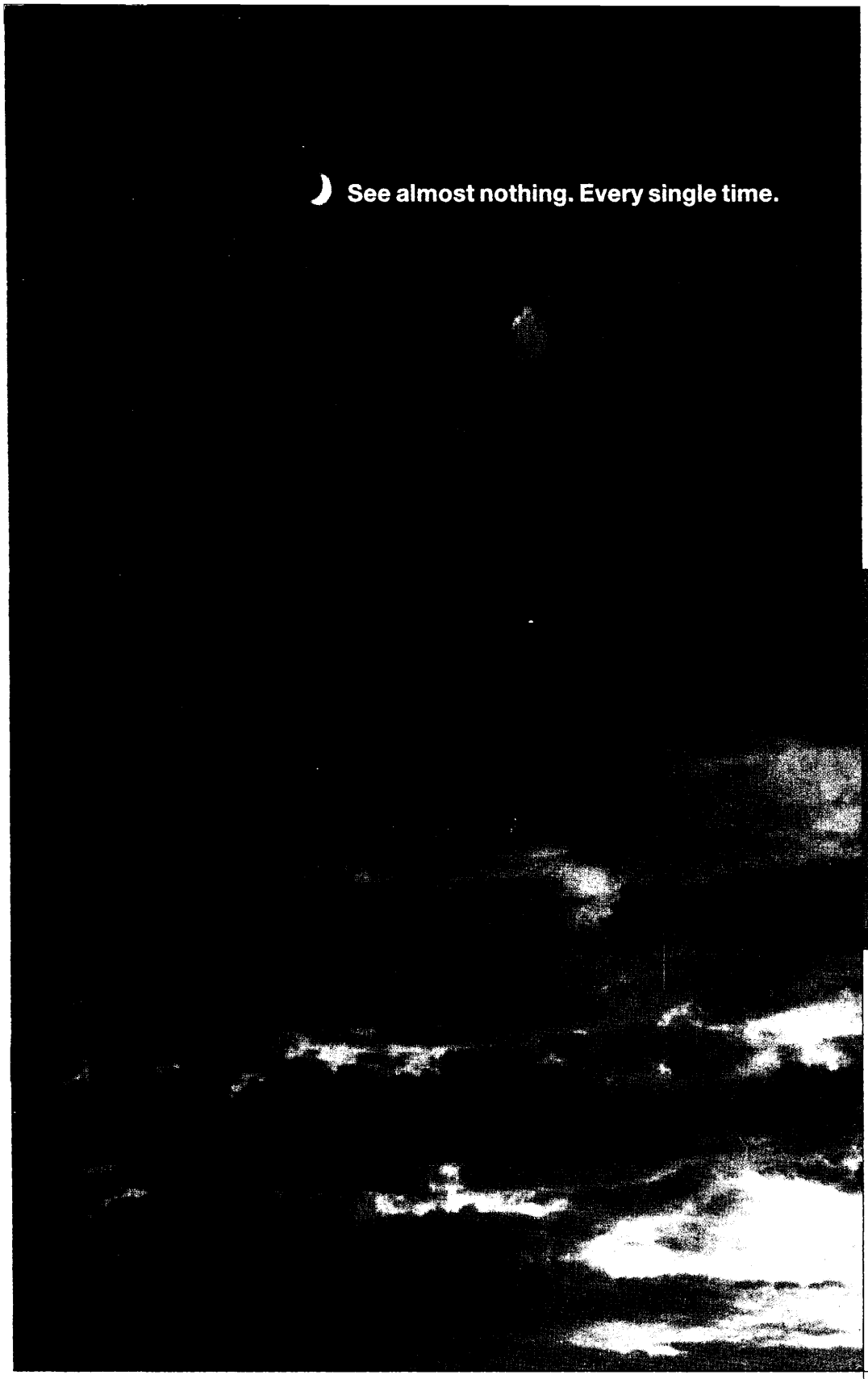

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