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—Satyam Priyadarshy

The author is at 11918 Winterthur Lane, Suite 105, Reston, VA 20191, USA. E-mail: satyam@priyadarshy.com

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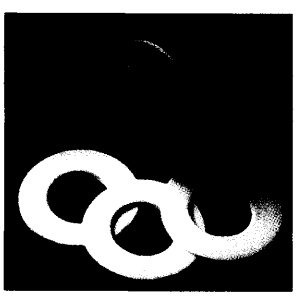

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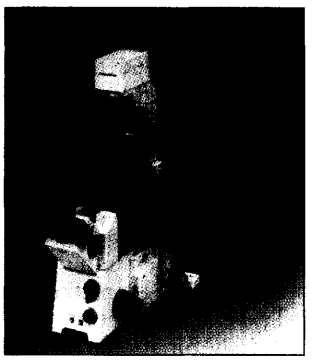

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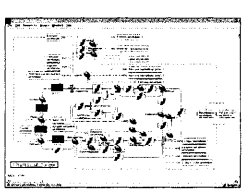

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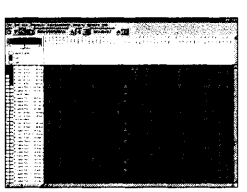

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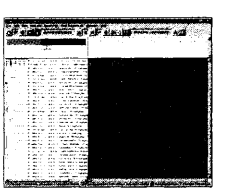

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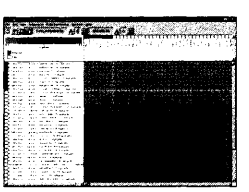

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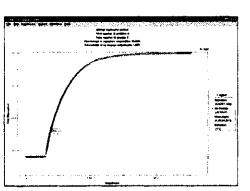

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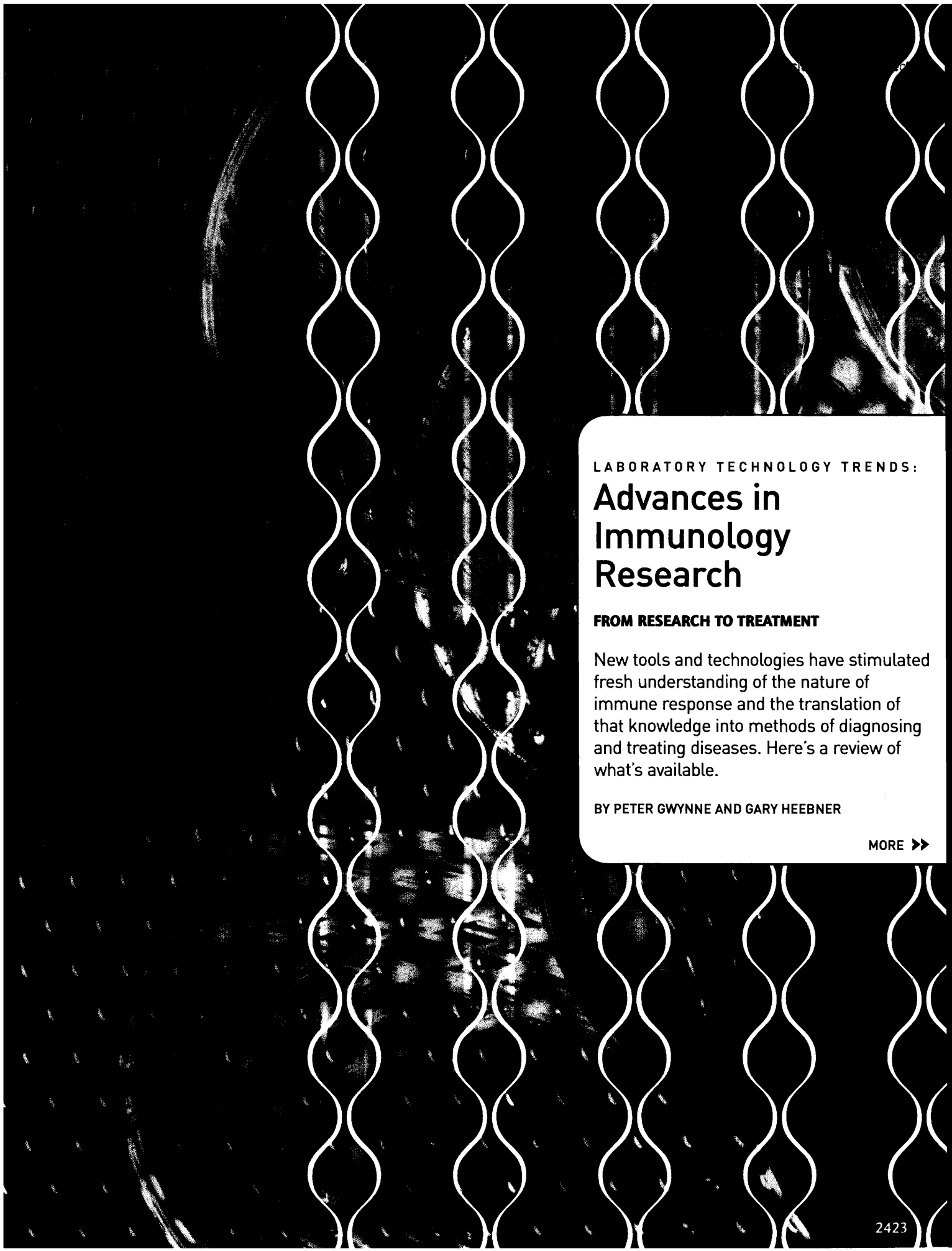

LABORATORY TECHNOLOGY TRENDS:

Advances in Immunology Research

FROM RESEARCH TO TREATMENT

New tools and technologies have stimulated fresh understanding of the nature of immune response and the translation of that knowledge into methods of diagnosing and treating diseases. Here's a review of what's available.

BY PETER GWYNNE AND GARY HEEBNER

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Advances in Immunology Research

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Years ago, immunologists typically spent the bulk of their time at the laboratory bench. Their research involved peering into a microscope and probably characterizing the different cells from a blood sample. And their understanding of the immune response was limited to what they could see and, based on that, what they could hypothesize.

That was then. Now an immunologist's work and the tools used on a daily basis differ considerably. Instead of being restricted to the visual examination of living cells, a researcher can now take a holistic approach to understanding the immune system using a variety of tools and technologies. Scientific teams undertake collective studies of whole animals, organs and tissues, cells, and molecular pathways in the effort to understand the exquisitely complex network known as the immune system. As a result, the life science community gains continuously improved understanding of the immune system, from B and T cells to molecular pathways.

"We see a much more detailed understanding of the action of cells in the immune response in association with a variety of different disease states," says Kristine Kuus-Reichel, director of research for the immunomics business unit at **Beckman Coulter**. "What is emerging is a more complex understanding of the science that involves many fields of science. We are understanding the mechanisms of the immune response and how it plays out in pathogenic disease."

Certainly such pathogenic diseases as cancer and AIDS present tough challenges to immunologists struggling to relate their fundamental research to the causes and cures of those and other devastating medical conditions. But the improved understanding gained in research laboratories points the way to progress. "For some years now we've recognized the role of the cellular immune response in controlling viral infection and how that kind of knowledge can help us to devise new vaccine approaches for HIV and other diseases of the immune system," says John Shiver, senior director, viral vaccine research at pharmaceutical company **Merck**. "Based upon that knowledge, we've focused our efforts on how to elicit the cellular immune responses and how to measure those responses."

THEMES OF RESEARCH

Vaccines represent a major thrust of immunological research. "Everyone's highest priority for the future is to develop an effective vaccine for AIDS; that will obviously be very challenging," says Barry Bloom, dean of the faculty and professor of immunology and infectious diseases at **Harvard School of Public Health**. "One of the hot areas in general will be the development of vaccines," agrees Ted DeFrank, general manager of **Pierce Biotechnology**. "The data generated from the Human Genome Project enable specific peptides to be custom manufactured. The resulting peptides can be cross-linked to carriers without evoking an immune response to the cross-linker itself."

The basic research themes necessary to achieve those therapeutic aims have become evident. "Signal transduction is a very hot area right now," says Kevin Reagan, vice president of research and development at **BioSource International**. "The human genome effort has identified a number of structures that are likely to be important. But only when you start dealing with these at the protein level will you be able to use them as targets. So understanding protein-protein interactions and the cascade of events that occur in the cell – and how a disease can adversely interfere with that cascade – is the only way in which you'll see advances." Jim Hengst, president and chief operating officer of **ZeptoMetrix**, makes a similar point. "In immunology," he says, "the biggest advances are in the area of proteomics."

Henry Erlich, vice president of research at **Roche Molecular Systems**, points to a related research area that involves epitopes, short peptides bound to HLA (histocompatibility antigen) molecules in humans that have a major effect on the immune reaction. "One of the major areas of advance is trying to define the epitopes that are recognized by T cells," he asserts. "Scientists want to know what portions of virally specified proteins are bound by HLA molecules presented to the T cells, and ultimately recognized by lymphocytes." Alessandro Sette, vice president and chief scientific officer at **Epimmune**, amplifies that thought in relation to the T cells that have key roles in the immune system. "All T cells recognize epitopes," he explains. "We've been working since 1988 on technology to identify, optimize, and analyze epitopes."

TOOLS AND TECHNOLOGIES

Researchers rely on new and improved technologies of several types to advance their understanding of immunological processes and to apply that understanding to practical ends. "Cell based assays that look at cellular immunity are advancing rapidly. So are assays that measure multiple cytokine levels simultaneously," says Patrick

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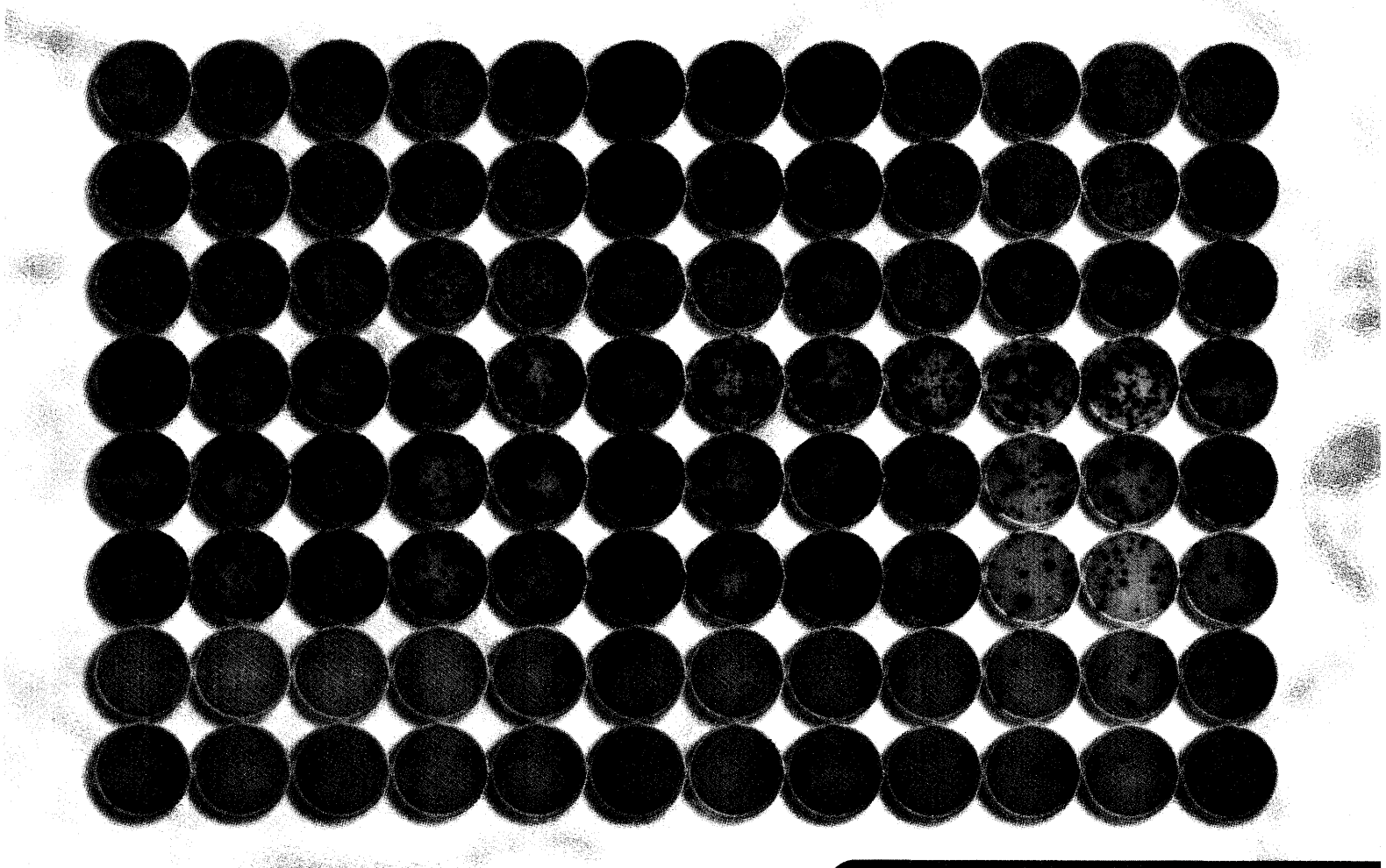

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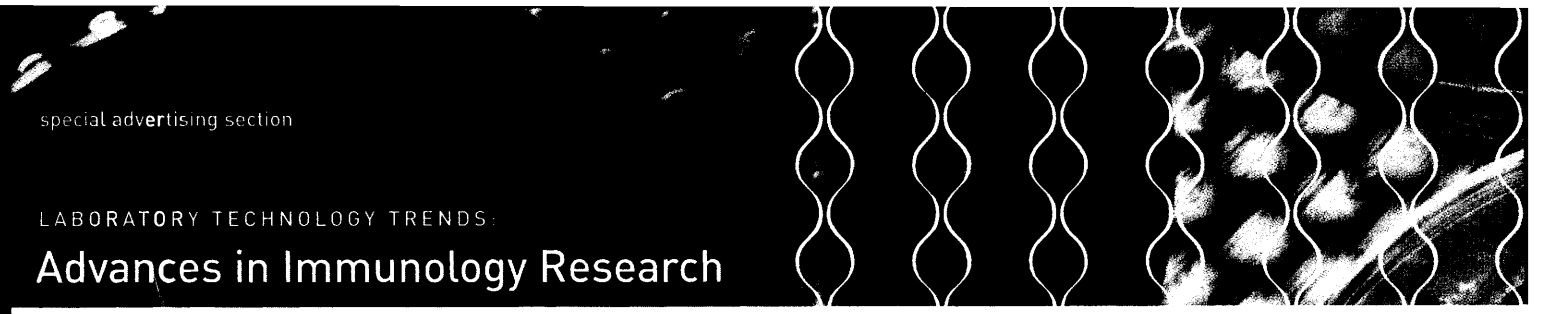

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Advances in Immunology Research

Schneider, chief scientific officer of **Chemicon International**. "There certainly are important assays that have been enormously improved and refined for measuring cytotoxic T cells against infected targets in humans and monkeys," adds Harvard's Bloom. "They turn out to be modifications of existing assays that require quite a lot of skills, including enzyme-linked immunosorbent spot [ELISPOT] assays and fluorescence cell sorting. They tell you whether the T cells recognize various epitopes to activate them."

Erlich, from Roche, expands on that thought. "One of the major areas is trying to define the epitopes bound to specific HLA molecules that are recognized by T cells," he explains. "The development of tetramer technology has helped provide reagents for detecting T cells of a given specificity. Tetramers consist of four HLA molecules of a specific type bound to a particular peptide. They bind to and thus identify T cells that recognize a particular HLA molecule and particular peptide."

Merck uses tetramer assays to show detect antigen-specific T cells. "You don't have to use antigen stimulation to detect antigen-specific T cells," says Shiver. "The cells we detect are those in circulation because they're the most accessible. This includes cytokine based assays such as the ELISPOT assays and flow cytometry-based measurements of cytokine-producing cells. Both cytokine assays enable you to measure any number of cytokines that activated T cells produce. Collectively the three assays complement each other substantially. We have validated each of the assays in support of clinical studies. Because they are quantitative as well as qualitative, they can allow us to compare various investigational vaccines to determine the relative attributes of each approach."

Miltenyi Biotec, meanwhile, has developed a novel technology for use in combination with tetramer technology to analyze antigen-specific T cells. "Our assays allow live antigen-specific [and tetramer-stained] T cells to be enumerated according to their secreted cytokines," explains Markus Bernards, technical marketing manager of the German company. "Therefore T cells that actually show a response on activation can be detected. That makes the assays extremely interesting for future immunomonitoring.

FAMILIAR METHODS

Some techniques remain familiar to an older generation of immunologists. "The tools of the trade haven't changed all that much over the years," says Leigh Gaskill, product manager at **Sigma-Aldrich**. "They are mainly monoclonal and polyclonal antibodies. But more and more kits are being developed to study the specific areas." Beyond that, she continues, "The products that go hand in hand with antibodies are the detection methods. We are working on ways to enhance the detection of antibodies using these methods, particularly Western blotting."

Other technologies exist for newer aspects of immunological research. "There's a lot of emphasis on tools for signal transduction to make life easier for researchers," says Cynthia Lane, new business development associate at **Calbiochem/Oncogene Research Products**. "You need ways of handling and probing proteins," adds BioSource International's Reagan. "The old way of looking at one protein at a time has given way to profiling of protein expression. Array technologies – protein microarrays and other forms of multiplexing – are having a strong effect. In addition, proven quantitative technologies such as ELISA are finding important applications in new arenas such as signal transduction."

Fundamental techniques are also critical. "For basic mechanistic studies or clinical benefit, it's essential that cells are cultured in an environment that mimics the in vivo situation or one that allows for production of a therapeutic product," says Laurel Donahue, R&D manager at Sigma-Aldrich's Life Science and Technology Center. "In many instances, progress in basic research and the ability to exploit discoveries in immunology depend on the ability to generate large quantities of specific antibodies. We have culture systems for those applications." Reagan makes a similar point. "New advances in robotic and software engineering are emerging," he says. "But at the end of the day it comes down to your reagents, whether in classic ELISA [enzyme-linked immunosorbent assay] technology or nanotechnology. It comes down to the purity of the antibodies and peptides."

INNATE AND ADAPTIVE IMMUNITY

Humans and other organisms have two immune systems. The innate immune system includes such natural barriers as skin and mucosa that generate a broad-ranging attack against invading infectious agents. The adaptive immune system, by contrast, mounts a specific response against a foreign molecule or antigen (Ag). This system involves both B and T lymphocytes.

A specialized type of white blood cell called a B cell produces antibodies that interact with foreign particles or antigens. B cells originate in the bone marrow and circulate in the bloodstream. An antigen is a molecule that can stimulate the production of antibodies (Ab) when presented to a B cell. Antibodies generally recognize only one antigen, an effect known as the lock and key phenomenon. Another family of immune cells, the T cells, forms in the thymus. The two main kinds of T cells are helper T cells that support other immune cells in their functions and cytotoxic T cells that kill damaged or foreign cells in the body.

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The immune system goes into action when a foreign particle or organism enters the body. Both B cells and T cells set out to eliminate the foreign substance from the host's body. If the invader circulates in the bloodstream or outside the body's individual cells, the B cells take charge. They bind to the foreign particle, prompting a series of events that eliminates the Ab-Ag complex. If, on the other hand, the pathogen enters a cell and stays there, as the HIV virus does, the body responds by activating cytotoxic T cells. These circulate in the bloodstream and lymph system. They eliminate the foreign body by killing the host cell infected with it.

TWO TYPES OF ANTIBODY

Scientists have produced antibodies in laboratories for many years using a relatively simple procedure. It involves injecting an animal with antigenic material, allowing an immune response to develop, and then harvesting the antibodies circulating in the animal's blood. The result: polyclonal antibodies, so called because they arise from a variety of B cells that produce different antibodies as a result of encountering the antigen from different points of view.

Polyclonal antibodies come cheaply and in large amounts; the serum of an immunized animal can produce up to 10 mg/ml. Polyclonal antibodies also offer a realistic example of the immune response because they represent the entire antigen-specific antibody population in an animal. Researchers often do not have to raise their own antibodies for research as several companies, among them **BD Biosciences-PharMingen**, BioSource International, Oncogene Research Products, **Qbiogene**, and Sigma-Aldrich, offer polyclonal antibodies. "We are well known for antibodies," says Chemicon International's Schneider. "We have a full list of antibodies for human, mouse, and rat flow cytometry applications."

Monoclonal antibodies stem from a more complicated process. Again, an animal is immunized with an antigen. But once the immune response develops, scientists remove its spleen. The cells in the spleen ultimately develop into mature B cells, but they cannot be cultured in vitro in this state. To allow these antibody producing cells to replicate, the spleen cells are fused with cancerous myeloma cells that are immortal in the sense that they can replicate in culture for an extended period of time. The resulting fused cells, called hybridoma cells, are cultured in a selective medium that only allows the hybridized cells to survive and replicate. Next, scientists typically screen the hybridomas with an assay to identify the cells producing the antibody of interest. Isolated and cloned, those cells will produce large amounts of a single (monoclonal) antibody directed against the original antigen for virtually an indefinite period of time. This hybridoma cell line can be frozen and stored for long periods of time, providing the research team with a constant supply of a specific antibody.

Antibodies have an increasing variety of applications in immunology. "They are used to identify proteins and peptides," says Dorit Zharhary, R&D manager for Sigma-Aldrich's facility in Israel. "Of increasing importance is their use in identifying small groups such as phosphor, acetyl, methyl, or other groups that are a result of protein posttranslational modifications, and also methyl groups in DNA. These are newer tools and very important."

THE VALUE OF CULTURE

Important as it is, studying the interaction between antibodies and antigens has limited value because many of the other molecules that exist in living cells affect the cellular immune response. Many researchers turn to cell culture as a method to grow cells and maintain them in a somewhat natural state. These cultured cells can be studied to learn about the immune response within a living cell. "Cell culture is a fundamental tool in the generation of antibody expressing hybridoma cell lines," says Sigma-Aldrich's Donahue.

Growing mammalian cells such as hybridomas has evolved over time from black magic to a fairly predictable science. Several companies now supply cell culture media and reagents that help to standardize research efforts in this field and to make results much more predictable.

Even off-the-shelf cell culture media usually contain serum full of undefined growth-promoting factors. Those products introduce significant vari-

AIDScience.org

A Forum for AIDS Researchers

Because the AIDS research community contains a large and growing number of different disciplines, members have few opportunities to meet on common ground. **AIDScience.org**, a website that Science's publisher, the **American Association for the Advancement of Science**, set up last year with funding from the National Institutes of Health, provides one such forum. "We function as a journal that never appears in print and focuses on prevention and vaccines," says Roberto Fernandez-Larsson, the site's senior editor. "Prevention belongs more to social science, and vaccine developers are more hard scientists. So we attract people with quite different backgrounds."

The site contains two main features: peer-reviewed articles written by scientists active in the field and perspectives by policy makers, including politicians, representatives of nongovernmental organizations, and scientists. "We also have a comprehensive database of worldwide AIDS prevention research projects and clinical trials," says Fernandez-Larsson. "The prevention portion is maintained in collaboration with the World Bank. We are developing the segment on AIDS vaccine trials with the International AIDS Vaccine Initiative, a nongovernmental organization. We have a news headline service that we update daily and a journal headline service that we update weekly. We try to include news headlines relevant to research and to fish out all the journal headlines we consider important."

Fernandez-Larsson aims to draw the attention of AIDS researchers to items that they might easily miss by relying on conventional sources of information. As an example the site highlighted the recent paper in which Janet Yamamoto of the University of Florida reported a vaccine for feline immunodeficiency virus that has received approval from the U.S. Department of Agriculture. "This was a blip on the radar screen with little coverage," he says.

That and other items on the site have certainly attracted interest. "Our readership," says Fernandez-Larsson, "has increased from 2,000 monthly unique visitors when we started to about 16,000 now and is still increasing."

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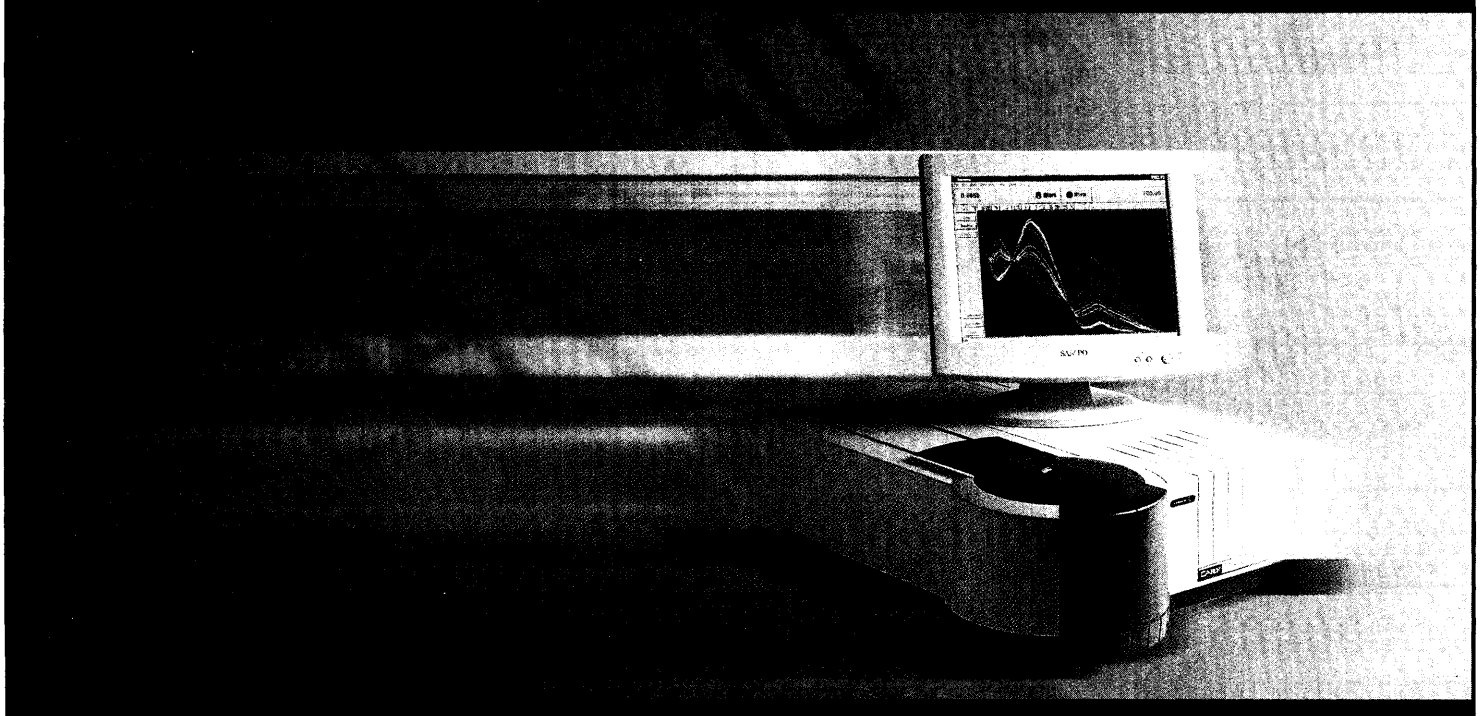

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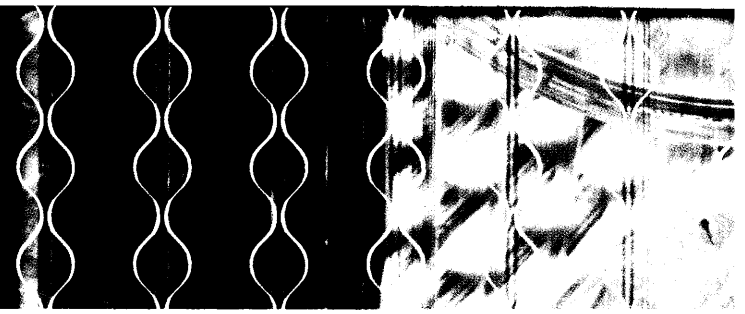

ability from lot to lot of medium, making it difficult to analyze what causes cells to grow or perish. In contrast, defined (or serum-free) media are prepared from known ingredients. They can sustain the growth of some of the most finicky cells in culture. And their defined nature permits researchers to add specific growth factors to examine the factors' effects on cell function and growth.

Such companies as **American Type Culture Collection** (ATCC), BioSource International, **BioWhittaker**, **HyClone**, Invitrogen, and Sigma-Aldrich not only offer defined media. They can also custom develop and produce serum-free media for use with specific cell lines. The ATCC, one of the world's best-known cell repositories, provides both organisms and media for cell culture. "Because we use these products to grow our own cell lines, they are thoroughly QC tested in our labs using sequential growth curves and plating efficiencies," declares a company statement. "The biggest challenge is developing new media," says Donahue. "Cell culture media are complex mixtures of up to 50 components in some cases. It's a challenge to get the mixtures right and to get the cells to grow in such a way that they meet the users' needs for cell growth and expression level and functionality of the expressed product."

SEPARATION SYSTEMS

A researcher who wants to understand the function of a particular type of cell must first separate that cell from other cells in a mixture. Several physical, chemical, and biological means can achieve separation.

Antibodies suit this application well because of their great diversity and specificity. Thus antibodies can be attached to chromatography columns and used to bind a cell that carries an antigen recognized by the specific antibody. T cells are often selected for and enriched using these columns. Pierce Biotechnology, **R&D Systems**, and other firms offer several products for cell separation. "We are providing antibody technologies in unique formats to enable research," says Pierce's DeFrank.

A relatively new physical method of separating cells relies on magnetic attraction. The process starts by covalently bonding antibodies specific for a particular target type of cell to magnetic particles. "We have a 50-nanometer particle of iron oxide and polysaccharide that we couple to an antibody," explains Bernards of Miltenyi Biotec. "We attach these MicroBeads by specificity of antibody to certain cell types and pass the cell suspension over a column in a magnetic field. Labeled cells are retained on the column while other cells pass through. Then we can elute the retained cells from the column."

Norwegian firm **Dynal Biotech** takes a similar approach with its superparamagnetic Dynabeads – polystyrene beads that become magnetic only in a magnetic field. In addition to cell separation, the technology can be used to activate and expand T cells outside the body for use in immunotherapy. Dynal has developed Dynabeads with two antibodies on the same bead for Xcyte Therapies, which is using them in clinical phase I trials to expand T cells ex vivo from cancer patients. "We are also developing Dynabeads coupled with recombinant HLA molecules that can be used to isolate T cells that recognize the tumor. These T cells can then be expanded outside the body with Dynabeads to high numbers before the cells are given back to the cancer patient where they hopefully will help fight the cancer," says Øystein Åmellem, Dynal Biotech's director of R&D for immunosystems. **Polysciences** also offers cell separation technology based on magnetic particles.

Flow cytometers provide another means of separating cells. Using several antibodies tagged with different fluorescent labels, scientists can measure several variables in a cell population simultaneously. They can identify cells and then sort them into different aliquots via the sorting capability of a flow cytometer. This multiparametric method eliminates several separate runs to measure more than one parameter. Companies such as Beckman Coulter and Sigma-Aldrich have dedicated significant resources to production of antibodies for use with flow cytometry and other immunochemical techniques. "We produce about a thousand to twelve hundred products specifically for flow cytometry," says Grant Howes, manager of cytomics at Beckman Coulter.

Flow cytometry had had limitations in its utility owing to the difficulty of pre-preparation and lack of standardization. "Sample preparation can require a lot of manual interaction, which is why we as a company are working on automating the procedure," says Howes. "Automating sample processing also reduces the possibility of contact with the samples. That leads to good confidence in the results."

ASSAYS FOR IMMUNOLOGY

The ELISA is a common technique for immunological research. Scientists routinely use it as an initial screen. The method is easily adapted to 96-well microtiter plates and can be used with many different detection systems.

Detecting or visualizing the antigen-antibody complex requires the antibody to be labeled. Usable labels include radioisotopes, enzymes such as horseradish peroxidase and alkaline phosphatase, and fluorescent tags such as fluorescein, and biotin. In the past, researchers had to undertake the complicated task of conjugating their own antibodies and labels. Now, however, they can buy antibodies conjugated to a variety of labels. The field has also seen a general shift away from radioisotope to nonradioisotope tags, because radioactive labels are considered more hazardous and require special disposal.

Scientists can also purchase the individual ELISA components – antibodies, conjugates, blocking reagents, substrates, and solid-phase supports – from several suppliers. But because getting those components to work well together can prove difficult, many vendors offer ready-to-use ELISA kits for virtually any assay of interest. Available kits include those for cell adhesion molecules, apoptosis, cell surface markers, cytokines, growth factors, protein kinases, and toxins. **Amersham Biosciences**, BioSource International, Calbiochem, **New England Biolabs**, R&D Systems, and **Zymed** offer ELISA kits and kits for ELISA-like assays. **Applied Biosystems, BD Biosciences – Clontech**, Pierce Biotechnology, and **Promega** offer ELISA kits specifically designed for high throughput systems. Oncogene Research Products offers apoptosis and cell proliferation assays specifically designed for such systems.

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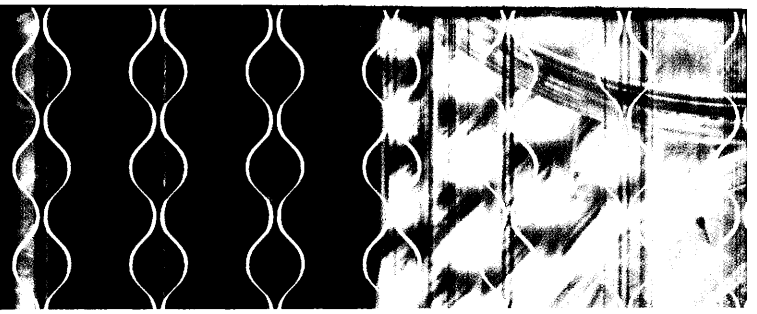

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While an ELISA assay detects antibodies to the HIV virus or other antigens, it is not as specific as a Western blotting test. A Western blot allows scientists to detect antibodies developed against each viral protein. Researchers often use it to confirm a positive HIV ELISA. Suppliers of Western blotting equipment and reagents include Amersham Biosciences, Invitrogen, **Novagen**, and Pierce Biotechnology.

Western blotting has one problem when compared with ELISAs: It takes a long time. BioSource International has recently developed a line of novel signal transduction ELISAs that, it claims, outperforms Western blotting. "We have an assay that determines whether or not p38 has been activated," explains Reagan as an example of this technology. "You can put it in an ELISA and in a few hours do it more sensitively than a Western blot."

MONITORING HIV

A major focus of immunologists is the HIV virus. This is a retrovirus; it can copy its RNA into DNA. Its core contains several proteins, including reverse transcriptase that converts the viral RNA into DNA that can then be integrated into the host's genome. Interestingly, viral enzymes that transform RNA into DNA have allowed molecular biologists to produce complementary DNA from a living cell's messenger. This has become a significant tool in proteomics, the study of families of proteins expressed in cells. **Ambion**, Promega, New England Biolabs, and Roche, among other suppliers, provide this type of enzyme to help researchers produce high quality copies of complementary DNA. The reverse transcriptase polymerase chain reaction (RT-PCR) is based on this unique enzyme's ability to copy RNA into its counterpart DNA.

Diagnosis of HIV infections has evolved over the past years from Ab based ELISA assays to ultrasensitive detection methods based on DNA or other molecules. Current molecular-based assays can measure HIV circulating in a person's blood down to levels undetectable a few years ago. Several of these diagnostic assays are based on PCR that amplifies the number of copies of HIV RNA to a detectable level for the assay.

Roche has also developed an HIV test called Amplicor HIV-1 Monitor UltraSensitive Method. The test, which the FDA approved for clinical diagnostic use in 1999, can detect viral levels down to 50 copies per milliliter of plasma – another concentration that was previously undetectable. **Chiron** and **Organon Technika** are among the several other companies that have developed kits for measuring HIV in blood or plasma.

FROM AZT TO VACCINES

Therapies for AIDS have progressed as scientists have expanded their knowledge of the mechanisms of HIV infection. The first drugs available to treat HIV infections were the reverse transcriptase inhibitors. By blocking the virus's ability to undertake reverse transcription, they prevent HIV from reproducing. **GlaxoSmithKline** became the first company to offer these inhibitors with its drug AZT.

More recently protease inhibitors have emerged as treatments for AIDS. These drugs target the protease enzyme that cuts long polypeptide chains into the smaller, more active segments essential for viral reproduction. That also prevents the virus from reproducing. A further advance involves the use of two protease inhibitors in combination with reverse transcriptase inhibitors, an approach known as HAART for highly active antiretroviral therapy. Roche provides a broad range of HIV treatments used in HAART. Studies indicate that this therapy can significantly prolong the survival of individuals infected with HIV and can reduce the incidence of opportunistic infections.

Now the focus has shifted to vaccines. The early, antibody based efforts to develop a vaccine against HIV have proved largely disappointing. "It has been very difficult to develop antigens that have the ability to generate neutralizing antibodies," says Bloom of Harvard. "That's the biggest fundamental challenge for immunology that nobody has solved."

Nevertheless, Merck extended its efforts to develop an HIV vaccine about a decade ago. It expanded its focus to developing vaccines that stimulate cellular immunity, which eliminates those cells that have been infected by HIV. "We looked at the best ways to elicit immune responses in nonhuman primates," recalls Shiver. "We came up with a short list of the best vaccine approaches identified in these studies to take forward into clinical development. We have decided to utilize gene delivery approaches to deliver these vaccines – a DNA vaccine vector and, more importantly, an adenovirus vaccine vector. We also found that a combination of various vaccines could show synergy, for example, by priming with selected DNA formulations and later boosting with the adenovirus vaccine. We found that the adenovirus vaccine provides better control of the monkey AIDS virus than the other vectors we surveyed. On the basis of that and other observations, we're now studying the DNA vaccine in humans as well as the adenovirus vaccine."

LONG-TERM PROPOSITION

Researchers acknowledge that vaccines for use against AIDS will take years, if not decades, to perfect. "A relatively ideal vaccine is a long-term proposition," says Bloom. "But you need the first round to give enough protection – 30 percent to 50 percent at a minimum – to show promise, even if you don't know how it works. We have had a tuberculosis vaccine since 1908. It may not be the best in the world, but we know that it can provide protection. Ninety percent of people infected with TB mount an immune response that protects them. For complete protection from TB we have to go up only from 90 percent to 100 percent. For AIDS we have to go from zero percent to 100 percent. There's a lot of research to be done."

What directions will that research take? "I think we'll see continued focus on HIV and an upswing of focus on infectious diseases such as dengue fever and hanta virus," says ZeptoMetrix's Hengst. "Down the road we'll see a better ability to control the immune reaction, which is absolutely critical to the control of everything from autoimmune disorders to infectious diseases."

Peter Gwynne is a freelance science writer based on Cape Cod, Massachusetts, U.S.A. Gary Heebner is a marketing consultant serving the scientific industry, based in Foristell, Missouri, U.S.A.

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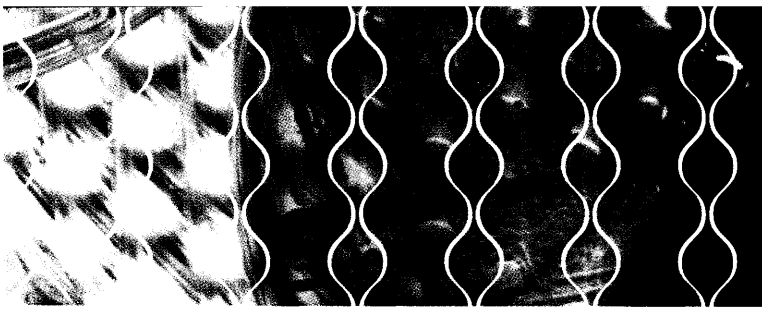

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Advances in Immunology Research

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Contact:
U.S. Daryl Anderson 202-326-6543
Europe Deborah C. Harris ..... +44 (0) 1223 326 500
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East Coast Careers:

An Ongoing Upsurge in Biotech

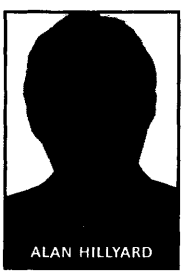
ALONG THE EASTERN SEABOARD, A BROAD RANGE OF INTERESTS—FROM ADVANCED BIOMATERIALS TO GENETICALLY ENGINEERED PHARMACEUTICALS—CREATE CONSTANT LEAPS FORWARD IN BIOTECHNOLOGY. THIS ARTICLE EXAMINES THE CAREER OPPORTUNITIES ASSOCIATED WITH THIS CONTINUED GROWTH ON THE EAST COAST. BY MIKE MAY

- » **ArQule, Inc.**
- » **Biacore, Inc.**
- » **Cubist Pharmaceuticals, Inc.**
- » **CuraGen Corporation**
- » **Genzyme Corporation**

Although technology stocks bounce up and down like a Wall Street yo-yo, biotechnology companies keep sprouting, especially on the East Coast. This growth in biotechnology consists of companies involved in various areas, from designing assays and manufacturing antibodies to developing biomolecular diagnostics and applying computational chemistry. In addition to new companies, established companies continue to grow along the East Coast. Consequently JoAnne Bruno, director of applications at Biacore, Inc., said, "The job market in biotechnology on the East Coast has been consistently strong over the last few years."

Overall, Bruno sees a correlation between the growing interest in proteomics and all of biotechnology. She said, "The continued growth in biotechnology has followed the evolution in proteomics. As proteomics heats up, so does biotech." She added: "That keeps the marketplace strong with respect to jobs."

The East Coast job market in biotechnology also benefits from the high concentration of universities and large pharmaceutical companies in the area. Like budding *Hydra*, these larger organizations spawn smaller replicas. In the end, only growing numbers of employees can keep these colonies of companies alive.


ALAN HILLYARD

WOBURN, Massachusetts: According to Alan Hillyard, chief information officer at ArQule, Inc., job opportunities pepper the East Coast for anyone in the biotechnology field. He said, "Boston—in particular—always had a good mix of universities and hospitals, all in close proximity to the research centers for a number of pharmaceutical companies, which creates a hot spot where biotechnology companies start up and flourish." He also called attention to "opportunities down through Connecticut and Pennsylvania, along the pharmaceutical corridor. Also, Research Triangle Park in North Carolina has an aggregation of both biotech and IT companies that offers a number of unique positions." Hillyard's company generates its own wide selection of opportunities, because it develops drugs to fight infection, inflammation, metabolic ailments, central nervous system diseases, pain, and urinary problems.

When asked about key openings at ArQule, Hillyard pointed to computational chemists. He said, "We have a strong interest in redesigning the process of drug discovery, and our approach relies heavily on the application of computational approaches both in drug design and in silico modeling of the pharmacokinetics of compounds." Like virtually every biotechnology or pharmaceutical company today, managers at ArQule seek people skilled at informatics. In particular, individuals with experience in cheminformatics could interest ArQule. Hillyard said, "Our computational approach to the process of drug discovery relies on the efficient management of information and support for the rapid generation of new hypotheses based on that information." Supporting the informatics and computational approaches in use at ArQule is a team of software engineers, as well as a number of IT professionals, both of which often look for new members.

In general, managers at ArQule search for people with experience in drug discovery or a novel skill set in the areas of analysis or modeling.

Mike May is a freelance writer based in Madison, Indiana, U.S.A.

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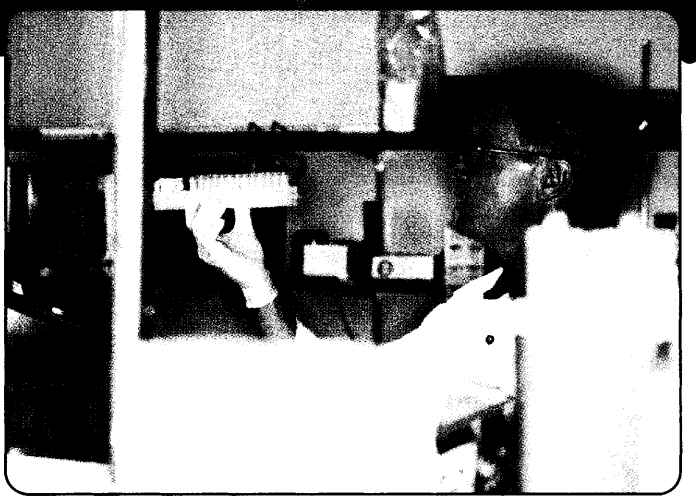
East Coast Careers:

An Ongoing Upsurge in Biotech



Hillyard said, "Having pharma or biotech drug discovery experience is a real plus for a job seeker at ArQule right now."

What does it take to get in at ArQule? First, a potential employee must show excellence in one of the areas mentioned above. That gets a person in the door. Next, Hillyard said, "Enthusiasm and novel approaches to difficult problems make a person stand out. We want people who are excited about the opportunity to apply their particular skills in a unique environment." He added: "I want people to come in the door eager to get started."

JOANNE BRUNO

PISCATAWAY, New Jersey: Scientists at Biacore, Inc., create analytical instruments that monitor biomolecular binding through surface plasmon resonance (SPR) technology. These instruments benefit drug discovery, food analysis, and various life science projects. As a result, scientists at Biacore work with a broad range of applications and customers. Bruno said, "The scientific versatility is very exciting from my perspective. It allows individuals to use all aspects of their education and experience and continue to develop their scientific knowledge and expertise."

Speaking specifically about the role of an applications scientist at Biacore, Bruno said, "It's a diverse position. There are no typical days or weeks. There's a lot of flexibility and variability built into it." On the pre-sale side, for instance, application scientists present technical seminars, give on-site product demonstrations, work on proof-of-principle projects, and develop new applications for Biacore's SPR instruments. After a sale, they teach customers to use their new technology, design and troubleshoot experiments, and interpret data. She said, "Our customer relationship really starts after an instrument is sold. It doesn't end at the sale." In fact, Bruno and her colleagues even go beyond consulting strictly about Biacore products. She said that they may help customers with related problems, such as making recommendations for finding an antibody supplier or how to check the quality of a protein sample.

The diversity inherent in the application of Biacore instruments and technology demands similarly broad backgrounds in employees. Bruno said, "We generally look for a broad-based technical background, maybe someone who started in one area and expanded to another or someone in a discipline that touches different types of science." Also, people with solid assay development skills stand the best chance of getting on at Biacore. Most positions at Biacore, however, extend beyond the lab bench. "You need a desire to work with people on a routine basis," Bruno said. "That takes good communication skills—both verbal and written. We do a lot of troubleshooting over the phone or by e-mail."

Most of the people hired at Biacore come with some previous industrial experience. Bruno said, "Our scientists usually need a little life experience combined with some work experience." For anyone looking for a career in biotechnology, Bruno recommends taking a targeted approach—deciding what area is most interesting and then showing how an applicant's experience fits what a company needs. She added, "It's a good idea to explore a range of sizes of companies and get a feeling for what appeals to you."

JOHN MCPHERSON

CAMBRIDGE, Massachusetts: John McPherson, senior vice president of protein development at Genzyme Corporation, said, "The biotechnology job market is sort of in a flat spot. With increased concerns over earnings and decreased investments, biotech jobs are down compared to a couple years ago." Nevertheless, Genzyme still needs people in specific fields.

Genzyme pursues many areas: cell and protein therapeutics, diagnostic products, drug discovery, genomics, surgical biomaterials, and therapeutic polymers. McPherson said, "Currently, we are focused on people with a background in pharmacology at all levels." This company is also recruiting for clinical chemists and analytical protein chemists. At the scientist level, Genzyme managers seek candidates with some experience—preferably in industry—beyond a postdoctoral position. Anyone applying for a senior management position must show a track record of productivity and accomplishments in industry.

During interviews, McPherson looks for enthusiasm and someone showing commitment to professional growth. He added: "I look for people who know about Genzyme and understand what we are developing. It shows that they are truly interested." During a bonanza of biotechnology jobs, McPherson finds that as few as 20 percent of the applicants

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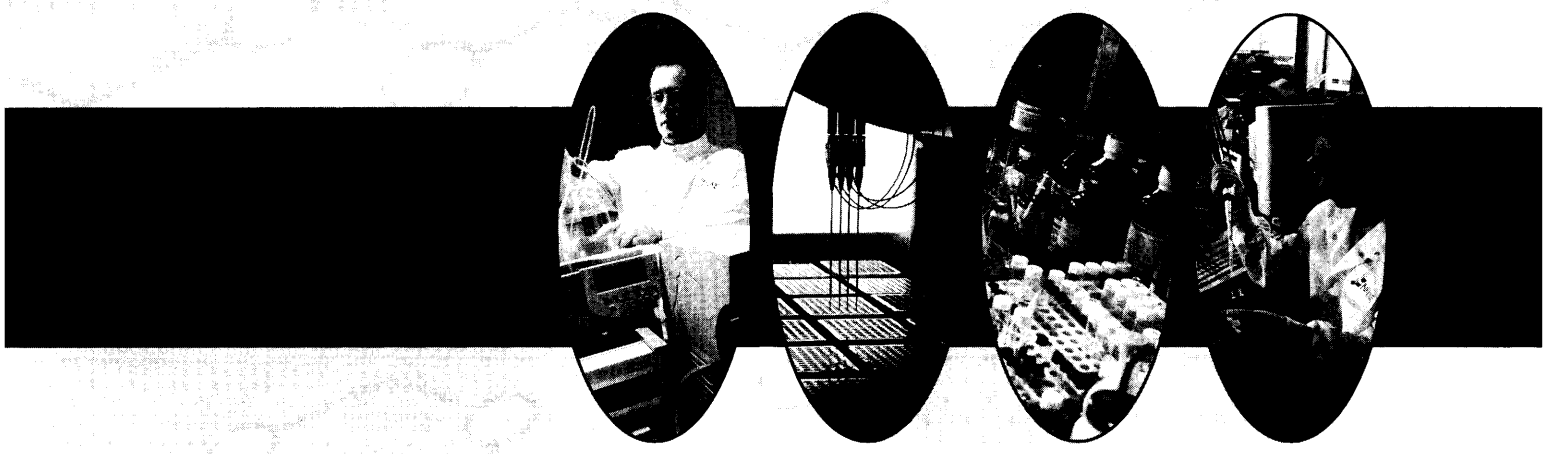
ArQule:

YOUR *FAST TRACK* IN DRUG DISCOVERY.



At ArQule, our drug discovery program integrates critical technologies for faster, more efficient lead generation and optimization. Building on our established world-class chemistry capabilities, our proprietary drug discovery fast track allows us to perform several process steps simultaneously—shortening the time and reducing the cost to identify preclinical drug candidates. As part of our talented, interdisciplinary project teams, you'll be exposed to new concepts and be energized by stimulating challenges in a dynamic work environment. You'll also enjoy exceptional growth with unlimited professional development opportunities.

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show any evidence of studying the company, which is easier than ever with information online. During tough job markets, McPherson said that up to half of the applicants appear knowledgeable about Genzyme.

Consequently, McPherson encourages applicants to any position to study the company. He said, "Consider what you want to do in your career, and identify companies whose needs coincide with your skills." He also suggested investigating a company's corporate culture through annual reports and websites.


HENRI LICHENSTEIN

NEW HAVEN, Connecticut: It practically takes a telethon tote board to keep track of the number of employees at CuraGen Corporation. At the end of 2000 this corporation employed 345 people and now 500 work there. Moreover, leaders at CuraGen expect even more growth in the future as this company expands its preclinical and clinical teams for drug development. Scientists at CuraGen use genomics to develop proteins, antibodies, and small molecules as drugs to treat diabetes, inflammation, obesity, oncology, and central nervous system disorders.

In terms of current hiring needs at CuraGen, Henri Lichenstein, director of drug development, said, "The big areas are in process development for the manufacture of proteins and antibodies used in clinical trials." In addition, CuraGen is preparing a big push in preclinical pharmacology, and that requires the hiring of pharmacologists with expertise in evaluating the efficiency of protein and antibody therapeutics. This company is building teams for clinical development, which will lead to hiring M.D.s and scientists with experience taking drugs through phases 1, 2, and 3 of clinical trials. In fact, CuraGen expects to submit its first investigational new drug application, or IND, within the next year. After that, Lichenstein expects additional INDs at what he calls a frequent pace.

To support these expanding areas, Lichenstein said, "We want people who love to make a difference—people who want to get a sick child out of a hospital." To reach such a heartfelt goal, CuraGen needs people who are process oriented in the generation and analysis of data. He said, "We want people who are very organized and systematic."

At this crucial juncture for CuraGen, though, this company's leaders seek people with experience in drug development. That means special consideration for an M.D. or Ph.D. with industry experience, especially one with a proven track record of moving proteins, antibodies, or small molecule drugs through preclinical and clinical stages.

Anyone who makes it to the interview process at CuraGen still faces a grueling test. Lichenstein said, "We put job candidates through a pretty rigorous interview process. In addition, reference checks comprise an important part of a candidate's evaluation. We look for people who are at the top of their field and bring new expertise to CuraGen. The successful candidate will also be enthusiastic, energetic, attentive, and friendly."


GEORGE SHIMER

LEXINGTON, Massachusetts: Currently, managers at Cubist Pharmaceuticals, Inc., seek medicinal chemists who can help this company push ahead in drug discovery. George "Skip" Shimer, vice president of research, said, "In today's biotech market, there's strong competition for medicinal chemists at every level, from research associates to senior scientists. At Cubist, medicinal chemists participate in drug discovery against life-threatening bacterial and fungal infections.

Overall, Shimer said, "There is a strong market for most of the skill sets that we seek. We are starting to move down the pathway of producing products from drug discovery. So we need people with background in those areas." In particular, managers at Cubist seek biologists with a working knowledge of genomics. For example, Shimer and his colleagues desire scientists who can explore genomic data and distinguish the right path from ones that falsely seem right. He said, "A lot of biologists are aware of genomics, but not a lot of them are skilled at deciphering genomic information." Consequently, Shimer often encounters a challenge in finding good resumes, partly because competition can be so intense.

In addition to strong technical capabilities, Shimer seeks candidates who can push a project forward. In many cases, Shimer explores how potential candidates handle problems. During an interview, he might ask a candidate about a problem and how it was solved. Shimer also explores whether a candidate can stand working in a biotech environment. "It's like working in a fishbowl. Your research constantly gets held up to a very tough yardstick," he said. As a result, a successful scientist at Cubist must take ownership of a project and move ahead without waiting to be told what to do next. People with those characteristics catch Shimer's attention.

For anyone seeking a senior level position at Cubist, Shimer wants people who can talk science. Shimer asks: "Can a candidate sit down and think scientifically?" To find out, Shimer often gathers half a dozen senior scientists from Cubist to create a roundtable discussion with a candidate. Shimer said, "Some people get nervous about that and want to be right all the time, but we're probably asking them questions that we can't answer." Successful candidates at Cubist must see the bigger picture, which extends beyond the edge of any one lab. **III**

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SENIOR RESEARCH SCIENTIST (Ph.D.)

Laboratory Head: Rheumatoid Arthritis In Vivo Target Validation - Respiratory & RA Disease Group

Job Code: DIA4669

A central theme will be the use of acute murine mechanistic & disease models to assess the role of candidate genes in the pathology of rheumatoid arthritis (RA). The successful candidate will lead a laboratory focused on using molecular tools such as retroviruses to infect bone marrow haematopoietic progenitors & adenoviruses to drive expression of transgenes in the joint. The ability to relate mechanistic pathways & individual cell behavior to whole organ systems is critical. In this way, the group will prioritize the most biologically interesting candidate genes & proteins towards drug discovery & germline manipulations in the mouse. In addition, techniques such as microarray & Taqman will be used to identify surrogate markers as well as new genes of interest, which may play a role in the pathologies of these models.

This position requires a Ph.D. & at least 3-5 yrs. post-doctoral exp. in academia or industry with a proven track record. Exp. of murine models of RA together with molecular techniques to probe the biology of RA in the mouse is essential. Techniques such as adenoviral or retroviral delivery, use of antibodies, antisense, RNAi etc. in vivo will be extremely advantageous. The ability to work closely with our transgenic/KO mouse group in the design of mice is critical. To this end, an understanding of cutting-edge genetic manipulation in the mouse is highly desirable.

SENIOR RESEARCH SCIENTIST (Ph.D.)

Laboratory Head: Murine Embryonic Stem Cell Biology

Job Code: DIA4670

A central theme will be the use of genetically manipulated murine ES cells, differentiated to specific phenotypes to evaluate the biology of candidate genes believed to play a role in inflammation. The successful candidate will lead a laboratory initially focused on the mast cell. In this way, the group will prioritize the most biologically interesting candidate genes & proteins towards generation of the modified mice & drug discovery. In addition, techniques such as microarray & Taqman will be used to identify surrogate markers as well as new genes of interest, which may play a role in inflammation.

This position requires a Ph.D. & at least 3-5 yrs. post-doctoral exp. in academia or industry with a proven track record. Exp. in working with differentiated murine ES cells, consistent with monocyte, macrophage, mast cell, T or B cell lineages is essential. Consideration will be given to those candidates who have utilized a wide range of assays to study the function of cells differentiated from murine ES cells. The ability to work closely with our transgenic/KO mouse group who genetically manipulate ES cells is critical. To this end, an understanding of cutting-edge genetic manipulation in the mouse is highly desirable.

SENIOR RESEARCH SCIENTIST

Job Code: DIA4659

The Respiratory/Rheumatoid Arthritis Disease Group at Aventis seeks a scientist to focus on validation of potential novel molecular drug targets using genetics-based technologies. The candidate will study the effects of overexpression or ablation of genes on cellular phenotypes of relevance to asthma, COPD, and RA.

This position requires a BS or MS in molecular biology, cell biology, pharmacology or related disciplines & 5-7 years post-degree exp. Extensive exp. in mammalian cell culture (both primary cells & cell lines), basic molecular skills including RNA isolation and quantitation, PCR, transfection, reporter assays, & ELISA required. Exp. with cell pharmacology, FACS analysis, and/or adenoviral delivery of genes to cells, desirable but not required. Knowledge of immunology and/or epithelial cell biology, & a background in respiratory disease, or the ability to acquire this knowledge with independent research important. Strong communication skills essential.

ASSOCIATE SCIENTIST

Murine Embryonic Stem Cell Biology

Job Code: DIA4671

Exp. in working with differentiated murine ES cells, consistent with monocyte, macrophage, mast cell, T or B cell lineages is essential. Consideration will be given to those candidates who have utilized a wide range of assays to study the function of cells differentiated from murine ES cells. The ability to work closely with our transgenic/KO mouse group who genetically manipulate ES cells is critical. To this end, an understanding of cutting-edge genetic manipulation in the mouse is highly desirable.

This position requires a BS & 6-8 yrs. exp. or MS & 4-6 yrs. exp. in either pharmaceutical and/or related field.

ASSOCIATE SCIENTIST

Rheumatoid Arthritis In Vivo Target Validation

Job Code: DIA4672

Exp. of murine models of rheumatoid arthritis (RA) together with molecular techniques to probe the biology of RA in the mouse is essential. Techniques such as adenoviral or retroviral delivery, use of antibodies, antisense, RNAi etc. in vivo will be extremely advantageous. The ability to work closely with our transgenic/KO mouse group in the design of mice is essential. To this end, an understanding of cutting-edge genetic manipulation in the mouse is highly desirable.

This position requires a BS & 6-8 yrs. exp. or MS & 4-6 yrs. exp. in either pharmaceutical and/or related field.

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Research Associates - Drug Discovery
Candidates experienced working with animals, dissection techniques, primary tissue culture, and a variety of biochemical assays are sought. General understanding of drug discovery processes and experience in lead identification and optimization in cell-based assay is highly desirable. Familiarity with various detecting technologies and robotics used in high throughput screening is a great asset. Excellent computer skills and the ability to work in a team-oriented environment are essential. Preference will be given to candidates with experience in research areas related to adipocyte, obesity, diabetes and cardiovascular disease. Screening our large drug-like compound collection is an essential part of these positions. A BS or MS degree in biology or a related field is required.

Research Scientist - Analytical Chemistry - ADME
A BS/MS in Chemistry and 6 or more years experience in the areas of separation science and spectroscopy/spectrometry are required. The primary objective of the successful candidate will be to apply existing and emerging technologies related to chromatography (analytical, chiral, semi-preparative), mass spectrometry and NMR, to facilitate chemical synthesis, including lead selection and lead optimization.

The ideal candidate will have a strong analytical background and experience in development and validation of separation methods, including, semi-preparative, chiral, analytical, and LC/MS assays for identification, quantitation and purification of compounds. Also, the candidate should be familiar with, or able to learn how to maintain NMR instruments and to execute a variety of NMR experiments. Knowledge of basic synthetic chemistry, along with an understanding of basic physical chemical properties, including solubility and stability is a plus. Successful applicants will be key members of multidisciplinary teams and be directly responsible for research and development in projects.

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Candidates with a BS/MS in a Biological Science with 3 years related experience who wish to diversify their biochemistry laboratory experience are especially sought. Applicants should have experience in modern liquid handling, HTS robotics, automated workstations, and advanced fluorescence detection technology. Experience with in vitro and in vivo assay methods development is desired. Advanced computer skills and math background are preferred.

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CHAIR, DEPARTMENT OF PATHOLOGY

The George Washington University Medical Center is seeking a dynamic physician to lead its Department of Pathology. The Medical Center is comprised of the School of Medicine and Health Sciences, the School of Public Health and Health Services, the Medical Faculty Associates Inc., and the George Washington University Hospital. Candidates must be eligible for a full-time appointment as Professor in the School of Medicine, and will be employed by the Medical Faculty Associates. The Chair heads the clinical Pathology practice within the MFA and is clinical service chief within the University Hospital.

The Department of Pathology has a long tradition of excellence in research and clinical training. The Pathology training programs are a vibrant and integral part of the Department's mission. We seek a Chair who is an outstanding clinician, teacher, and researcher and who has strong leadership and managerial skills. Candidates should be board certified in Pathology and have previous academic, administrative, and practice management experience.

Interested candidates should send their curriculum vitae in confidence to:

Barrett Katz, M.D., M.B.A.
Chair, Department of Ophthalmology
c/o Pathology Search Committee
2150 Pennsylvania Avenue NW, Suite 2A.
Washington, D.C. 20037

Review of applications will begin on August 2, 2002, and continues until the position is filled. *The George Washington University Medical Faculty Associates Inc. is an Affirmative Action/Equal Opportunity Employer.*

UMUC

University of Maryland
University College
www.umuc.edu

Adjunct Teaching • Fall 2002/Spring 2003 • Onsite & Online

Graduate courses in **Biotechnology** (techniques, regulatory environment, commercialization, business aspects, bioethics, molecular biology) and **Bioinformatics** (Baysian statistics, algorithms, database management) and Undergraduate courses in **Astronomy, Meteorology and Marine Biology.**

UMUC seeks **working professionals and academics** to teach in expanding and new programs for working adults.

- Onsite classes meet in the Washington, DC, Baltimore, Annapolis area, usually on evenings or weekends.
- Online classes can be taught from any location; mandatory training is offered online.
- **Terminal degree required.**
- Professional experience required.
- Teaching experience preferred for onsite; required for online classes.
- Successful faculty will be considered for subsequent classes.

See **www.umuc.edu** for curriculum information.
See **www.umuc.edu/umucteach** for faculty information and online application form.
Complete online adjunct faculty application and send resume and cover letter to:
Code: SciM.Jun.02 <Faculty-recruit@umuc.edu > (attachments in MSWord, Wordperfect, or Text) or to:

Office of Faculty Recruitment, Code: SciM.Jun.02
University of Maryland University College
3501 University Boulevard East
Adelphi, MD 20783

Note: Electronic submission preferred.

AA/EEO

Bridge the Gap Between Discovery and Clinical Testing

Access the National Cancer Institute's (NCI) vast resources free of charge to help move therapeutic agents for cancer to the clinic. The National Cancer Institute invites the submission of proposals to:

Rapid Access to Intervention Development
RAID

RAID is not a grant program. Successful applicants instead will receive products or information generated by NCI contractors to aid the applicant's development of novel therapeutics towards clinical trial. The goal of RAID is the rapid movement of novel molecules and concepts from the laboratory to the clinic for proof-of-principle clinical trials. RAID will assist investigators by providing any (or all) of the preclinical development steps that may be obstacles to clinical translation. These may include, for example, production, bulk supply, GMP manufacturing, formulation and toxicology.

- The next deadline for receipt of applications is August 1, 2002
- Further information about this program can be found at: **http://dtp.nci.nih.gov**
- Inquiries can be made to the RAID Program Coordinator by telephone at 301-496-8720 or by e-mail a RAID@dtpax2.ncifcrf.gov

RAID
Developmental Therapeutics Program
National Cancer Institute
6130 Executive Blvd., RM 8024
Rockville, MD 20852
Tel: 301-496-8720; Fax: 301-402-0831
raid@dtpax2.ncifcrf.gov

NATIONAL CANCER INSTITUTE

CSR
Center for Scientific Review

SCIENTIFIC REVIEW ADMINISTRATOR POSITIONS AT THE CENTER FOR SCIENTIFIC REVIEW NIH

The Center for Scientific Review (CSR), National Institutes of Health (NIH), seeks scientists interested in managing the NIH peer review process as a Scientific Review Administrator (SRA).

These Scientific Review Administrators will be responsible for the overall management of committees composed of leading scientists who meet to judge the scientific merit of investigator-initiated international research and fellowship grant applications. They will work with eminent scientists to identify the most meritorious research projects and scientists. Applicants must have earned the Ph.D. (or have equivalent training and experience) and have research experience in one of the following fields: bioethics, bioinformatics, health services, medical demography, medical economics, epidemiology, microbiology, or infectious diseases. A record of independent research accomplishment and experience in health administration, typically requiring several years beyond the doctoral degree, are critical. Salary will be commensurate with experience. A recruitment/relocation bonus may be available.

Please submit curriculum vitae by e-mail at: **smtp:srajobs@mail.nih.gov** or mail to:

Jean Paddock, Ph.D., Associate Director, CSR
6701 Rockledge Drive, RCK 2, Room 5100
Bethesda, MD 20892-7850

Selection for this position will be based on merit, with no discrimination for non-merit reasons, such as race, color, sex, national origin, marital status, disability, age, sexual orientation, or membership/nonmembership in an employee organization.

NIH IS AN EQUAL OPPORTUNITY EMPLOYER

Opportunities in Parsippany, NJ.

It's more than a career. It's a defining experience.

Driving the success of GlaxoSmithKline – the world's leading pharmaceutical organization - is a continual search for innovation. We're committed to recruiting and retaining the best and brightest by providing unequalled individual and career development opportunities within our organization. We currently have opportunities available in our Consumer Healthcare facility, located in Parsippany, New Jersey.

Director, Technical Licensing

Using your solid scientific background and business development skills, you will lead a transatlantic Consumer Healthcare R&D Technical Licensing team in the identification, screening, evaluation and support of negotiations for new Cx and/or Rx technology licensing opportunities. You will also work with R&D product category VP's and cross-functionally with clinical, regulatory, and legal team members to understand, appraise, and make recommendations based on strategic business plan goals and technical licensing opportunities. Your Bachelor's Degree in a scientific discipline (Ph.D. preferred), and 10 years of professional R&D experience within the Cx and/or Rx healthcare industry is essential. Knowledge of the drug development process from a scientific and commercial perspective is necessary. A strong understanding of patient process along with familiarity with FDA, FTC and European regulations is strongly preferred. Strong project management skills and ability to work in a team-based environment is also required. (Req ID: 2153)

Principal Scientist, New Product Research

In this key role, you will challenge the norm with your innovative thinking as you manage and direct the focus of team research to identify and create new product opportunities, technologies, materials, excipients, and devices through internal research and the exploitation of external licensing opportunities. You will work with various departments to set and refine worldwide strategies for new opportunities, design Proof of Principle studies, and optimize product opportunities and claims for therapeutic effectiveness. Your Bachelor's Degree in Biochemistry, Microbiology, Pharmacy, or a related discipline is necessary (Ph.D. preferred), as is 5-10 years of experience within the healthcare/pharmaceutical industry. A minimum of 5 years experience managing multiple projects within budget and on time is essential. Computer proficiency and familiarity with statistics is also necessary. (Req ID: 2165)

GlaxoSmithKline is dedicated to an innovative work place and supports you with career-long opportunities and learning. We offer a competitive benefit and compensation package. For confidential consideration and efficient processing of your resume, please apply online at www.gsk.com Indicating Req ID is essential to search. Principals only, no agencies, please.

Developing talent through equality of opportunity, M/F/D/V.

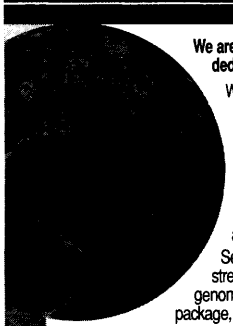
If you are unable to visit our site, please call 1-888-493-6756.

Together we can make life better.

gsk GlaxoSmithKline

EAST COAST CAREERS

EXTENDING & ENHANCING HUMAN LIFE.



We are the Bristol-Myers Squibb Pharmaceutical Research Institute (PRI), one of the world's most productive, respected and innovative research organizations. We are dedicated to extending and enhancing human life by discovering and developing innovative, cost-effective medicines that address significant unmet medical needs.

We are offering exciting and challenging career opportunities to exceptional individuals in our Pharmaceutical Research Institute in **New Jersey.**

Clinical Discovery Technologies, Hopewell, NJ
Research Investigator

In this position, you will guide and drive expression profiling data analysis based marker identification for Pharmacogenomics in oncology, generate data and write patents in collaboration with the group and BMS attorneys, support expression profiling group in all questions related to bioinformatics and manage alliances with the biotech company in the area of bioinformatics. Additional duties include designing and developing new, innovative data analysis strategies that lead to the discovery of biomarker and pharmacogenetic markers in oncology, performing informatics based and statistical analysis of expression data sets and driving and guiding interaction with non-clinical biostatistics group.

Selected candidates must have a PhD in Bioinformatics or Molecular Biology/Genetics with a focus on bioinformatics with 1-3 years of post doctorate work. Areas of strength and expertise should include Oncology/cancer and Pharmacogenomics. Experience and use of advanced algorithms, pattern recognition and clustering tools for genomic data are essential. A highly interactive individual with excellent communication skills, both oral and written, knowledge of S-plus or other statistical programming package, and a familiarity with UNIX is needed. The ability to write scripts in Java or comparable software and experience in patent writing is a plus. ***Job Code: S02-0001855***

Clinical Discovery Technologies, Hopewell, NJ
Associate Research Scientist

Selected candidates will perform tissue culture experiments with cancer cell lines, prepare and quality control RNA from various tissue sources including tumors, cell lines and from animals and perform high-throughput expression profiling using micro-array technology. The main scope of the work will include the identification of genes that can predict therapeutic outcome using state of the art molecular technologies in conjunction with bioinformatic selection algorithms. Additionally, candidates will analyze micro array expression data and interact with members of the pharmacogenomics, sample bank and oncology drug discovery groups.

We are seeking a highly motivated interactive scientist at either the experienced BS level or MS level for support in programs of pharmacogenomics and cancer with a BS/MS in Molecular biology, Cancer genetics and 1-3 years industrial or 2-5 years academic experience. Experience in standard molecular biology technologies as well as tissue culture is required. Experience with micro arrays and analysis of genomic data and proficiency in Microsoft excel would be a plus. ***Job Code: S02-0001854***

Clinical Discovery Technologies, Hopewell, NJ
Sr. Research Investigator

In this position, you will manage a group of 1-4 scientists involved in micro array based expression studies and lead programs to identify novel PGx markers and new targets for Oncology drug development, advance collaborations and interact with Oncology drug discovery and clinical development. Additionally, you will design experimental strategies that lead to the discovery of biomarker and pharmacogenetic markers in oncology, perform informatics based on statistical analysis of expression datasets and participate in the preparation of patent applications.

We are seeking a highly interactive individual with excellent communicative skills, both oral and written, and scientific areas of strength and expertise in Oncology/Cancer and Pharmacogenomics. A PhD in Molecular Biology or Genetics with 3-5 years experience and 1-4 years post doctorate work is required. 1-3 years industrial experience would be beneficial. Experience with molecular biology and micro-array processing, proficiency in analyzing micro-array data including clustering tools, advanced statistical knowledge is also a plus, as is knowledge of clinical development processes. Proven ability to work independently in a highly interactive collaborative environment is an essential function of this position. ***Job Code: S02-0001856***

If you would like to join our highly collaborative team, please send your resume, indicating Source Code: (See Above) and the title of the position of interest, to: **Bristol-Myers Squibb, Pharmaceutical Research Institute, P.O. Box 4000, Princeton, NJ 08543-4000, Fax: 609-252-3242; or Email to: recruit.pri@bms.com,** indicating Source Code: (See Above) at subject line.

Bristol-Myers Squibb is proud to be an equal opportunity employer, M/F/D/V

www.bms.com

Bristol-Myers Squibb Company
Pharmaceutical Research Institute

CBER

FDA

Hiring Initiative for Countering Bioterrorism

The Countering Bioterrorism Initiative is comprised of a number of essential elements for which the Center for Biologics Evaluation and Research plays an integral role. One such element is the expeditious development and licensing of products to diagnose, treat or prevent outbreaks from exposure to the pathogens that have been identified as bioterrorist agents. These products must be reviewed and approved prior to the large-scale productions necessary to create and maintain a stockpile. Staff must guide the products through the regulatory process, including the manufacturing process, pre-clinical testing, clinical trials, and the licensing and approval process. Experts in these areas are needed to expedite the licensing and approval process for these products. This process is extremely complex and early involvement by staff is crucial to the success of the expedited review process.

CBER also plays an equally important role in expanding research on disease agents such as *Bacillus anthracis, Shigella dysenteriae, Clostridium botulinum, Yersinia pestis* and smallpox that might be intentionally released as weapons of bioterrorism. The results of our research, coupled with other biochemical and microbiological information, are expected to help in the development of rapid diagnostic methods, new or improved antibacterial and antiviral therapies, and new vaccines. Experts in virology, bacteriology, infectious diseases, immunology and molecular biology are needed to develop and support these expanding projects. Monies for start-up research may be available.

Consequently, the Center for Biologics Evaluation and Research is actively soliciting applicants to fill a multitude of positions involved in the regulation and research of blood, vaccines and therapeutics including those against bioterrorism agents. For more information, log onto **www.fda.gov/cber/inside/vacancy.htm** and select Countering Bioterrorism.

ALL POSITIONS ARE LOCATED IN ROCKVILLE, MARYLAND AND SURROUNDING AREAS!

Smoke Free Environment
Equal Opportunity Employer
This Agency provides reasonable accommodations to applicants with disabilities.

UNIVERSITY of NEW HAMPSHIRE

ASSISTANT PROFESSOR
TENURE-TRACK POSITION

The Department of Animal, Nutritional, and Medical Laboratory Sciences in the College of Life Sciences and Agriculture at the University of New Hampshire (UNH) invites applications for an academic year, tenure-track position starting Fall Semester, 2002. The successful candidate will be expected to teach an undergraduate course in clinical chemistry and a course in the area of the candidate's research interest at the undergraduate or graduate level. The candidate should have research expertise that utilizes contemporary approaches to develop a program of research complementing departmental strengths that includes: adipocyte physiology, cancer biology, vascular or reproductive physiology, pathology, and nutritional biochemistry. A doctoral degree in an appropriate discipline and post-doctoral experience are required. The successful candidate must have a strong commitment to excellence in teaching, and is expected to establish an independent research program that actively involves graduate (Ph.D. and M.S.) and undergraduate students.

Candidates should send a current curriculum vita, a statement of teaching experience and philosophy, a description of research interests (including accomplishments and future directions), and contact information for at least three references to: **Anthony R. Tagliaferro, Ph.D., Search Committee Chair, Dept. of Animal, Nutritional and Medical Laboratory Sciences, Kendall Hall, University of New Hampshire, Durham, NH 03824. FAX: (603) 862-3758, Email: anthonyt@cisunix.unh.edu**

See "Announcements" under **www.anscandnutr.unh.edu.com** and link to **Medical Lab Sciences**

Review of applications will begin immediately and will continue until the position is filled.

UNH is committed to excellence through diversity among its faculty and staff and strongly encourages women and minorities to apply.

NATIONAL CANCER INSTITUTE

Be an NCI Cancer Prevention Fellow

THE NATIONAL CANCER INSTITUTE (NCI) sponsors the Cancer Prevention Fellowship Program (CPFP). Its purpose is to train individuals from a multiplicity of health professions and biomedical science disciplines to become leaders 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 opportunities at the NCI
- Professional development and leadership training

What areas of cancer prevention research are available?

- Chemoprevention
- Clinical/Translational Research
- Early Detection/Biomarkers
- Epidemiology
- Ethics and Evidence-Based Decisionmaking
- Intervention Studies
- Laboratory-Based Research
- Primary Prevention
- Social and Behavioral Research
- Statistical Methodology

Am I eligible?

You must have a doctorate degree (M.D., D.D.S., D.O., J.D., Ph.D. or equivalent). Foreign education must be comparable to that received in the United States.

You must also be either a citizen of the U.S. or a resident alien eligible for citizenship within 4 years at the time of application (September 1).

How long is the program?

Fellows are accepted for up to 5 years of training beginning in July. The typical duration is 3 years (year 1: M.P.H.; years 2-3: NCI Summer Curriculum and mentored research).

When are applications due?

Applications are due September 1, 2002, for entry into the program July 1, 2003.

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
6130 Executive Boulevard (EPN)
Suite 3109, MSC 7361
Bethesda, MD 20892-7361

* Please provide home address, telephone, e-mail, and where you heard about the program.

Further inquiries:
Mrs. Barbara Redding
Phone (301) 496-8640
Fax (301) 402-4863
E-mail br24v@nih.gov

For more information visit our Web site at:
http://cancer.gov/prevention/pob/
http://resresources.nci.nih.gov/links.cfm

Selection for these positions will be based solely on merit, with no discrimination for non-merit reasons, such as race, color, gender, national origin, age, religion, sexual orientation or physical or mental disability. NIH provides reasonable accommodations to applicants with disabilities. If you need reasonable accommodation during any part of the application and hiring process, please notify us. The decision on granting reasonable accommodation will be handled on a case-by-case basis.

THE NATIONAL CANCER INSTITUTE IS AN EQUAL OPPORTUNITY EMPLOYER.

Scientific Review Administrator

The National Institute on Aging, National Institutes of Health, is seeking a Scientific Review Administrator to conduct reviews of grant applications in areas of science of importance to aging (GS 601/602 – 13/14, **$66,229 to $101,742).** Applications are invited from candidates with demonstrated strong interdisciplinary, scientific, administrative and communication skills. Broad knowledge of principles, theories and practices related to the scientific fields of contemporary science is expected. Experience with peer review of health research grant applications is desirable. U.S. citizenship is required. Application requirements are listed in the announcement **#NIA-02-517**. Please visit our web site to find the announcement. http://www.nih.gov/nia/about/jobs.htm

For more information, please contact Cheryl Caponiti or the NIA Human Resources Office on (301) 496-5347.
All applications must be postmarked or e-mailed by July 12, 2002.

National Institute on Aging

NIH is an Equal Opportunity Employer

BIOMEDICAL RESEARCH ADMINISTRATION

The Congressionally Directed Medical Research Programs (CDMRP) office in Frederick, Maryland is seeking qualified, energetic candidates for several biomedical research administration positions. The CDMRP is a subordinate research area within the United States Army Medical Research and Materiel Command responsible for administering targeted congressional appropriations. The Program office is currently managing approximately 4,150 grants and contracts representing a collective research portfolio of over $2 billion spanning 16 separate programs.

For more information, go to **http://cdmrp.army.mil** *or fax your curriculum vitae to (301) 619-7796, Attn: Mr. Thomas Kuhn.*

POSITION AVAILABLE

Health Science Grants Manager. Performs the duties of Grants Manager for CDMRP's research programs. This position involves the application of expert knowledge and understanding of scientific principles to management of the CDMRP funding research portfolio. Responsibilities include the negotiation and management of funded projects, to include reviewing and interpreting results with a view toward compliance with the statement of work, budgeting, safety, efficacy, and intellectual property.

EAST COAST CAREERS

Research Position Available Immediately!

A Post-doctoral position in Molecular Parasitology and Vaccine Development focused on research projects studying the filarial nematode *Onchocerca volvulus* is available immediately. This position will involve participation in projects that center on the expression and characterization of putatively protecting recombinant antigens with the aim of finding the best formulation providing the most potent protection against larval infection as measured in the mouse model. These studies will be instrumental in developing a vaccine against onchocerciasis with anticipated clinical application. An opportunity will also be available to study the function of some of these antigens during the development and molting of the *O. volvulus* larvae by using the *Caenorhabditis elegans* model system.

The Lindsley F. Kimball Research Institute of the New York Blood Center

Laboratory of Molecular Parasitology

Applicants should have a PhD and/or MD with 3-5 years experience in immunobiology, molecular biology, expressing recombinant proteins using eukaryotic expression systems and/or vaccinology. The appointed person is expected to be independent, creative, self-motivated with a good track record of research and productivity.

We offer a competitive salary and a comprehensive benefit package. The New York Blood Center (www.nybloodcenter.org) is an Equal Opportunity Employer. The title of the position will be decided based on the qualification of the appointed person.

Interested applicants should send Curriculum vitae, statement of interest and the names, addresses and Tel/Fax/E-mails of (three) references to: Sara Lustigman, Ph.D., Head, Laboratory of Molecular Parasitology, The Lindsley F. Kimball Research Institute, New York Blood Center, 310 East 67th Street, New York, NY 10021, USA, or Email: sara_lustigman@nybc.org. EOE M/F/D/V.

Lindsley F. Kimball
Research Institute
A Division of the New York Blood Center

Postdoctoral Opportunities in Cancer Research at The Wistar Institute

The Wistar Institute, an independent research organization located on the University of Pennsylvania campus, has National Cancer Institute Training Grant-supported postdoctoral positions available immediately in "Basic Cancer Research." Selected candidates will take interdisciplinary approaches to understand the cell and molecular basis of cancer, including regulation of gene expression and genome structure and function, the cellular and molecular basis of tumor development and progression, and immunology and immunotherapy.

Applicants will have the opportunity to identify one of twenty participating faculty members in whose laboratory they choose to conduct their postdoctoral research. Candidates must be U.S. citizens or permanent residents with a maximum of three years of postdoctoral training. Minority applicants are strongly encouraged to apply. If interested, please forward your C.V. and three letters of recommendation to the **Human Resources Department (indicating research of interest), The Wistar Institute, 3601 Spruce Street, Philadelphia, PA 19104-4268.** For more information about The Wistar Institute, visit our Web site at **www.wistar.upenn.edu.** EOE/AA/M/F/D/V.

THE WISTAR INSTITUTE
Developing the Medicine of Tomorrow™

Postdoctoral Research

The Wistar Institute, an independent research organization located on the University of Pennsylvania campus, currently seeks postdoctoral applicants in the areas listed below; these are full-time, year-round opportunities.

Regulation of Epstein-Barr Virus Latency. Immortalization of human B-lymphocytes by EBV depends on the establishment of a stable extrachromosomal replicon that maintains a stable copy number and strict pattern of gene expression. We are studying the viral and cellular proteins that regulate the chromatin structure, cell-cycle dependent replication, DNA damage checkpoint response, and plasmid maintenance of EBV minichromosomes. In a separate project, we are studying how B-lymphocyte growth signals regulate the switch from latent to lytic gene expression of the viral minichromosome. Reply to Dr. Paul Lieberman (lieberman@wistar.upenn.edu).

Immunopathology and HIV Therapy. Postdoctoral position available to investigate viral and immunopathology studies centered on HIV-1 infected patient-derived material, treatment interruption strategies, and in vitro models of macrophage and T-cell infection by HIV-1 (see Proc. Natl. Acad. Sci. 96:5215, 1999; J. Infect. Dis. 182:766, 2000). Experience in HIV-1 research, cellular immunology, and cytokine networks preferred. Reply to Dr. L.J. Montaner (montaner@wistar.upenn.edu).

Inflammation and Cell-Mediated Responses. Postdoctoral position available to study antigen presentation, IL-12, microarray gene expression and inflammation in human and murine models systems (BCG, flu). Experience in cellular immunity, infectious disease murine models and dendritic cells preferred (see J. Immunol. 166:7504-7513, 2001). Reply to Dr. L.J. Montaner (montaner@wistar.upenn.edu).

Chromatin-Mediated Gene Silencing and the Control of Cell Proliferation. Positions are available immediately to study the molecular mechanisms utilized by mammalian cells to stably silence gene expression and to elucidate how silencing is maintained during cell growth and organismal development. The KRAB domain-Zinc-finger protein superfamily of repressors has been developed as a model system (see Genes & Dev. 10:2067, 1996; J. Mol. Biol. 295:1139, 2000; Genes & Dev. 15:428, 2001, Genes & Dev. In press, April 15, 2002) and has led to insights into the interplay between histone deacetylation, methylation and formation of heterochromatin. We are looking for ambitious candidates with training in molecular biology and biochemistry. Reply to Dr. Frank J. Rauscher III (rauscher@wistar.upenn.edu).

Gene-Expression Profiling in Cancer and Infection. Position in functional genomics laboratory, studying cutaneous T-cell lymphoma and influence of infection with C. pneumoniae on atherosclerosis using cDNA arrays, for individual with strong molecular biology background with interest in statistical analyses of array data. Reply to Dr. Louise C. Showe (lshowe@wistar.upenn.edu).

Successful candidates will have a Ph.D. and/or M.D./Ph.D. in the biological sciences. Please send a CV and three letters of reference to the Human Resources Dept., Attn: (appropriate faculty member), **The Wistar Institute, 3601 Spruce Street, Philadelphia, PA 19104.**

AN EQUAL OPPORTUNITY/AFFIRMATIVE ACTION EMPLOYER, M/F/D/V.

For more information about The Wistar Institute, visit our Web site at **www.wistar.upenn.edu.**

THE WISTAR INSTITUTE
Developing the Medicine of Tomorrow™

University of Pennsylvania

DEAN, SCHOOL OF DENTAL MEDICINE

The University of Pennsylvania invites nominations and applications for the position of Dean of the School of Dental Medicine. One of twelve schools in the University, the School of Dental Medicine consistently attracts high quality students and is unique among dental schools for the strength of both its clinical and basic science departments. The School is ranked among the five top dental schools in the United States. The School has a very strong international program and is well known for its expertise in the technology of dental medicine.

The University of Pennsylvania seeks a leader who will enhance and strengthen the mission of the School in teaching and research excellence. The Dean will be responsible for implementing the strategic plan and will direct programmatic, clinical and fiscal goals. The successful candidate will have a substantial history of decisive and innovative leadership and a demonstrated commitment to dental education, clinical care and research. S/he must have the ability to identify and address the challenges facing dental education and provide a vision for the future progress of the School.

Nominees and applicants must hold a D.D.S./D.M.D. or its equivalent and/or an advanced degree in a health related field and demonstrate scholarly distinction appropriate for a tenured appointment in the School.

Send C.V. with cover letter, preferably by email, in strict confidence to:

sflynnhollander@imsearch.com
Sharon M. Flynn Hollander, Isaacson, Miller
1275 K Street, Suite 1025
Washington, D.C. 20005
Phone: 202-216-2271, Fax: 202-337-4046

Affirmative Action / Equal Opportunity Employer

Endowed Chairs in Cancer Biology or Infectious Disease Research

SOUTHERN RESEARCH INSTITUTE, a 60 year-old not-for-profit research affiliate of the University of Alabama at Birmingham (UAB), is seeking outstanding applicants for **Endowed Chairs in Cancer Biology or Infectious Disease Research**. The scientists selected for these Chairs will be instrumental in shaping the Institute's future efforts in these targeted areas. Therefore, the successful candidate should currently direct a nationally or internationally recognized research program and have proven competence in securing extramural funding. We are seeking applicants that have a strong record of accomplishment as evidenced by publications in leading scientific journals and positions on editorial boards or federal peer review and advisory committees. The successful applicant will have also demonstrated the ability to work collaboratively and to lead interactive programs that will include other Institute scientists specializing in medicinal chemistry, biochemistry, experimental therapeutics, toxicology, pharmacology, cell biology and immunology, molecular oncology and protein crystallography. Our **Drug Discovery Division** is particularly interested in attracting scientists who use molecular and cellular biology in their research and have a desire to join a dynamic organization that takes an interdisciplinary approach to converting basic research into new FDA-approved drugs. The occupants of these Chairs will receive a renewable, five-year rolling contract.

Southern Research Institute employs approximately 600 professional, technical, and support personnel, and has annual revenues over $58 million. Four anti-cancer drugs discovered by Institute researchers are now used in the clinic and a fifth drug protects patients against the side effects of chemo- and radiotherapy; several other new anti-cancer drugs are in development or undergoing clinical trials. Our researchers are also searching for new agents to fight a variety of bacterial, viral and fungal infectious organisms and are especially knowledgeable in the design and synthesis of agents to combat the opportunistic infections that afflict AIDS patients. As part of the large biomedical research community in Birmingham, we are committed to providing a stimulating and rewarding work environment. We offer a competitive salary, generous benefits, modern equipment and facilities, and an extensive technical library. Located adjacent to the UAB campus, appropriate applicants may conveniently enjoy joint appointments as graduate teaching faculty and interactions with clinical and academic personnel who are members of UAB basic science departments, Comprehensive Cancer Center, Cell Matrix and Adhesion Center, Center for AIDS Research, and Center for Biophysical Sciences and Engineering. Birmingham has a high standard of living afforded by a moderate climate, beautiful, wooded terrain, outstanding residential communities and schools, world-class healthcare, and a vibrant arts and entertainment scene. Its cost of living is at or below the national average, as are healthcare and housing costs.

Application letters should be accompanied by a curriculum vitae, names and addresses of three references, and a summary of current research activities and support. The material should be addressed to **Southern Research Institute, HR Dept., P.O. Box 55305, Birmingham, Alabama 35255-5305, e-mail: s.r.brown@sri.org fax: (205) 581-2880. Must refer to Pos #1033 for Infectious Disease, Pos #1051 for Cancer Biology. Inquiries should be directed to Dr. John A. Secrist III, Vice President, Drug Discovery Division**. For further information on our capabilities please see **www.sri.org**.

SOUTHERN RESEARCH INSTITUTE
Affiliated with the University of Alabama at Birmingham

Southern Research Institute is an Affirmative Action/ Equal Opportunity Employer

Director
National High Magnetic Field Laboratory

With the recent announcement that Jack Crow will step down as Director and will assume new responsibilities, a search process has been initiated. The mission of the NHMFL is to provide and operate magnetic field facilities at the frontiers of current capabilities for qualified external users, national and international, who need access to the world's highest-performance magnets (superconducting, resistive, hybrid, pulsed) for applications ranging from physics to chemistry to biology. NHMFL currently operates at ~$30M/year with support from both the NSF and from the State of Florida; the Lab has a staff of about 350. The NHMFL is a consortium consisting of The Florida State University, University of Florida, and Los Alamos National Laboratory. The Director will be located at FSU.

The Director should have (a) experience in managing a large research-oriented organization or research facility; (b) a strong record in research; and (c) general familiarity with university, federal funding agencies, and government laboratory operations and funding. The Director will also be expected to develop a vision to lead the Laboratory successfully into new science directions, with new funding sources and approaches. The Director will hold a tenured appointment in an appropriate academic department at FSU and adjunct appointments at the other partner institutions.

Applicants should provide (a) a curriculum vitae; (b) a summary of research and administrative expertise and accomplishments; and (c) names of at least three individuals for references to:

Zachary Fisk and Alan Marshall
Co-Chairs, Director Search Committee
National High Magnetic Field Laboratory
Florida State University
1800 East Paul Dirac Drive
Tallahassee, FL 32310
fisk@magnet.fsu.edu; marshall@magnet.fsu.edu

Consideration of applications will begin immediately and will continue until the position is filled. FSU is an Equal Opportunity/Affirmative Action Employer.

Director, Center for Clinical Oncology
USA Cancer Research Institute

The University of South Alabama (USA) has initiated development of the USA Cancer Research Institute (USA-CRI), with a major thematic focus on new drug discovery, drug development and molecular diagnostics, with a particular emphasis on metastasis and drug resistance mechanisms and targets. The USA-CRI Center for Clinical Oncology (CCO) will house a majority of the Institute's clinical services, clinical research and development programs, outpatient clinics, supporting laboratories and core facilities (space totaling at least 70,000 sq. ft.) and other resources. The USA-CRI seeks a CCO Director who will provide the necessary administrative, managerial, scientific and clinical leadership for the CCO to support the Institute's achieving designation as an NCI Comprehensive Cancer Center within the coming decade. The CCO director will, in concert with the Institute Director, lead the planning, development and management of all CCO resources, as well as participate in recruitment and mentoring of clinical service staff as well as extramurally funded or competitive clinical research faculty and staff of the CCO. The successful candidate for this position will have: (a) a strong track record of leadership in clinical research, clinical services and research program management and administration, (b) an active, extramurally funded or competitive research program in one or more of the following areas pertinent to new drug discovery and development: molecular cell biology; tumor biology; molecular pathology and diagnostics; clinical pharmacology, (c) substantial success or interest in creation of academic/industry partnerships and collaborations, (d) Board certification in a specialty field of oncology, and (e) qualifications for concurrent academic appointment as Professor in a clinical department of the USA College of Medicine. Suitably qualified candidates may be considered for a concurrent or alternative, administrative appointment as Division Chief for Medical Oncology or Surgical Oncology.

Please send letters of inquiry, nominations and applications to: **Michael R. Boyd, M.D., Ph.D., Director, USA-CRI, College of Medicine, CSAB 170, Mobile, Alabama 36688-0002; or email, mboyd@usouthal.edu**.

The University of South Alabama is an Affirmative Action and Equal Opportunity Employer.

BROOKHAVEN
NATIONAL LABORATORY

Director

Brookhaven Science Associates LLC (BSA), a partnership of Battelle Memorial Institute and Stony Brook University, announces the search for Director of the Brookhaven National Laboratory (BNL).

Brookhaven National Laboratory, located on Long Island in Upton, New York, is one of five multipurpose laboratories operated by the Office of Science of the U.S. Department of Energy. Since its founding in 1947, the Laboratory's primary mission has been scientific research in fields requiring unique, complex and often large facilities, and the design, construction and operation of those facilities for external users as well as for its own scientists. BNL research departments are organized in four directorates: Nuclear and High-Energy Physics, Basic Energy Sciences, Life Sciences, and Energy/Environment/National Security. The Laboratory has over 3,000 employees, an annual budget exceeding $400 million, and more than 4,500 scientific users of its facilities per year.

The Director serves as President of BSA and Chief Executive of the Laboratory. The new director must have strong scientific credentials, strong leadership skills including success in crafting and implementing vision and strategy for a major organization, experience working with governmental agencies, experience with research management or a record of successful senior management of large-scale projects, and qualities that suggest success in engaging all the stakeholders associated with the functioning of a national multipurpose laboratory.

Nominations and expressions of interest should be submitted, in total confidence, to: **Shelly Weiss Storbeck, Managing Director, A.T. Kearney Education Practice, 333 John Carlyle Street, Alexandria, VA 22314; Telephone: 703-739-4613; Fax: 703-518-1782;** E-mail may be addressed to **shelly.storbeck@atkearney.com.**

For best consideration, please submit materials no later than **August 1, 2002.** Electronic submissions are particularly encouraged.

Further information about BNL can be found on the website: **www.bnl.gov**

USDA

The U.S. Department of Agriculture (USDA), Center for Plant Health Science & Technology (CPHST), of Raleigh, NC is accepting applications for the following full-time positions:

National Science Program Leader - Agricultural Quarantine and Inspection (AQI) and Port Technology (PT): Responsibilities entail a broad range of planning, coordination, and oversight activities of central importance to the long-range program direction of AQI/PT. Applications in response to this position vacancy must be marked Announcement #24-77-822 and postmarked by July 29, 2002.

National Science Program Leader - Survey, Detection, and Identification Technology: Responsibilities entail a broad range of planning, coordination, and oversight activities of central importance to the long-range program direction of scientific activities associated with the pest surveys, detection, and identification technology. Applications in response to this position vacancy must be marked Announcement #24-77-821 and postmarked by July 29, 2002.

National Science Program Leader - Biotechnology: Responsibilities entail a broad range of planning, coordination and oversight activities to develop and utilize new biotechnology advances in its safeguarding mission. Applications in response to this position vacancy must be marked Announcement #24-77-820 and postmarked by July 29, 2002.

Applicants must have a Bachelor's or higher degree in biological science, agriculture, natural resource management, chemistry, or related disciplines. In addition, applicants must have one year of specialized experience in the range of duties outlined in the published announcement. Salary is commensurate with experience ($89,715 to $116,633). A separate application is needed for each announcement number. US citizenship is required. Complete vacancy announcements containing more information on experience and competencies can be obtained at the website: **www.usajobs.opm.gov** or call (919) 513-2918 to request a copy of the announcement. All applications must be mailed or faxed by due date to: **USDA, MRP, Minneapolis Business Site, Staffing, 100 North Sixth Street, Suite 510C, Minneapolis, MN 55403, or Fax: (612) 370-2209**. Do not use government postage paid envelopes.

USDA is an Equal Opportunity Employer.

Post-Doctoral Fellowships in Laboratory of Molecular Cardiology
National Heart, Lung, and Blood Institute
National Institutes of Health, USA

The Laboratory of Molecular Cardiology is composed of three sections: Muscle Molecular Biology, Molecular Physiology and Cellular and Molecular Motility and the website is accessible @ **www.nhlbi.nih.gov/Labs/molecularcardiology/index.htm**.

Postdoctoral positions are available in the Muscle Molecular Biology Section of the Laboratory of Molecular Cardiology. Applicants should have either a Ph.D. and/or M.D. degree and less than four years of prior postdoctoral experience. Previous experience working and publishing in the area of molecular and/or developmental biology is desirable. Applicants should send information to: **Dr. Robert S. Adelstein, Chief, Muscle Molecular Biology Section, Laboratory of Molecular Cardiology, NHLBI, NIH, Building 10, Room 8N202, 10 Center Dr MSC 1762, Bethesda, Maryland 20892, e-mail address: AdelsteR@NHLBI.NIH.GOV.**

Postdoctoral positions in the Cellular and Molecular Motility Section are available to study the role of unconventional myosins in Drosophila. Candidates with previous experience in Drosophila techniques are particularly encouraged to apply. The laboratory has cloned several Drosophila myosins and is interested in applying state-of-the-art genetics as well as cell biological and biochemical techniques to understand their function. NIH has a large and active group of Drosophila researchers who interact extensively and investigators interested in many aspects of cell motility. The candidate should have a Ph.D. and/or M.D. degree. Visit the web page above to find out more about our program. Applicants should send information to: **Dr. James R. Sellers, Chief, Cellular and Molecular Motility Section, Laboratory of Molecular Cardiology, NHLBI, NIH, Building 10, Room 8N202, 10 Center Dr MSC 1762, Bethesda, Maryland 20892, e-mail address: SellersJ@NHLBI.NIH.GOV.**

Postdoctoral positions in the Molecular Physiology Section are available for individuals interested in pursuing the study of cardiac stem cells and the biomechanics of cardiac myocytes (Cell 107, 631- 641). Applicants should have a Ph.D. and experience in either molecular biology, biophysics, cellular electrophysiology or protein chemistry. Applicants should send information to: **Dr. Neal D. Epstein, Chief, Molecular Physiology Section, Laboratory of Molecular Cardiology, NHLBI, NIH, Building 10, Room 8N202, 10 Center Dr MSC 1762, Bethesda, Maryland 20892, e-mail address: EpsteinN@NHLBI.NIH.GOV.**

Appointment and salary are dependent on experience. Applicants should submit a letter of interest, curriculum vitae, and arrange to have three letters of recommendation sent directly to the appropriate investigators.

The NIH is an Equal Opportunity Employer. Applications from women, minorities, and persons with disabilities are strongly encouraged. The NHLBI/NIH is a smoke-free environment.

Staff Scientist Position in Molecular Cell Biology
National Heart, Lung, and Blood Institute
National Institutes of Health

A Staff Scientist position is available in the Laboratory of Cell Biology at the National Heart, Lung, and Blood Institute for an individual with extensive postdoctoral research experience and publications in molecular biology (cloning, DNA mutation, DNA chimeras), protein expression in Sf9 cells and in Dictyostelium discoideum, protein purification, cell biology of Dictyostelium discoideum and correlating myosin structure to myosin function both in vitro (enzyme kinetics and motility assays) and in vivo (e.g. cell motility, chemotaxis, cytokinesis and developmental cycle). The Staff Scientist will work under the immediate supervision and in support of the Chief of the Laboratory of Cell Biology whose current focus is on determining the biochemical and biological functions of specific structural domains of class-I and cytoplasmic class-II myosins.

The initial appointment (starting date, October 2002) will be for two to five years and can be extended indefinitely in increments of up to five years. The successful candidate will be offered a competitive salary commensurate with experience and qualifications under Title 42. Appointees must be U.S. citizens, resident aliens, or non-resident aliens with a valid employment authorized visa.

Applicants should send a descriptive letter of interest, curriculum vitae and bibliography, and arrange for three letters of reference to be sent to:

Ms. Christine Fisher, Human Resources Branch
National Heart, Lung, and Blood Institute
31 Center Drive, MSC 2484
Bethesda, MD 20892-2484

Please include vacancy identifier, **HL-02-0078** on all correspondence. Applications must be received no later than **July 12, 2002.**

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

Staff Scientist Position in Melanocyte Cell Biology
National Heart, Lung, and Blood Institute
National Institutes of Health

A Staff Scientist position is available in the Laboratory of Cell Biology at the National Heart, Lung, and Blood Institute for an individual with at least three years prior postdoctoral research experience in studying melanocyte biology (including primary culture of mouse melanocytes, preparation of melanocyte/keratinocyte cocultures, maintenance of mouse colonies), intracellular protein and membrane dynamics using GFP-chimeras and confocal microscopy, and a broad knowledge of the biochemical and cell biological approaches used to study the regulation of proteins by phosphorylation. The Staff Scientist will be supervised by the Chief of the Section on Molecular Cell Biology, whose focus is on the function and regulation of motor proteins involved in melanosome movement. The Staff Scientist will also provide research support to other laboratory investigators.

The initial appointment (starting date, October 2002) will be for two years, with reappointment possible, if mutually agreeable. The successful candidate will be offered a competitive salary commensurate with experience and qualifications under Title 42. Appointees must be U.S. citizens, resident aliens, or non-resident aliens with a valid employment authorized visa.

Applicants should send a letter of interest, curriculum vitae, and bibliography and arrange for three letters of reference to be sent to:

Ms. Christine Fisher, Human Resources Branch
National Heart, Lung, and Blood Institute
31 Center Drive, MSC 2484
Bethesda, MD 20892-2485

Please include vacancy identifier, **HL-02-0079** on all correspondence. Applications must be received no later than **July 12, 2002**.

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

COLUMBIA UNIVERSITY

TENURE-TRACK POSITIONS

DEPARTMENT OF EARTH AND ENVIRONMENTAL ENGINEERING

(HENRY KRUMB SCHOOL OF MINES)

The Department of Earth and Environmental Engineering of Columbia University fosters education and research in the technologies needed for the sustainable use of Earth's resources, including minerals, energy, and water. There is close collaboration with other engineering disciplines and with the research units of the Columbia Earth Institute, such as the Earth Engineering Center, Lamont-Doherty Earth Observatory, International Research Institute for Climate Prediction, and Biosphere 2. We are recruiting for several tenure-track positions in engineering and applied science, including:

- Environmental chemistry and biology
- Hydrology and water resources
- Processing of primary and used materials
- Energy resources

Applicants are expected to have a doctoral degree in an engineering discipline related to their research area and potential to establish a strong research program. They will also be expected to contribute significantly toward the development and implementation of the Earth and Environmental Engineering curricula, using modern communication tools. For details, please consult our Web page at http://www.seas.columbia.edu/krumb/Jobs/index.html.

Please send application (CV with list of publications, statement of research plan, and names of references) to Chair, Department of Earth and Environmental Engineering, 918 Mudd, MC 4711, Columbia University, New York, NY 10027, or e-mail earth@columbia.edu with attachments.

The deadline for applications is September 1, 2002. More information on the Department and on all education and research programs of the Columbia Earth Institute can be found at www.columbia.edu, "Earth and Environment."

Columbia University is an equal opportunity/affirmative action employer. Women and minorities are encouraged to apply.

ROBERT WOOD JOHNSON MEDICAL SCHOOL

FACULTY POSITIONS IN CELLULAR AND MOLECULAR PHARMACOLOGY

Robert Wood Johnson Medical School (RWJMS) is on the science campus of Rutgers University in Piscataway, NJ approximately an hour from NYC & Philadelphia. RWJMS is adjacent to the Center for Advanced Biotechnology & Medicine & the Waksman Institute of Microbiology. The Pharmacology department also has strong ties to the Cancer Institute of New Jersey (CINJ) in New Brunswick. There are more than 200 active research groups on our campus, & many of the world's major pharmaceutical companies are nearby.

The Dept of Pharmacology at RWJMS - UMDNJ invites applications for tenure-track positions at the level of Asst Professor. These positions offer competitive salary & start-up packages. Exceptional candidates at more senior levels with strong research programs will also be considered. Preference will be given to candidates whose research involves chemical and/or molecular approaches to important problems in biology & medicine. Candidates will be expected to teach graduate & medical students. Current research interests of the Dept of Pharmacology can be accessed at www2.umdnj.edu/~pharm/pharmdep.htm

Applicants should submit their curriculum vitae, future research plans, reprints or preprints of no more than three significant publications, and three letters of recommendation to **Dr. Leroy F. Liu, c/o Brenda Dunlop, Chair of the Search Committee, Department of Pharmacology, Robert Wood Johnson Medical School - UMDNJ, 675 Hoes Lane, Piscataway, NJ 08854.** UMDNJ is an AA/EOE, M/F/D/V, and a member of the State University Health System of New Jersey. Women and minorities are encouraged to apply. For more information, **visit www.umdnj.edu/hrweb.**

UMDNJ ROBERT WOOD JOHNSON MEDICAL SCHOOL
University of Medicine & Dentistry of New Jersey

COLUMBIA UNIVERSITY

DEPARTMENT OF EARTH AND ENVIRONMENTAL ENGINEERING

THE HENRY KRUMB CHAIR

The Earth and Environmental Engineering Department of Columbia University fosters education and research in the technologies needed for the sustainable use of Earth's resources, including minerals, energy, and water. There is close collaboration with other engineering disciplines and with the research units of the Columbia Earth Institute, such as the Earth Engineering Center, Lamont-Doherty Earth Observatory, International Research Institute for Climate Prediction, and Biosphere 2.

The Krumb Chair is a prestigious chair endowed in the 1960s by a prominent mining engineer. The incumbent will be a person who has attained the highest level of academic accomplishment; has expertise in mining, mineral, metallurgical, or materials engineering; and has a strong record of applying this knowledge to dealing with the environmental problems resulting from the enormous expansion in the consumption of minerals and metals in the 20th century.

Please send application (CV with list of publications, statement of research plan, and names of references) to Chair, Department of Earth and Environmental Engineering, 918 Mudd, MC 4711, Columbia University, New York, NY 10027, or e-mail earth@columbia.edu with attachments.

The deadline for applications is September 1, 2002. More information on the Department and all education and research programs of the Columbia Earth Institute can be found at www.columbia.edu, "Earth and Environment."

Columbia University is an equal opportunity/affirmative action employer. Women and minorities are encouraged to apply.

Statistical Genetics
Tenure-Track Investigator
Mood and Anxiety Disorders Program
National Institute of Mental Health
Bethesda, MD, USA

The Section on Developmental Genetic Epidemiology, Experimental Therapeutics and Pathophysiology Branch in the Mood and Anxiety Disorders Program at the National Institute of Mental Health, Intramural Research Program is recruiting a scientist for a tenure-track position to develop research in statistical genetics in a new cross-institute program in neurogenetics. The candidate will have the opportunity for collaboration with scientists in diverse research areas in genetics (i.e., genetic epidemiology, biostatistics, statistical genetics, molecular genetics), as well as neuroscience and relevant clinical disciplines. The candidate is expected to have an M.D. or a Ph.D.in (1) biostatistics; (2) population or human genetics; or (3) genetic epidemiology. The applicant should have experience and interest in statistical analysis of genetic studies, and in developing new methods or adapting traditional statistical methods to identify the role of genes in the etiology of complex disorders. This position includes an attractive start-up package and operating budget in an exciting multidisciplinary research environment. Preference will be given to candidates with a background and interest in complex disorders, particularly neuropsychiatric disorders. Applicants should send a curriculum vitae, statement of research interests, and three letters of recommendation to Dr. Kathleen Merikangas (kathleen.merikangas@nih.gov), Search Committee, National Institutes of Health, 15 KNorth Drive, MSC#2670, Bethesda, MD 20892, by November 1, 2002.

NIH is an equal opportunity employer

Staff Clinician Position in Diabetes at NIH

The Diabetes Unit in the Laboratory of Clinical Investigation at the National Center for Complementary and Alternative Medicine (NCCAM), National Institutes of Health (NIH) is seeking a staff clinician to conduct patient-oriented research in the intramural program at the Clinical Center of NIH. Applicants must possess an M.D. degree, have a valid U.S. medical license, be board certified in Internal Medicine, and board certified/eligible in Endocrinology and Metabolism. Prior experience in clinical research and a strong publication record are essential. The successful applicant will write clinical research protocols and conduct patient-oriented research focused on understanding metabolic and vascular physiology and pathophysiology. This will include exploring areas relevant to complementary and alternative medicine approaches for the treatment of diabetes, obesity, and cardiovascular diseases using the extensive clinical research facilities of the NIH Clinical Center. Salary and benefits will be commensurate with experience.

NCCAM provides state-of-the-art research facilities in the intramural program at NIH in addition to a collegial and nurturing working environment. Please forward your CV, bibliography, list of three references, and a cover letter stating your scientific interests and experience to:

Michael J. Quon, M.D., Ph.D.
Chief, Diabetes Unit, LCI, NCCAM
National Institutes of Health
Building 10, Room 8C-218
10 Center Drive MSC 1755
Bethesda, Maryland 20892-1755
Fax (301) 402-1679
Email: quonm@nih.gov

NIH IS AN EQUAL OPPORTUNITY EMPLOYER

Genetic Epidemiology
Tenure-Track Investigator
Mood and Anxiety Disorders Program
National Institute of Mental Health
Bethesda, MD, USA

The Section on Developmental Genetic Epidemiology, Experimental Therapeutics and Pathophysiology Branch in the Mood and Anxiety Disorders Program at the National Institute of Mental Health, Intramural Research Program, is recruiting a scientist for a tenure-track position to develop research in genetic epidemiology in a new cross-institute program in neurogenetics. The candidate will have the opportunity for collaboration with scientists in diverse research areas in genetics (i.e., genetic epidemiology, biostatistics, statistical genetics, molecular genetics), as well as neuroscience and relevant clinical disciplines. The candidate should have an M.D. or Ph.D. in (1) epidemiology; (2) genetic epidemiology; (3) human genetics; or (4) psychology. In addition, the applicant should demonstrate significant experience in the design, implementation and/or analysis of genetic epidemiologic studies of complex diseases. This position includes an attractive start-up package and operating budget in an exciting multidisciplinary research environment. Preference will be given to candidates with a background and interest in complex disorders, particularly neuropsychiatric disorders. Applicants should send a curriculum vitae, statement of research interests, and three letters of recommendation to Dr. Kathleen Merikangas (kathleen.merikangas@nih.gov), Search Committee, National Institute of Mental Health, 15 K North Drive, MSC#2670, Bethesda, MD 20892, by November 1, 2002.

NIH is an equal opportunity employer

Health Scientist Administrator

The Extramural Program Of The National Institute Of Arthritis and Musculoskeletal and Skin Diseases(NIAMS), NIH, is seeking to fill two new positions to direct and manage expanding national programs: (1) for the Muscle Biology Branch which manages extramural programs In skeletal muscle function and structure, and (2) for the Skin Diseases Branch which manages extramural programs in skin structure and function and skin biology. The individuals selected will provide leadership in administrating of research grants, prepare reports of scientific progress, identify opportunities for future research in his or her scientific area, and exercise ability to communicate and work with others. Essential qualifications For the Skin Diseases Branch selectee are: a Ph.D. in health sciences and scientific knowledge and research experience in one or more of the following areas-skin biology and diseases to include skin diseases and disorders, basic skin biology and physiology and bioengineering including artificial skin and gene therapy; or an M.D. with clinical training and expertise in the aforementioned areas of skin disease to conduct clinical research, conduct clinical trials, design clinical research under contract, and establish new areas of research emphasis. Both positions require U.S. Citizenship. Appointments may be made at the GS-12, 13 or 14 grade levels ($55,694-$101,742), depending on qualifications. A recruitment/relocation bonus may be considered. We are able to offer an excellent benefits package of health, life investment and personal leave. Position requirements and detailed application procedures are provided on Vacancy Announcements #NIAMS-02-034, #NIAMS-02-035 and #NIAMS-02-036, which can be obtained by accessing the http://careerhere.nih.gov or by calling 1-800-728-JOBS or 301496-0436. Applicants should submit a cover letter, CV, Knowledge, Skills & Abilities (KSAs) statement, and publications listing to:

Attention: Kali Gamble (NIAMS-02-034, 035 or 036),
National Institutes of Health,
NIAMS Human Resources Office,
31 Center Drive, MSC 2350,
Bldg.31, Room 4c13,
Bethesda, MD 20892-2350

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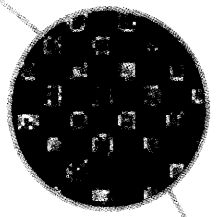
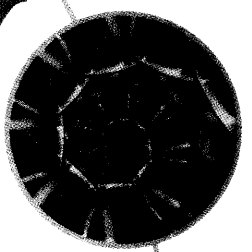
Center for the Study of BIOLOGICAL COMPLEXITY

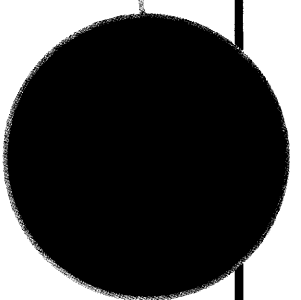
Discovery science identifies the genes and proteins; the parts list.

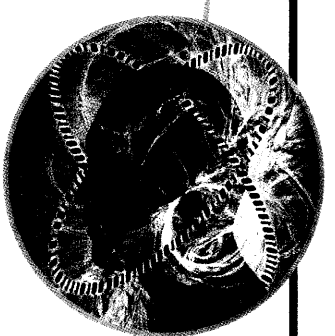
Systems biology provides the interactions and pathways; the process.

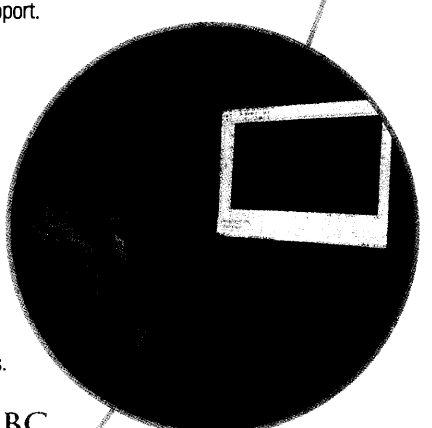
Complexity models the process, permitting prediction, interpretation and understanding.











Complexity acknowledges that life processes are nonlinear and synergistic, and that complex biological processes obey rules that do not apply to their component parts. For example, human genetics research must now unravel the complex etiology of human diseases that involve the interactions of multiple genetic and environmental factors. A better understanding of life will come only with the development of mathematical models and computer simulations that accurately interpret and predict its processes. The new Center for the Study of Biological Complexity (CSBC) in VCU Life Sciences has this underlying vision.

We are recruiting faculty, staff, postdoctoral fellows and students to become part of our rapidly expanding team applying the principles of complexity in biological and biomedical research. CSBC faculty:

- focus on integrative genomics, proteomics and metabolomics research.
- apply mathematical and computational principles to interpret life's functions.
- invoke the principles of complexity to investigate life processes.
- use emerging technology to combat disease and improve quality of life.

The CSBC operates a dedicated supercomputer group for bioinformatics, maintains state-of-the-art genomics, proteomics and structural biology research cores, and enjoys stable long-term institutional support. We are currently recruiting investigators with interests focused in, but not limited to:

- Microbial Genomics and Pathogenesis.
- Genetics of Complex Human Diseases.
- Integrative Developmental and Systems Biology.
- Computational Chemistry, and Structural and Quantitative Biology.

Preference will be given to applicants with a strong foundation in bioinformatics and the mathematical and computational sciences. Successful applicants will be expected to establish strong independent research programs and participate in relevant scholarly activities.

COME EXPLORE THE POSSIBILITIES IN THE CSBC.

Please send a letter of interest, curriculum vitae and three letters of support to Gregory A. Buck, Ph.D., Center for the Study of Biological Complexity, Virginia Commonwealth University, P.O. Box 842030, Richmond, VA 23284-2030, buck@hsc.vcu.edu. VCU is an equal opportunity employer. Women, minorities and persons with disabilities are encouraged to apply.

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VCU

Virginia Commonwealth University

Dividing cell image by Drs. Conly Rieder and Alexey Khodjakov, Division of Molecular Medicine, Wadsworth Center, N.Y.S. Dept. of Health, Albany, New York.

If you're in the life sciences, you don't have to canvas a parking lot to spread your name in the job market. Go to ScienceCareers.org. Every week you'll find hundreds of new job postings, employer profiles, a resume/CV database and an e-mail alert service that will deliver jobs directly to you. With ScienceCareers.org you'll have all the tools you need to blanket the industry and leave a good impression.

Science @
CAREERS

www.sciencecareers.org

Post-Doctoral IRTA Positions
NIH, NIAID
Rocky Mountain Laboratories, Hamilton, Montana

The Laboratory of Intracellular Parasites (LICP), NIAID, NIH, Rocky Mountain Laboratories (RML), Hamilton, MT is seeking post-doctoral candidates. The LICP investigates the pathogenesis of diseases caused by *Chlamydia*, especially the human pathogens *C. trachomatis* and *C. pneumoniae*. The laboratory is employing a functional genomics approach to identify and characterize genes that relate to tissue tropism of infection, pathogenic mechanisms, and evasion of host defense. We are using expression profiling to study chlamydial gene expression patterns in models acute and chronic infection. The results of this work are being used to identify new virulence determinants that function in chlamydial host cell interactions, and new antibiotic and vaccine targets. Salaries range from $33,000 - $45,400 depending on experience, and health benefits are provided.

The RML has been recently renovated to contain state of the art laboratory, BSL3 containment, and animal facilities. The laboratory is located in the beautiful Bitterroot Valley of western Montana with easy access to some of the best hiking, skiing, kayaking, mountain biking, and trout fishing in North America.

Please send CV and three letters of reference to:

Dr. Harlan D. Caldwell, Ph.D.,
Chief, Laboratory of Intracellular Parasites
Rocky Mountain Laboratory, NIAID,
903 South 4th Street, Hamilton, MT 59840.
email: hcaldwell@niaid.nih.gov

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mayo

POST-DOCTORAL POSITION AVAILABLE
Molecular Medicine Program
Mayo Clinic
Rochester, Minnesota, USA

Mayo Clinic Rochester has established a Molecular Medicine Program with several groups working on gene therapy using different viral systems. In the group of **Dr. Kah-Whye Peng**, motivated individuals are required to continue developing trackable and targeted vaccine strain of measles virus for cancer therapy and to study the mechanistic basis for tumor selectivity of the virus. The primary disease focus of the laboratory is ovarian cancer. Experience in molecular biology, tissue culture and animal experimentation is essential. Training in virology is desirable.

References:

1. **Peng KW** et al. Systemic therapy of myeloma xenografts by an attenuated measles virus. *Blood.* **98:**2002-2007, 2002.
2. **Peng KW** et al. Non-invasive in vivo monitoring of trackable viruses expressing soluble marker peptides. *Nature Medicine.* **8:**527-531, 2002.

Salary is determined by the successful candidate's experience. An attractive benefit package is offered. Mayo Clinic Rochester is a non-profit, physician led, clinical practice with education and research in a unified multi-campus system.

Application, including curriculum vitae and bibliography, summary of past accomplishments and the names of three references should be sent to:

Kah-Whye Peng, Ph.D.
Molecular Medicine Program
Guggenheim 18
200 First Street SW
Rochester, Minnesota 55905, USA
E-mail: peng.kah@mayo.edu
Phone: (507) 284-8357
Fax: (507) 284-8388

Mayo Foundation is an Affirmative Action and Equal Opportunity Employer and Educator.

GO BEYOND YOURSELF!

You deserve a work environment that will expand your talents beyond who you are today. A place that fosters innovations, recognizes performance, and builds people with best-managed practices. That's what we're all about at Pharmacia. As a top-tiered pharmaceutical company employing 59,000 people, our broad product portfolio, robust pipeline of new medicines, an vast resources provide the ideal arena for those who wish to aim higher and push harder to improve health and wellness around the world.

SR. SCIENTIST, MAMMALIAN
St. Louis, Missouri

As a senior-level Molecular Biologist, you will draw from your expertise and experience in heterologous gene expression in mammalian cells and play an integral role in developing novel mammalian expression cell lines for GMP production of therapeutic proteins. Along with a PhD in Molecular or Cellular Biology and excellent leadership skills, you will need 2+ years of experience developing mammalian expression systems and/or constructing of mammalian expression cell lines. Heterologous gene expression experience, including expression vector design, construction and transfection of mammalian cells is essential. Experience with bioinformatics tools and GCG software is preferred. Strong laboratory and communication skills to work with a multidisciplinary team are necessary. **Req. #016954**

HUMAN GENETICS BIOINFORMATICIST
Skokie, Illinois

Your primary responsibilities will include genomics informatics and statistical genetics/data management activities for the design and implementation of human genetics projects. Collaborating with genomic technology partners, your efforts will help to define new genetic targets for drug discovery. Requires a PhD or MD and a background and experience in human genetics sciences, along with a publication track record in genetic linkage and association studies in human populations. Familiarity with classical approaches to mapping genetic traits and applying maps in human and/or mouse, including contemporary applications of SNP and haplotype maps, is necessary. Technical expertise in applying/annotating/ interpreting genomic DNA and/or transcriptional databases is required. Experience or knowledge with genomics bench research technologies is high desired. Excellent interpersonal and communication skills are essential to work cross-functionally with other scientists. **Req. # 017012**

We offer an excellent benefits package including tuition reimbursement and 401(k). For immediate consideration, please apply online at www.pharmacia.com and search by the appropriate Req. number. EEO/AA EMPLOYER M/F/D/V

PHARMACIA

POSITIONS OPEN

PROFESSOR and CHAIR
Department of Pharmacology and Toxicology
Morehouse School of Medicine

Morehouse School of Medicine invites applicants for a faculty and Chair position at the Associate/Full Professor rank. The successful applicant will chair the Morehouse School of Medicine Department of Pharmacology and Toxicology. The Department consists of eight full-time faculty members with extramural research funding totaling over $1,000,000 for FY 2001. Responsibilities for the Chair include administration of the Department to achieve institutional goals with respect to excellence in teaching, research, and service. Responsibilities for the Department include teaching of medical student curriculum, teaching of graduate students in the Ph.D. program in biomedical sciences, and service responsibilities. The successful applicant should have a solid research/publication record in pharmacology and toxicology and a record of successful competition for grant funding including R01 or equivalent grants. A track record in mentoring minority students, fellows, and faculty is desirable. Interested applicants should send curriculum vitae and a letter of interest by June 30, 2002, to:

Dr. Gerald Sonnenfeld
Chair, Pharmacology and
Toxicology Search Committee
Morehouse School of Medicine
720 Westview Drive, SW
Atlanta, GA 30310

Morehouse School of Medicine is an Equal Opportunity Employer.

ASSISTANT PROFESSOR
Immunopathogenesis
Department of Microbiology and Immunology
Medical College of Ohio

Applications are invited for a 12-month tenure-track faculty position. The successful candidate is expected to develop an independent, extramurally funded research program in an area related to immune response to microbial infection. In addition to teaching medical and graduate students, the successful candidate will be expected to participate in existing bacterial and fungal pathogenesis programs within the Department.

The Department is in a growth phase with focus on the development of immunology. MCO is a state school with a modern campus. To learn more about the Department and MCO, visit our **website: http://www.mco.edu**. Applicants should submit a statement of research goals with representative reprints, curriculum vitae, and three letters of recommendation to: **Garry T. Cole, Ph.D., Chair, Department of Microbiology and Immunology, Medical College of Ohio, 3055 Arlington Avenue, Toledo, OH 43614-5806**. Applications should be received by September 1, 2002. *Affirmative Action/Equal Opportunity Employer.*

RESEARCH ASSOCIATE

Applications are invited for a position of Research Associate in the Department of Biological Sciences at Alcorn State University (ASU is located near historic Natchez and Vicksburg, Mississippi). This current position lasts until March 31, 2005, with a possibility of continuation. Research is related to heavy metal toxicity in brain including second messenger system; signal transduction; isoforms of PKC, NOS, and NMDA; and reactive oxygen species. Must initiate and complete research independently. The selected candidate will also be in charge of the research laboratory. The successful candidate will have a Ph.D. in appropriate area with demonstrated research expertise in areas listed above. Competitive salary with good fringe benefits. Interested applicants should send curriculum vitae and the names and addresses of three references to: **Bettaiya Rajanna, Ph.D., Department of Biological Sciences, Alcorn State University, 1000 ASU Drive, P.O. Box 870, Alcorn State, MS 39096. E-mail:brajanna@lorman.alcorn.edu. FAX: 601-638-3989**. *ASU is an Equal Opportunity Employer.*

POSITIONS OPEN

BACTERIAL PATHOGENESIS FACULTY POSITION
University of Michigan Medical School
Department of Microbiology and Immunology

The Department of Microbiology and Immunology at the University of Michigan invites applications for a tenure-track faculty position in bacterial pathogenesis. The position is at the **ASSISTANT PROFESSOR** level, although senior Investigators with appropriate credentials will also be considered for higher rank. Individuals using host or cell models to study bacterial infection, pathogenicity, or immunity are particularly encouraged to apply, but applications are invited from those whose research addresses any area within the field of bacterial pathogenesis. The successful applicant will be expected to develop an independent research program with significant extramural funding and to participate in graduate and medical school teaching. The University of Michigan offers a rich, collaborative environment for research and training in microbial pathogenesis and infectious diseases, as well as in a number of related disciplines. Ann Arbor is an exceptionally vibrant academic community, regularly ranked in national surveys among the best places to live in the U.S.

Applicants should send curriculum vitae and a letter describing current and future research interests and arrange to have three letters of recommendation sent to: **Chair, Bacterial Pathogenesis Search Committee, Department of Microbiology and Immunology, University of Michigan Medical School, 5641 Medical Sciences II, Ann Arbor, Michigan, 48109-0620**. Application materials in PDF format, excluding reference letters, should be sent with the application if possible. The deadline for receiving applications is August 15, 2002. The Department of Microbiology and Immunology and the University of Michigan have strong track records of identifying attractive employment opportunities for the partners of faculty recruits. *The University of Michigan is an Equal Opportunity/Affirmative Action Employer.*

PLANT BIOLOGIST

East Tennessee State University Biological Sciences Department, **website: http://www.etsu.edu/biology**, invites applications for a tenure-track **ASSISTANT PROFESSOR** position beginning January 1, 2003. Ph.D. required by start date, postdoctoral experience preferred. Research specialization in any area of plant biology using modern research approaches; plant development especially encouraged. Demonstrable commitment to teaching and research required. Teaching duties include an advanced course in plant development, plant biology, and participation in general biology majors sequence. Will be responsible for developing active research program to include B.S. and M.S. students. Applicants with broad botanical training are especially encouraged.

Send curriculum vitae, transcripts, statements of teaching and research interests, and three letters of recommendation by August 30, 2002, to: **Dr. Cecilia McIntosh, Search Committee, Biological Sciences Department, ETSU Box 70703, Johnson City, TN 37614. Telephone: 423-439-5838; FAX: 423-439-5958; e-mail: mcintosc@etsu.edu**. *Affirmative Action/Equal Opportunity Employer.*

EVOLUTIONARY BIOLOGY

The Department of Biology at the University of Rochester anticipates making several faculty appointments in evolutionary biology over the next few years, focusing on such areas as evolutionary genetics, microbial evolution, and comparative molecular and developmental biology. We invite applications for **TENURE-TRACK FACULTY POSITIONS** in these areas. We anticipate that the position will be filled at the Assistant Professor level. Send curriculum vitae, a statement of research interests, and three letters of recommendation to: **Evolutionary Biology Search Committee, Department of Biology, University of Rochester, Rochester, NY 14627**. Review of applications will begin on September 1, 2002, and continue until the position is filled. *The University of Rochester is an Equal Opportunity Employer.*

POSITIONS OPEN

FACULTY POSITIONS: virology and bacterial pathogenesis. The Department of Microbiology at U.T. Southwestern Medical Center is seeking new faculty at the **ASSISTANT PROFESSOR** (tenure-track) level. Faculty will be expected to develop front-rank, competitive, independent research programs in their chosen fields and contribute to the teaching of medical and graduate students. For virology candidates, some preference may be given to those with interests in STDs (e.g., HSV, HPV) or bioterrorism agents, but all outstanding candidates are encouraged to apply. For bacterial pathogenesis, areas of particular interest include STDs, emerging/reemerging pathogens, cellular microbiology, bioterrorism agents, and opportunistic infections. Attractive start-up packages including a competitite salary and new laboratory space are available to conduct research in an expanding, dynamic environment. For exceptional candidates, an Endowed Scholars Program offers start-up funds of $600,000 over a four-year period. More information can be found at **website: http://www3.utsouthwestern.edu/microbiology/**. Candidates should have a Ph.D. and/or M.D. degree with at least two years of postdoctoral experience and an exceptional publication record. Candidates please forward curriculum vitae, three letters of recommendation, two or three representative publications, and a brief summary of future research to: **Dr. Michael V. Norgard, Chair, Department of Microbiology, U.T. Southwestern Medical Center, 6000 Harry Hines Boulevard, Dallas, TX 75235-9048. FAX: 214-648-5905**. *U.T. Southwestern is an Equal Opportunity University.*

ASSISTANT/ASSOCIATE/FULL PROFESSOR OF MICROBIOLOGY
School of Veterinary Medicine
University of California, Davis

Veterinarian with advanced training or commensurate experience in bacteriology or mycology required. Board certification or eligibility in the American College of Microbiology preferred, but not required. Ph.D. preferred. Clinical experience and competence in bacteriology/mycology required. Demonstrated aptitude/experience in teaching. Documented research record or potential to develop an independent research program utilizing contemporary molecular technologies for the characterization of infectious diseases. Must possess excellent interpersonal and communications skills and a demonstrated ability to work with others in a collegial team atmosphere. To receive fullest consideration, applications must be received by July 31, 2002; position opened until filled. Expanded position description at **website: http://www.vetmed.ucdavis.edu/pmi/PMIpage1.htm**. Submit letter of intent outlining special interest in the position, overall qualifications, experience, and career goals; curriculum vitae; and names and addresses of three professional references to: **N. James MacLachlan, Chairman, Department of Pathology, Microbiology and Immunology, School of Veterinary Medicine, University of California, Davis, Davis, CA 95616**. *Affirmative Action/Equal Opportunity Employer.*

FACULTY POSITION
in The Center for Environmental and Genetic Medicine

The Institute of Biosciences and Technology, a component of the Texas A&M University System Health Science Center, seeks a tenured-track **ASSISTANT PROFESSOR**. The candidate should have an established record of independent research productivity. Research area should include developmental molecular genetics with an emphasis on gene-environmental interactions. The use of animal model systems and genome engineering technologies are preferred.

Submit a curriculum vitae, statement of research interests, and the names of three references to: **Richard R. Sinden, Ph.D., CEGM Search Committee, Institute of Biosciences and Technology, 212 West Holcombe Boulevard, Houston, TX 77030-3303. Website: http://www.tamu.edu/ibt/ibt.htm**. *An Affirmative Action/Equal Opportunity Employer.*

Washington University in St. Louis

Director
Tyson Research Center

Washington University invites applications for the tenured position of DIRECTOR of its Tyson Research Center. We are particularly interested in qualified women and minority applicants. The Tyson Research Center is a fenced 2,000-acre tract of oak-hickory forests, savannahs and glades on a karst landscape surrounded by another 5,500 acres of protected land. Although on the boundary of the Ozarks, Tyson is located only 20 miles from the main campus and on the edge of the 16th largest metropolitan area in the United States. Tyson offers a unique opportunity to identify the processes that affect biodiversity and ecosystem functioning in urban-suburban settings.

The Director will be a faculty member in an appropriate department or program of the school of Arts & Sciences and is expected to develop a research program in some area of ecology or other environmental sciences. In addition, the Director will be responsible for overseeing the operation of the field station. Candidates must have a distinguished record of scholarship. Experience in the use and administration of field stations is desirable. This is a 12-month appointment with a competitive salary and level of appointment depending upon qualifications and experience. The position may be taken up anytime after January 1, 2003.

Letters of application should be accompanied by a curriculum vitae and a brief statement of experience and research interests. Applicants should also arrange to have three letters of recommendation sent to: **Jonathan B. Losos, Chair, Tyson Search Committee, Department of Biology, Campus Box 1137, Washington University, 1 Brookings Drive, St. Louis, MO 63130-4899.**

Review of applications will begin August 15, 2002 and continue until the position is filled.

Washington University is an Affirmative Action Equal Opportunity Employer.

http://www.biology.wustl.edu/tyson/

mayo

POSTDOCTORAL FELLOW IN MOLECULAR VIROLOGY
Mayo Clinic Molecular Medicine Program
Rochester, Minnesota, U.S.A.

The consequences of cell entry through different receptors for measles virus pathology and immune suppression will be studied. Based on the results of these studies, strategies for the development of new vaccines and for therapeutic applications of recombinant viruses will be implemented. The project is NIH funded; the position is available immediately. Experience in immunology and animal experimentation is preferred.

Salary will be determined by the successful candidate's experience. There is an attractive benefit package. Rochester, MN is consistently rated as one of the best places to live in the U.S. Mayo Clinic is a not-for-profit organization. Mayo integrates research with clinical practice and education in a multi-campus environment. For further information please visit **http://www.mayo.edu/research**.

Applications, including curriculum vitae and bibliography, summary of past accomplishments, and the names of three references should be sent to:

Prof. Roberto Cattaneo, Ph.D.
Mayo Graduate School, Molecular Medicine Program
Guggenheim 18-42B
200 First Street SW
Rochester, MN 55905, USA

More details: **http://researchweb.mayo.edu/people/3/34668_cattaneo/**
References: *J. Virol.* **75**:2087; **75**:3343; **76**:4172 / *EMBO J.* **21**:2364.

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AAAS

POSITIONS OPEN

DARTMOUTH MEDICAL SCHOOL
Department of Pathology

The Department of Pathology at Dartmouth Medical School is seeking to fill two tenure-track faculty positions at the **ASSISTANT** or **ASSOCIATE PROFESSOR** level. Successful candidates must have M.D., M.D./Ph.D., or Ph.D. degrees with postdoctoral training and will be expected to establish and maintain an independent, extramurally-funded research program, participate in the teaching of medical and graduate students and residents, train post-doctoral fellows, and engage in clinical service if appropriate. Generous start-up funds, competitive salary, and modern laboratory space are available. The positions are part of an integrated expansion in research and clinical programs at Dartmouth, which includes strengths in cancer, vascular biology, immunology, and genetics. Ample core and research support facilities are also available. The Department maintains close ties with the Norris Cotton Cancer Center, an NCI-funded comprehensive cancer center, which is currently undergoing a substantial expansion. Applicants should submit curriculum vitae, description of research plans, and the names and contact information of three references to:

Pathology Search Coordinator
Dartmouth Medical School
Department of Pathology - HB 7600
One Medical Center Drive
Lebanon, NH 03756

Dartmouth College is an Affirmative Action, Equal Opportunity Employer. Women and minorities are encouraged to apply.

FACULTY POSITIONS
DEPARTMENT OF PERIODONTICS
THE UNIVERSITY OF TEXAS
HEALTH SCIENCE CENTER
AT SAN ANTONIO

The University of Texas Health Science Center at San Antonio is seeking qualified applicants for full-time tenure-track faculty positions in the Department of Periodontics at the **ASSISTANT** and/or **ASSOCIATE PROFESSOR** levels. Candidates for these positions should have current or likely future experience in federally-sponsored research programs and a strong interest in research within the department research focus areas, namely the biology of bone, connective tissue, cytokines, and growth factors with potential application to periodontal diseases.

Successful applicants will be joining a department committed to high-quality educational programs, graduate student research, and funded research related to periodontal diseases. Our Dental School and Department of Periodontics, in particular, place a high priority on faculty development.

Interested applicants should mail curriculum vitae; academic objectives; as well as the names, addresses, and phone numbers of three references to: **Dr. David L. Cochran, Chairman, Department of Periodontics, UTHSCSA–Periodontics-7894, 7703 Floyd Curl Drive, San Antonio, TX 78229-3900.**

The University of Texas Health Science Center at San Antonio is an Equal Employment Opportunity/Affirmative Action Employer.

HARVARD NEUROSCIENCE POSITIONS

Multidisciplinary laboratory studying CNS control of sleep and wakefulness in animal models. One job is for an experienced *in vitro* **ELECTROPHYSIOLOGIST** (Assistant or Postdoctoral Professor); other jobs are in: microdialysis/HPLC and ELISA, histology, electrophysiology, molecular biology, NIH stipend, or better. Send curriculum vitae, brief description of research, and names and contact information for three references to: **R. E. Strecker and R.W. McCarley, Harvard Medical School, Brockton VAMC (151C), 940 Belmont Street, Brockton, MA 02301; e-mail: robert.strecker@rcn.com** *Equal Opportunity Employer.*

POSITIONS OPEN

FACULTY POSITION
PAIN NEUROSCIENTIST
The University of Texas Health Science Center at San Antonio

The Department of Endodontics invites applications for a full-time, tenure-track faculty position in the Dental School of The University of Texas Health Science Center at San Antonio. Applicants should possess a Ph.D., D.D.S. and/or M.D. and relevant previous experience investigating mechanisms of pain and analgesia. The ideal candidate will have a research focus on the pharmacological regulation of nociceptive sensory neurons, particularly within the trigeminal system, and possess additional expertise in histological and cellular/molecular methodologies. The successful candidate will complement an ongoing interdepartmental research program committed to the study of pain, inflammation, and wound healing and will serve as Director of the Department's Research Division. Rank and salary are commensurate with experience. Requests for cross-appointments in appropriate basis science department will be strongly supported. Duties of the position include research (75 percent), teaching of graduate and undergraduate professional studies (10 percent), Research Division administration (5 to 10 percent) as well as Departmental, School and University service (5 to 10 percent). Candidates who have demonstrated excellence in the ability to teach, publish, and attract extramural funding will receive highest consideration. Interested individuals should send letter of application, including curriculum vitae, a statement of research plans, not more than two significant papers or reprints, and three letters of recommendations to:

Dr. Kenneth M. Hargreaves
Chair, Department of Endodontics
Search Committee
The University of Texas Health Science Center
7703 Floyd Curl Drive, MSC 7892
San Antonio, TX 78229-3900

The University of Texas Health Science Center at San Antonio is an Equal Opportunity/Affirmative Action Employer.

NEUROSCIENTIST

Private research organization has an immediate opening for a Neuroscientist to work with team of Researchers investigating repair of the damaged spinal cord in mammals. The applicant should have experience in creating uniform lesions in the spinal cord and be able to assay the effects of experimental treatments with behavioral, electrophysiological, or histological methods. We currently work with rats but our long-term goal is to apply cutting-edge scientific methods to the restoration of spinal cord function in humans. Our modern research facility is in a suburban area located in the Rocky Mountains. We offer pleasant working conditions and a competitive salary based on experience. To apply, please send curriculum vitae, contact information for three references, and a cover letter describing your vision of how this field of research should proceed to: **Director of Research, Box #113, 1200 New York Avenue, NW, Room 914, Washington, DC 20005.**

FACULTY POSITION IN PHYSIOLOGY

Mercer University School of Medicine invites applications for a tenure-track faculty position at the **ASSISTANT/ASSOCIATE PROFESSOR** level. Applicants should have a Ph.D. in Physiology (or the equivalent) with at least two years of postdoctoral training. The successful candidate will participate as a systems physiologist in problem-based medical education as well as develop an independent research program. Applicants whose research is in any area of molecular, cellular, or systems physiology will be considered. Submit curriculum vitae, a summary of teaching experience, statements of teaching and research goals and objectives, and names of three references to: **Robert J. Moon, Ph.D., Chairman, Division of Basic Medical Sciences, Mercer University School of Medicine, Macon, GA 31207. E-mail: moon_rj@mercer.edu.**

POSITIONS OPEN

TENURE-TRACK FACULTY POSITION
Basic Biomedical Sciences
University of South Dakota
School of Medicine

The Division of Basic Biomedical Sciences at the University of South Dakota School of Medicine is seeking a faculty member to complement and extend the existing research programs in Cellular and Molecular Biology. Applicants working with eukaryotic and/or prokaryotic organisms are encouraged to apply. The position is available at the Assistant or Associate Professor level. Applicants must have a Ph.D. and/or M.D. degree and a minimum of two years of postdoctoral experience. Rank and salary will be commensurate with qualifications. Positions include competitive start-up funds. The successful candidate will be able to establish a strong, extramurally funded, collaborative research project and will participate in the instruction of graduate, undergraduate, and medical students. More information about the Division of Basic Biomedical Sciences can be found at our **website: http://www.usd.edu/biomed/java/index.shtml**. Applicants should send curriculum vitae, statement of research plans, and three letters of reference to: **Carleen McNeely, Cell and Molecular Biology Search Committee, Division of Basic Biomedical Sciences, University of South Dakota School of Medicine, 414 E. Clark Street, Vermillion, SD 57069**. Consideration of applications will begin on August 30, 2002, and will continue until the position is filled. *USD is an Equal Opportunity/Affirmative Action Employer*

DIRECTOR OF RESEARCH AND DEVELOPMENT. A fast growing, well-supported biosciences company seeks an experienced Director of Research and Development, able to plan and oversee the activities of our core research group, expected to expand in the near term, as well as a group devoted to product development. The candidate should have an M.D. or a Ph.D. and at least eight to ten years of experience as a manager of a research team, and be familiar with the challenges of product development. She/he should be able to direct as well as participate in ongoing work in a hands-on fashion. The focus of the company's Research and Development programs encompasses three major disciplines: cell, molecular, and developmental biology, with emphasis on stem cells and other responsive cells that directive signals can influence. The candidate should feel comfortable in the domains of biochemistry and genetics and be prepared to develop an appreciation for the Company's well-defined but developing fabric of research, as well as the company's goals to generate marketable products. The person we have in mind should be fully able to represent the company in discussions with corporate and other visitors both at home and away. The opportunities for an articulate, imaginative, resourceful, and diplomatic leader are outstanding, including an attractive compensation package as well as a stock-option plan. Please send your curriculum vitae, letters of reference, and the names of academic and business colleagues able to discuss your qualifications to: **drd_062002@hotmail.com** (preferred) or to **Box #114, 1200 New York Avenue, NW, Room 911, Washington, DC 20005**.

MEDICAL WRITERS

Leading medical education company based in New York City has an immediate opening for Assistant and Associate Medical Writers. Salary range is $60-85,000. Familiarity with development of biological/biomedical sciences manuscripts is required. Ph.D. or advanced degree in the biological sciences preferred. The ability to write clearly and concisely is essential. You will be expected to work on your own initiative and interface with physicians, clients, and program directors. Some travel may be required. Please send résumé to: **Harrison and Star Business Group, Human Resources Department, 10th Floor, 16 West 22nd Street, New York, NY 10010. FAX: 212-822-6693** or **e-mail: jobs@hsci.com; Attention: Medical Writers.**

PENNSTATE
Milton S. Hershey Medical Center
College of Medicine

TENURE-TRACK NEUROSCIENCE FACULTY POSITION
Pennsylvania State University
College of Medicine

A tenure-track Neuroscience Faculty Position is available to strengthen and complement the existing neuroscience research in the Department of Anesthesiology. The Department currently has an established and fully-funded basic research program in neurophysiological mechanisms of pain, neuropharmacology of analgesia, and neural control of circulation. The candidate must have an outstanding record of research accomplishments, as documented by publications in leading peer-reviewed journals. Specific areas of emphasis include, but are not limited to, molecular and cellular neuroscience, ion channels, and signal transduction. The successful applicant will be provided with competitive start-up funds, laboratory space, and salary, and would be expected to establish a competitive externally-funded research program. Applicants should send curriculum vitae, a statement of research interests, and three representative publications to: **Berend Mets, M.B., Ch.B., Chair of the Department of Anesthesiology (H187), Pennsylvania State College of Medicine, P.O. Box 850, Hershey, PA 17033; e-mail: kbowman@psu.edu.**

ASSISTANT PROFESSOR OF NEUROSCIENCE RESEARCH

The Department of Neurosurgery at Louisiana State University Health Sciences Center in Shreveport is seeking two tenure-track research faculty positions at the Assistant Professor level. The candidates should have Ph.D./M.D. with a minimum three years of postdoctoral training. The ideal candidates will have research interests in the areas of stroke, brain trauma, or spinal cord injury. Preference will be given to applicants with established research programs. The successful applicant will become a faculty member in the Department of Neurosurgery and have the potential for appointments to adjunct positions in basic science departments. Interested applicants should submit a letter of application with a statement of career goals, curriculum vitae, and the names of three references to:

LSU HSC-S
Human Resource Management
Unclassified Hiring Manager
1501 Kings Highway
Shreveport, LA 71130
E-mail: mmaciv@lsuhsc.edu
FAX: 316-675-6500; Attn: Unclassified Manager
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POSTDOCTORAL FELLOW OR RESEARCH ASSOCIATE to study the CFTR chloride channel that is implicated in cystic fibrosis and secretory diarrhea. Current projects address intermolecular and intramolecular interactions that regulate CFTR channel activity. Expertise in patch clamping preferred. Highly motivated individuals will have the opportunity to learn new techniques (e.g., molecular biology and protein chemistry) and to submit independent grant proposals. Contact: **Kevin L. Kirk, Ph.D., Department of Physiology and Biophysics, University of Alabama at Birmingham, 982B MCLM, Birmingham, AL 35294-0005. E-mail: kirk@physiology.uab.edu.**

MEDICINAL/BIOPHYSICAL CHEMIST. The College of Pharmacy and Nutrition, University of Saskatchewan invites applications for a full-time tenure-track position at the rank of Assistant Professor. The ideal candidate will teach and will have research interests in drug design, utilizing such approaches as protein structural determination and molecular modeling techniques and a desire to participate in synchrotron-related research, however, all aspects of medicinal chemistry will be considered. Complete details are available at **website: http://www.usask.ca/pharmacy-nutrition/news_events.shtml.**

POSITIONS OPEN

TENURE-TRACK FACULTY POSITION
Genomic Medicine Program
Institute of Biomedical Sciences
Academia Sinica, Taiwan

Academia Sinica in Taipei is establishing a Genomics/Proteomics Center to facilitate research in genomics medicine and drug discovery, proteomics and bioinformatics, and to promote the development of biotechnology. The research programs will be supported by the high throughput and state of the art core facilities for genotyping/sequencing, proteomics/structural biology, and high-performance computation and bioinformatics. As a part of this new initiative, we are expanding our genomic medicine program and are seeking well-qualified applicants with strong backgrounds and interests in the following areas of research: gene mapping, mouse genetics, gene therapy, bioinformatics, genome technology, cancer genomics, proteomics, and stem cell biology.

Individuals with an advanced degree (Ph.D., M.D., or M.D./Ph.D.) who have completed postdoctoral training and demonstrated productivity are encouraged to apply. Successful candidates will be expected to develop a vigorous, competitive, and interactive research program. Applications accompanied by curriculum vitae with bibliography, a statement of research interests, and three reference letters should be sent to: **Dr. S. T. Lee, Chairperson, Recruitment Committee, Institute of Biomedical Sciences, Academia Sinica, Taipei 11529, Taiwan, ROC.** For details see our **website: http://www.ibms.sinica.edu.tw.**

RESEARCH ASSOCIATE

A Research Associate position at the Guthrie Research Institute is available immediately to participate in an NIH-funded project to identify transcription factors that regulate expression of myeloid-specific leukocyte integrin genes and assess their role in myeloid cell differentiation (*Mol. Cell. Biol.* **16**: 2940–2950, 1996; *J. Biol. Chem.* **272**: 24038–2405, 1997; *J. Biol. Chem.* **275**: 8959–8969, 2000). The institute is located in a rural community within 45 minutes of the Fingerlakes region of New York and offers a competitive salary and benefits. Additional information regarding this project is available at **website: http://www.guthrie.org/research/scientists/noti.asp.** Candidates with a Ph.D. and experience in molecular and cell biology, and/or transgenic mice technology, should send their curriculum vitae and the names and addresses of three references to: **Dr. John D. Noti, Laboratory of Molecular Biology, Guthrie Research Institute, Sayre, PA 18840-1692. E-mail: jnoti@inet.guthrie.org.**

The UCLA Department of Urology is seeking an **INVESTIGATOR** with expertise in functional genomics and signal transduction. Applicants must possess an M.D. or Ph.D. and have the potential for establishing a vigorous, independent research program with significant extramural funding. Candidates should have an interest in developing and using DNA microarray technology in the identification and characterization of steroid hormone-regulated genes involved in oncogenesis, cell survival, apoptosis, development, and differentiation. This faculty position requires a commitment to teaching students and residents. Send curriculum vitae and a letter of interest to:

Robert Reiter, M.D.
Director of Research
UCLA Department of Urology
Box 951738
Los Angeles, CA 90095-1738
UCLA is an Equal Opportunity Affirmative Action Employer.

POSTDOCTORAL POSITION immediately available for a Ph.D. in biochemistry or immunology. The selected candidate will work with a team studying apoptotis induced by a recently identified group of cytotoxic factors with clinical application as the long range goal. Send curriculum vitae and three letters of recommendation to: **Tapas K. Das Gupta, M.D., Ph.D., D.Sc. UIC–Department of Surgical Oncology, 840 South Wood Street M/C 820, Chicago, IL 60612.** *The UIC is an Affirmative Action/Equal Opportunity Employer.*

POSITIONS OPEN

SFBR
Southwest Foundation for Biomedical Research

CHAIR, DEPARTMENT OF LABORATORY ANIMAL MEDICINE
Southwest Foundation for Biomedical Research

The Southwest Foundation for Biomedical Research invites applications for the position of Chair, Department of Laboratory Animal Medicine (DLAM). We seek an individual with experience in the management of a research animal care facility. The individual should be familiar with the Standards of AAALAC accreditation and regulatory compliance issues. Candidates must have a D.V.M. or equivalent degree from an AVMA accredited institution and be licensed in the U.S. to practice veterinary medicine. Board certification in laboratory animal medicine (ACLAM) and prior experience with the care and use of colonies of nonhuman primates in a biomedical research setting is strongly preferred.

The Chair of the Department of Laboratory Animal Medicine (DLAM) will provide leadership for animal care personnel and will oversee the animal care and use program for the Southwest Foundation for Biomedical Research. These duties will include fulfilling the role of the Attending Veterinarian for the Institutional Animal Care and Use Committee (IACUC) to ensure regulatory compliance with the Animal Welfare Act and the ILAR Guide for the Care and Use of Laboratory Animals. Submit letter of interest, curriculum vitae, salary requirement, and contact details of three references to: **Director of Human Resources (02-037), Southwest Foundation for Biomedical Research, P.O. Box 760549, San Antonio, Texas 78245-0549.** To learn more about SFBR and our benefits please visit our **website: http:/www.sfbr.org.** *Equal Opportunity Employer.*

ASSISTANT PROFESSOR IN MEDICINAL CHEMISTRY

The Department of Medicinal Chemistry/College of Pharmacy, at the University of Minnesota invites applications for a tenure-track Assistant Professor position beginning in fall 2003. The Department seeks applicants capable of establishing a nationally-recognized, externally-funded research program in contemporary medicinal chemistry. Special attention will be given to those applicants with research interests in cancer, viral diseases, and neuroscience. The successful applicant is expected to develop excellence in research and teaching at both the professional and graduate level. A Ph.D. in medicinal chemistry, organic chemistry, or related field is required, and two years of postdoctoral experience. Applicants should send curriculum vitae, a description of a proposed research program, and have three letters of recommendation sent separately to: **Professor Patrick Hanna, Department of Medicinal Chemistry, University of Minnesota, 308 Harvard Street SE, 8–101WDH, Minneapolis, MN, 55455-0343.** Review of completed applications will begin September 1, 2002, and will continue until the position is filled. Details of the Department can be found at **website: http://www.pharmacy.umn.edu/resgrad/medchem/index.htm.**

POSTDOCTORAL POSITIONS in the molecular basis of the involvement of Monocyte Chemotactic Protein in cardiovascular diseases. Involves application of gene chips and elucidation of the mechanism of action of a newly discovered human transcription factor gene that causes apoptosis. Send curriculum vitae and list of references to **email: kolattukudy.2@osu.edu.** *The Ohio State University is an Affirmative Action/Equal Opportunity Employer.*

The University of Zurich invites applications for a position as

Assistant Professor (tenure track) in Structural biology of membrane proteins

This position in structural biology (Institute of Biochemistry) should ideally focus on X-ray crystallography of membrane proteins, but other high-resolution structural techniques may be considered.

The Institute of Biochemistry is located on the Irchel campus, where most of the biological and physical science Institutes of the University are also situated. Nearby are the Science Departments of the ETH Zurich, and the Paul-Scherrer-Institut, which houses the newly established synchrotron Swiss-Light Source for structural studies of biomolecules. The density of biomolecular science in Zürich provides a highly stimulating and very attractive environment for interdisciplinary research. In addition, strong ties in teaching and research are being established between corresponding units of the University and ETH Zurich. In particular, a National Center of Competence in Structural Biology (**http://www.structuralbiology.unizh.ch**) was established in Zurich to integrate and expand structural biology and related areas.

The new professor will be expected to contribute to teaching. Applications including a curriculum vitae, list of publications and an outline of current and future research plans should be received not later than August 15, 2002. Please send your application to the Dean of the Science Faculty: Professor K. Brassel, Dekanat der Mathematisch-naturwissenschaftlichen Fakultät der Universität Zürich, Winterthurerstrasse 190, CH-8057 Zürich, Switzerland. The CV and list of publications should also be submitted as a single file to **jobsmnf@zuv.unizh.ch.**

For additional information see also **http://www.unizh.ch** or contact Prof. Markus Grütter (**gruetter@bioc.unizh.ch**), Universität Zürich, Winterthurerstrasse 190, CH-8057 Zürich.

STRUCTURAL BIOLOGY
National Center of Competence in Research

uni | eth | zürich

FELLOWSHIPS

POSTDOCTORAL FELLOWSHIPS

Applications are being accepted for the Philip Morris External Research Program Postdoctoral Fellowships. The Postdoctoral Fellowships program was established to support the development of scientists at the beginning of their careers in the following scientific areas: Exposure/Biomarkers/Dosimetry, Epidemiological Research, Clinical and Model Systems Research, and Tobacco Smoke and Smoking Behavior.

Qualified applicants must hold a recently conferred Ph.D. degree, M.D. degree, or equivalent degree at the time of the award, and have demonstrated an ability to conduct independent research. This is an international program and there are no citizenship or residency requirements for the Postdoctoral Fellowships.

Sponsorship of the fellow by an established investigator is required. There are no further restrictions regarding the specific discipline of the sponsor or the department at which the research will be conducted. International sponsors and collaborations are encouraged.

Applications must be received by October 1, 2002. For more information on the Postdoctoral Fellowships Program, please call or write:

Research Management Group
Philip Morris External Research Program
Postdoctoral Fellowships
1099 Winterson Road, Suite 280
Linthicum Heights, MD 21090-2216 USA
Telephone: (410) 684-3782
Fax: (410) 684-3729
Email: rmgroup2000@aol.com

Assistant Professors (2)
Molecular Oncology
Southern Illinois University School of Medicine

The SIU Cancer Institute is recruiting two junior Investigators in the general area of molecular oncology. Successful applicants will possess appropriate education including postdoctoral training in a basic science discipline relevant to cancer. These are tenure-tracking positions with an academic appointment in one of the basic science departments of the medical school (Medical Microbiology/Immunology or Pharmacology) and a cross-appointment in the Cancer Institute.

The SIU Cancer Institute has received state funding to provide generous start-up packages. New laboratories are being constructed and will be available this fall. A new cancer building with state-of-the-art facilities is currently under development and should be finished within two years. The eventual goal of the Cancer Institute is to hire 15 to 20 new research faculty.

Applicants should submit a letter of interest, curriculum vitae including history of external funding, a description of research plans and the names and addresses of three professional references. This position has been designated security-sensitive and employment is contingent upon the results of a criminal background investigation. Applications will be reviewed after August 1, 2002 and continue until the positions are filled.

Application should be sent to: **Edward J. Moticka, Ph.D., Associate Dean for Research and Faculty Affairs, Southern Illinois University School of Medicine, PO Box 19616, Springfield, IL 62794-9616.**

Southern Illinois University is an AA/EOE Employer.

Santa Fe Institute
Position Announcement

President of the Santa Fe Institute

We are seeking a distinguished scientist with a demonstrated record of leadership in the scientific community, including recognizing and recruiting scientific colleagues of genuine distinction, and focusing attention on new interdisciplinary frontiers. An appreciation of, interest in, and understanding of transdisciplinary research is essential. The candidate must be an articulate spokesperson for the Santa Fe Institute, and be able to convey to potential donors and the broad general public the excitement of working at the frontiers of science.

Applications and nominations are invited for this position and should be sent to:

Robert J. Denison
Chairman of the Board of Trustees
Santa Fe Institute
1399 Hyde Park Road
Santa Fe, NM 87501
denison@santafe.edu

(EOE)

POSITIONS OPEN

PROTEOMICS SCIENTIST

The Centre for Research in Neurodegenerative Diseases (CRND) at the University of Toronto is seeking applications for a **PROTEOMICS SCIENTIST**. The applicant will supervise a core facility to be established within the CRND, with the aim of identifying novel molecules involved in disease pathogenesis. The CRND houses a total of eight laboratories involved in biochemical, genetic, cellular, and pathological analyses of human neurodegenerative diseases, as well as animal models of these disorders. The applicant must have a Ph.D. in biochemistry and two or more years of postdoctoral training. It is expected that the candidate will have extensive experience in the micropurification of proteins and downstream analysis using a variety of mass spectroscopic techniques, and familiarity with the purification of membrane-associated proteins would be of particular interest. Appointment will be made at a level commensurate with academic experience. Interested candidates should submit curriculum vitae and three letters of reference by July 31, 2002, to: **Dr. Peter St. George-Hyslop, Centre for Research in Neurodegenerative Diseases, University of Toronto, Tanz Neuroscience Building, 6 Queen's Park Crescent West, Toronto, ON M5S 3H2 Canada**. *The University of Toronto is strongly committed to diversity within its community. The University especially welcomes applications from visible minority group members, women, aboriginal persons, persons with disabilities, and others who may contribute to further diversification of ideas.*

RESEARCH ASSOCIATE/ PROJECT SCIENTIST

NIH-funded Research Associate/Project Scientist position is available to qualified applicants with Ph.D. or equivalent. Experience in molecular biological techniques (screening, cloning, etc.) is mandatory; experience with yeast system desirable. Aim: to clone and characterize a novel enzyme by genetic selection and explore its role in the cardiovascular system. Good oral and written English skills essential. Salary commensurate with experience. Send curriculum vitae and names of three references to: **Dr. Indira Sen, Department of Molecular Cardiology/NB50, Lerner Research Institute, Cleveland Clinic Foundation, 9500 Euclid Avenue, Cleveland, OH 44195; FAX 216-444-9263; e-mail: seni@ccf.org**. *The Cleveland Clinic Foundation is an Equal Employment Opportunity/Affirmative Action Employer.*

RESEARCH SCIENTIST. An immediate opportunity exists for a full-time position in the field of spinal cord electrophysiology. The candidate will conduct research for an ongoing project concerning neurotrophins and function of the injured spinal cord. This project seeks to establish new strategies for strengthening synaptic connections in the developing mammalian spinal cord. Required qualifications: knowledge of basic surgical techniques and intracellular recording of neural activity, microscopy, and computer programming a plus. Salary commensurate with experience.

Candidates should submit a cover letter and résumé to: **Dr. Victor Arvanian, Deptartment of Neurobiology and Behavior, Stony Brook University, Stony Brook, New York 11784-5230. FAX: 631-632-6661; e-mail: varvanov@notes.cc.sunysb.edu**. Visit us at **website: http://www.stonybrook.edu.cjo**. *Affirmative Action/ Equal Opportunity Employer.*

ASSOCIATE RESEARCH SCIENTIST
Columbia University

Associate Research Scientist position available to study pathogenesis of echovirus infection in a transgenic mouse model. Ph.D. and three years of postdoctoral experience in virology, molecular biology, and mouse husbandry are required. Send curriculum vitae and names of three references to: **Dr. Vincent Racaniello, Department of Microbiology, Columbia Univesity, 701 West 168th Street, New York, NY 10032. FAX: 212-305-5106; e-mail: vrrl@columbia.edu**. *Columbia University is an Affirmative Action/Equal Opportunity Employer.*

POSITIONS OPEN

Are you trained in medicine or clinical research and looking for a new career? Do you enjoy hunting for information; are you service oriented, innovative, and willing to try something new? Have you considered working as an **INFORMATIONIST**: someone highly trained in both biomedicine and informatics? An Informationist works as an integral part of research and clinical care teams providing specialized expertise in information management that contributes vitally to research and clinical situations.

The National Institutes of Health (NIH) Library has career openings for four Informationists. The NIH is one of the largest biomedical research centers in the world, employing a staff of about 18,000, including 6,000 Ph.D.s and/or physicians. The Library supports the biomedical and behavioral research needs of the NIH community. For more information about the positions contact: **Susan Whitmore; Telephone: 301-496-1157; e-mail: sw112h@nih.gov**, and to obtain a vacancy announcement contact: **Barbara Canada, National Institutes of Health, ORS Human Resources Office, 31 Center Drive, MSC 2157, Building 31, Room 4B41, Bethesda, MD 20892-2157. E-mail orspersonnel@mail.nih.gov, Telephone: 301-402-1528; Fax: 301-402-1057**. Applications must be postmarked by July 31, 2002. *NIH is an Equal Opportunity Employer.*

STAFF INVESTIGATOR POSITION
Department of Dermatology
Henry Ford Health System

The Department of Dermatology at the Henry Ford Health System is seeking Ph.D. or M.D./Ph.D. Investigators to develop independent research programs in cutaneous biology which will augment current programs in T cell biology and pigment cell biology. Applicants will be expected to develop externally funded research programs in addition to receiving substantial internal support. Please send letter of interest describing future research plans, curriculum vitae, and names of three references to:

Henry W. Lim, MD
Clarence S. Livingood Chair
Department of Dermatology
Henry Ford Hospital K–16
Detroit, MI 48202

Henry Ford Health System is an Equal Opportunity Employer.

A Staff Scientist Position is available in the Viral Immunology Section of the Laboratory of Viral Diseases in National Institute of Allergy and Infectious Diseases, National Institutes of Health (NIH), Bethesda, MD. We use mouse models to study the induction of CD8+ T cells by viruses and vaccines, intravital visualization of anti-viral immune responses and mechanisms of immunodominance. The successful candidate will have extensive research experience in mouse cell-mediated immunity models; T lymphocyte isolation and culture, and functional characterization of cell mediated immunity by flow cytometry and additional methods. Applicants must have a Ph.D., M.D., or equivalent degree *and be a U.S. citizen, permanent resident, or non-resident alien with an appropriate visa*. Salary is commensurate with the degree of relevant experience and training in the field, with the range starting at $66,000 per annum. Please send curriculum vitae, bibliography, and contact information for three references by July 30 to: **Dr. Jack Bennink, Building 4, Room 201 MSC 0440, 4 Center Drive, Bethesda, MD 20892-0440**.

TRANSGENIC SPECIALIST #KSW-13896

The Fred Hutchinson Cancer Research Center requires an experienced transgenic scientist to assist researchers in developing mouse model systems. Expertise required with pronuclear injections, ES cell culture and microinjections to generate knockout mice. BS/BA or MS/MA and two plus years required. See **website: http://www.fhcrc.org** for additional details. *Equal Opportunity Employer Committed to Work Force Diversity.*

POSITIONS OPEN

DIRECTOR OF THE BIODIVERSITY RESEARCH CENTER OF THE CALIFORNIAS
San Diego Natural History Museum

The San Diego Natural History Museum invites nominations and applications for the position of Director of the Biodiversity Research Center of the Californias (BRCC). A major renovation and expansion of the Museum building is nearing completion and new programs are currently in the design and fund-raising phase. The BRCC is the product of a 126-year tradition of systematics research, scientific collecting (botanical, zoological, paleontological, and mineralogical), and scientific publication focused on the southern California and Baja California region. Qualifications: Ph. D. in the life sciences; professional standing and demonstrated research accomplishments in one or more of the Museum's research areas; museum experience in acquiring, using, and/or managing collections; demonstrated managerial and administrative abilities; strong interpersonal skills; bilingual (verbal and written Spanish and English), bicultural (Mexico and USA) experience strongly preferred. Responsibilities: scientific and administrative leadership of research and support staff; planning and implementation of scope and direction of BRCC; maintenance of active research program in our binational region; and development and facilitation of grants and contracts by and for BRCC staff. For additional information visit the Museum's **website: http://www.sdnhm.org (http://www.sdnhm.org/research/index** and **http://www.sdnhm.org/about/jobs)** or contact: **BRCC Search Committee at e-mail: tdemere@sdnhm.org**. Closing date is October 1, 2002. *SDNHM is an Equal Opportunity Employer.*

SENIOR RESEARCHER

Qualifications: Ph.D. in area of genetics/genomics, postdoctoral experience in microbial genomics, and phylogenetics research with focus on environmental DNA samples, suppressive hybridization and BAC cloning technology, statistical analysis of genomic/phylogenetic data, training of technicians and graduate students, and project management. Ability to write scientific manuscripts. Proven ability to innovate new technology. *Canadian citizen or permanent resident.*

Job Description: Design, supervise, and conduct research work in environmental microbial genomics using subtractive hybridization and BAC clone technology. Develop new relevant methodologies. Supervize junior personnel (technicians and graduate students). Perform phylogenetic/statistical analyses on data and prepare manuscripts. Salary $51,000 per annum, plus fringe benefits.

Send complete curriculum vitae, description of research experience, and letters of reference from four references to: **W. Ford Doolittle, Department of Biochemistry and Molecular Biology, Dalhousie University, 5850 College Street, Halifax, Nova Scotia, B3H 1X5 Canada**. Deadline for receipt of all materials: 28 July 2002.

RESEARCH ASSOCIATE, FUNCTIONAL GENOMICS. Assist in execution of TaqMan workflow for target validation for Lead Generation and Disease Groups; design probe and primers to run TaqMan (ABI 7700 and 7900); study gene expression profiling using cDNA panels representing different human and animal model normal and disease tissues; assist in technology development processes; generate high quality scientific results. Requirements: BS/MS in Biology and three years experience in job offered or related occupation as laboratory Research Assistant or Molecular Biologist. Experience must include molecular biology techniques (PCR, Southern and Western blot analysis, DNA purification), laboratory automation techniques (ABI 377, ABI 3700, TECAN, Quiagen Biorobot), and experience designing primers for cloning and DNA sequencing. Salary commensurate with experience. Aventis Pharmaceuticals, Bridgewater, NJ. Send résumé to: **Box 115, 1200 New York Avenue, NW Washington, DC 20005. Attn: Room 914**.

MaxyAg (a wholly owned subsidiary of Maxygen, Inc.) a global leader in the application of directed molecular evolution in agriculture, is seeking a highly motivated individual to lead our product development activities. The Product Development Manager – Agricultural Biotechnology will direct the development of transgenic crop products that meet customer needs for field efficacy and commercial superiority.

Product Development Manager – Agricultural Biotechnology

Primary Responsibilities:

- Provide technical and strategic leadership to trait and project teams for all transgenic crop product development activities including transgene design, *in planta* transgene efficacy determination, early generation transgenic event selection, coordination of regulatory needs, and management of freedom to operate issues.
- Provide input and guidance to discovery research teams regarding the constraints of product development, delivery and commercialization in order to focus efforts on the creation of market-place friendly technologies.
- Establish an internal product development process pipeline and track associated workflow.
- Coordinate product development activities with plant breeders and commercial development teams of partner companies to ensure the effective and timely introduction of MaxyAg traits into target agricultural markets.
- Anticipate and deliver critical research support by MaxyAg R&D to sustain partner breeding and development efforts associated with the commercialization of MaxyAg traits.
- Assume a leadership role in the establishment and implementation of a robust regulatory management/stewardship program for MaxyAg traits. Ensure that this program pro-actively incorporates strategies within the R&D process to ensure that products comply with US and international regulatory requirements.
- Recognize, evaluate and internally communicate potential product opportunities identified through consultation with partners and their farmer customer.
- Manage a product development budget to expectations.

Qualifications:

Qualified candidates must have significant transgenic crop product development experience, practical familiarity with transgenic product deregulation requirements, excellent communication and organizational skills and demonstrated leadership abilities. Plant breeding, biochemistry, molecular biology and/or database management experience is highly desired.

We offer a generous and competitive compensation and benefits program with exceptional rewards for effort, innovation and results.

For further information please visit our website **www.maxygen.com.** Please send your resume to, **jobs@maxygen.com referencing job#AG-223** or **Maxygen Inc., Human Resources, 515 Galveston Drive, Redwood City, CA 94063.** EOE

POSITIONS OPEN

POSTDOCTORAL POSITIONS
University of California, Irvine

Two postdoctoral positions are available immediately in the Department of Molecular Biology and Biochemistry to study the specificity, function, and regulation of protein methyltransferases. Preference will be given to candidates who have experience in two or more of the following areas: mammalian cell culture, protein expression in bacteria, purification and characterization of proteins on the microgram and milligram scale, HPLC, and mass spectrometry. This position is funded by a grant from the National Institutes of Health and has a starting salary of approximately $32,000 to $42,000 per year, depending on experience and record. To apply, send curriculum vitae, with names and contact information of two references, to: **Dana W. Aswad, Department of Molecular Biology and Biochemistry, University of California, Irvine, CA 92697-3900. Website: http://www.bio.uci.edu/faculty/.** *The University of California, Irvine is an Equal Opportunity Employer committed to excellence through diversity.*

POSTDOCTORAL POSITION
in TISSUE ENGINEERING

Bioengineering Center at Tufts University seeks enthusiastic candidates for musculoskeletal tissue engineering research, including molecular and cell biology, bioreactor, and structural and functional tissue characterization. Requirements: Ph.D. in cell or molecular biology, chemical or biochemical engineering or a related area, experience in tissue engineering or cultivation of mammalian cells. Interested candidates should submit, via mail or e-mail, a résumé and cover letter containing names and telephone numbers of three references to: **David L. Kaplan, Bioengineering Center, Tufts University, 4 Colby Street, Medford, MA 02155. E-mail: david.kaplan@tufts.edu.** *Tufts University is an Equal Opportunity/Affirmative Action Employer. People from underrepresented groups are encouraged to apply.*

RESEARCH ASSOCIATE/ ELECTROPHYSIOLOGIST

Postdoctoral Research Associate Position is available immediately for Ph.D./M.D. to study the role of synaptic alterations in epileptogenesis. Electrophysiological recordings and immunohistochemistry are techniques that will be performed on hippocampal tissue. Expertise in patch clamp electrophysiology strongly preferred. Send curriculum vitae and names of three references to: **Dr. Suzanne Bausch Department of Pharmacology, Room C2007, Uniformed Services University, 4301 Jones Bridge Road, Bethesda, MD 20814-4799. E-mail: sbausch@usuhs.mil.** *Equal Opportunity Employer/Affirmative Action.*

A **POSTDOCTORAL POSITION** is available to study novel signal transduction pathways in tumors. The areas include signaling by a naturally occurring variant EGF receptor, the Gab1 docking protein, JNK in tumorigenesis and proteolytic processing of CD44 (*Nature* **379:**560, *PNAS* **94:**12419, *JBC* **273:**2817, *J. Cell Biol.* **155:**755). A competitive salary and benefits provided. Please send or e-mail curriculum vitae to: **Alison Keiser (reference AJW), Thomas Jefferson University, 201 South 11th Street, Philadelphia, PA 19107-5595. E-mail: ajw@mail.jci.tju.edu.** *Equal Opportunity Employer.*

POSTDOCTORAL and JUNIOR FACULTY POSITIONS

Postdoctoral and Junior Faculty positions available in The Pulmonary Center at Boston University School of Medicine. Work will focus on: (1) lung stem cell biology or (2) use of marrow cells for reconstituting lung tissue (*Development* **128:**5181). Ph.D. or M.D. essential. Send curriculum vitae, description of interests, and three references to: **Alan Fine, M.D., The Pulmonary Center, R-304, 715 Albany Street, Boston, MA 02118. FAX: 617-536-8093.**

POSITIONS OPEN

DIRECTOR OF BIOMEDICAL ENGINEERING

As part of a major new initiative, the University of Houston Cullen College of Engineering is seeking qualified individuals for the position of Director of Biomedical Engineering. The initiative involves developing a core faculty and coordinating opportunities for collaborative programs with medical researchers at the Texas Medical Center, the National Space Biomedical Research Institute, and the University of Texas Medical Branch in Galveston. The Director must have qualifications necessary for a senior level position with tenure in one of the College's engineering departments. Candidates must have a doctorate in biomedical engineering, or in an engineering discipline with a biomedical emphasis, and must be a leading scholar/researcher in biomedical engineering. The candidate will be expected to carry out an active research program, and promote and develop multiinvestigator programs among UH faculty. The Director must lead our Biomedical Engineering Program as we establish an undergraduate program to complement existing research programs. Desired start date is Spring, 2003. Send curriculum vitae with a statement of professional accomplishments, academic and research goals, and a list of at least three references to:

Dr. Larry C. Witte
Chair, Search Committee
Cullen College of Engineering
University of Houston
E421 Engineering Building 2
Houston, TX 77204-4007

Review of applications will begin in July 2002, but applications will be accepted until the position is filled. *The University of Houston is an Equal Opportunity/Affirmative Action Employer. Minorities, women, veterans, and persons with disabilities are encouraged to apply.*

POSTDOCTORAL FELLOWSHIP
Structural/Functional Analysis of LexA Protein

A postdoctoral Research Associate position is available for the analysis of LexA repressor of *E. coli* and its interaction with RecA, based on the crystal structure of LexA (see *Cell* **106**: 585–594, 2001). Candidates must have a Ph.D. in biochemistry, molecular biology, or a closely related field, and a background in protein biochemistry, gene regulation, and recombinant DNA techniques. Send curriculum vitae, names of three references, and a brief statement describing your interest in this system to: **Dr. John Little, Department of Biochemistry and Molecular Biophysics, The University of Arizona, P.O. Box 210088, Tucson, AZ 85721-0088; e-mail: jlittle@u.arizona.edu. Website: http://www.biochem.arizona.edu/profiles/little.htm.** Review of materials will begin July 3, 2002, and will continue until filled. *The University of Arizona is an Equal Employment Opportunity/Affirmative Action Employer. Minorities/Women/Disabled/Veterans.*

POSTGRADUATE STUDENTSHIP OPPORTUNITY IN LYON, FRANCE

The INSERM U. 407 laboratory, in agreement with the University of Lyon, France, is recruiting a graduate student (September 2002) to perform a French Science Doctorate (three years). *The student has to be European, no French, with a very good scholar record and expertise in molecular biology.* He will work on the regulation of spermatogenesis and inter-relationship between germinal stem cells and differentiating spermatocytes with emphasis on key proto-oncogenes. The work is original and the team very supportive. The closing date is July 19, 2002. Provide complete curriculum vitae, letter(s) of reference, and an informative cover letter. Please address the application: **Dr. Daniel L. Regnier, INSERM U.407, Faculté de Medecine de Lyon-Sud, B.P. 12, 69921 Oullins Cedex, France.** Contact us at **website: http://daniel.regnier@ibl.fr** until July 5 or **website: http://benahmed@lsgrisn1.univ-lyon1.fr** from July 6.

POSITIONS OPEN

POSTDOCTORAL POSITIONS
University of California, Irvine

Two NIH-funded Postdoctoral positions are available immediately at a laboratory investigating papilloma viruses and the etiology of cervical cancer at the Department of Molecular Biology and Biochemistry and the Chao Cancer Research Center of the University of California, Irvine. This laboratory has been operated for 15 years at the Institute of Molecular and Cell Biology, Singapore and is currently reestablished at this new address. The projects will focus on the regulation of HPV-16 transcription by sequence specific transcription factors and epigenetic mechanisms. Applicants with a Ph.D., experience in techniques applied in transcription research, and a publication record in international journals should send a curriculum vitae and names of three references to:

Dr. Hans-Ulrich Bernard
University of California Irvine
Department of Molecular Biology and Biochemistry
Irvine, CA 92697-3900
FAX: 949-824-8551
e-mail: hbernard@uci.edu

Deadline for receipt of applications: review of applications will begin on August 15, 2002, and the recruitment will remain open until filled.

The University of California, Irvine is an Equal Opportunity Employer committed to excellence through diversity.

POSTDOCTORAL POSITION available immediately to study the mechanisms that regulate Ca2+ signaling and tone in blood vessels and, thus, control blood pressure. The successful candidate will employ confocal microscopy to measure Ca2+ signaling and contraction in small arteries and isolated arterial myocytes from normal and transgenic mice. Applicants should have a Ph.D. and/or M.D. and a strong background in vascular physiology/pharmacology; knowledge of imaging methods is desirable. Curriculum vitae, a statement of research experience and career goals, and contact information (including telephone and e-mail address) for three references should be sent to: **Dr. Mordecai P. Blaustein, University of Maryland Medical School, Department of Physiology, 655 West Baltimore Street, Baltimore, MD 21201; e-mail: mblauste@umaryland.edu.** *UMB is an equal opportunity employer.*

POSTDOCTORAL FELLOW/RESEARCH ASSOCIATE positions available. Two positions available for study of molecular and cellular mechanisms of plasma membrane protein recycling in epithelial cells. Studies will focus on molecular characterization of proteins associating with and regulating the Rab11 family of small GTPases. Research approaches include proteomic and structural characterization and regulated over-expression as well as knockout and transgenic mouse models. All work funded by multiple NIH grants. Salary levels commensurate with experience. Send curriculum vitae to: **James Goldenring, M.D., Ph.D., Department of Surgery and the Vanderbilt-Ingram Cancer Center, Vanderbilt University School of Medicine, CC-2306 MCN, 1161 21st Avenue South, Nashville, TN 37232-2733. E-mail: jim.goldenring@vanderbilt.edu.**

COLUMBIA UNIVERSITY
Postdoctoral Research Scientist/ Associate Research Scientist

An NIH-funded position is available to study protein kinase modulation of voltage-gated sodium channels. The successful candidate will perform macroscopic current studies using the 2-electrode voltage clamp and single-channel studies using non-steady state analysis methods. Experience with electrophysiology and molecular biology required. Please send curriculum vitae to: **Dr. Jay Yang, Assistant Professor of Anesthesiology, Columbia University P &S, 622 West 168th Street, New York, NY 10032.** Or **e-mail: jy2029@columbia.edu.** *Columbia University is an Equal Opportunity/Affirmative Action Employer.*

Creating the future of biotech—Together

Invitrogen's Research Tools Development Grants Program provides funding for investigators developing innovative tools for use in life science research, including investigators working in academics, not-for-profit institutions, and for-profit companies. Total funding is US$5 million per year, with annual individual awards of up to US$100,000. Grants are provided quarterly; each quarter focuses on a specific field of interest.

Third quarter 2002 funding is for the area of **separations and purification**—novel physical (electrophoresis), chemical (affinity exchange) or biochemical (antibody) approaches for the separation and/or purification of biomolecules (nucleic acids and proteins) in molecular and cell biology. Proposals to develop enrichment, fractionation and labeling technologies are also of interest. Deadline for full Grant Proposals is September 1. A preproposal is required prior to submitting a Grant Proposal. The focus for fourth quarter grants is amplification, labeling, and quantitation (deadline December 1). **For more information, visit www.invitrogen.com, e-mail grants@invitrogen.com, or call 800 955 6288, ext. 66140 (760 476 6140).**

1600 Faraday Ave. Carlsbad, CA 92008 P: 760 476 6140 F: 760 602 6563 www.invitrogen.com

Invitrogen™ life technologies

NIMH National Institute of Mental Health

SYMPOSIUM

National Institute of Neurological Disorders and Stroke

Viral and Host Genetic Factors Regulating HIV/CNS Disease

November 20-22, 2002 • Washington Marriott, Washington, DC

The National Institute of Mental Health and the National Institute of Neurological Disorders and Stroke are sponsoring a meeting on the role of viral and host genetic factors in regulation of HIV-induced disease of the nervous system. Despite advances in therapeutics and vaccines, many fundamental gaps remain in our understanding of pathways leading to HIV-1 induced damage in the brain. The purpose of the meeting is to bring together researchers to review current findings and identify important questions for future research in the topics outlined below. Abstracts for poster presentations will also be accepted in these areas.

- **HIV-1 Compartmentalization in CNS/CSF vs. Periphery**
- **Regional and Cell Type Specific Compartmentalization of HIV-1 in CNS**
- **Viral Evolution and Emergence of Drug Resistance in CNS to HAART**
- **HIV-1 Viral Genetics and Neuropathogenesis-Functional Studies**
- **Animal Models for Viral Genetic Studies**
- **Host Genetic Factors in HIV/CNS Disease**

Deadline for Abstract Submission is September 10, 2002

For program information contact:

Jeymohan Joseph, Ph.D.
Phone: 301-443-3012
e-mail: jjeymoha@mail.nih.gov

Toby Behar, Ph.D.
Phone: 301-496-1431
e-mail: behart@ninds.nih.gov

Planning Committee

Dianne Rausch, Ph.D., Bethesda, MD
Eugene Major, Ph.D., Bethesda, MD
Francisco Gonzalez-Scarano, M.D., Philadelphia, PA
Ron Ellis, M.D., Ph.D., San Diego, CA
Janice Clements, Ph.D., Baltimore, MD

For abstract information and packages, contact M. Taye Hailu, B L Seamon and Associates, Inc., 301-577-0244, ext. 24; e-mail: taye@blseamon.com. Information on the meeting can also be found at http://www.nimh.nih.gov/events/hivcns.cfm

POSITIONS OPEN

POSTDOCTORAL FELLOW: MOLECULAR ECOLOGIST. Research the population ecology and genetics of aphid natural enemies in wheat monocultures and diversified cropping systems of the Great Plains. Field ecological methods, population genetics, and development and use of molecular genetic markers. Ph.D. in entomology, biology, ecology, genetics, or related field required. Available September 2002. 11-month appointment, 100 percent research continues through June 30, 2003. Continuation is subject to performance up to a maximum of four years. Salary commensurate with experience and qualifications and includes a benefit program. Review of applications begins July 15, 2002, and continues until a suitable candidate is found. To apply, send letter of application, curriculum vitae, statement of career goals, and names of three references including telephone numbers to: **Dr. Kristopher L. Giles, Oklahoma State University, Department of Entomology & Plant Pathology, 127 Noble Research Center, Stillwater, OK 74078, (405) 744-6298, kgiles@okstate.edu**. *OSU is an Affirmative Action/Equal Opportunity Employer committed to multicultural diversity.*

R-B PATHWAY:
Cell Cycle, Checkpoints and Murine Models

Funded Postdoctoral and Scientist positions available to study the action of the retinoblastoma tumor suppressor and associated factors in cell cycle control. DNA-damage checkpoints and murine models of tumorigenesis. Apply by e-mailing curriculum vitae and research interests to:

Erik S. Knudsen, Ph.D.
Department of Cell Biology
University of Cincinnati
Cincinnati, Ohio 45267-0521
E-mail: erik.knudsen@uc.edu

POSTDOCTORAL RESEARCH ASSOCIATE POSITION
Quantitative Genetics and Bioinformatics

An NIH-funded position is available to develop statistical methods and computational algorithms for mapping genetic loci controlling the variation of complex diseases using pedigree and gene expression data. Applicants are required to have a Ph.D. degree in an area related to signal and information processing, statistics, computer science, or biology. Please submit applications to: **Professor Shizhong Xu, Department of Botany and Plant Sciences, University of California, Riverside, CA 92521**.

A **POSTDOCTORAL POSITION** is available in the Department of Gynecology/Obstetrics at the University of Buffalo, The State University of New York to study the molecular biology of ovarian function. Experience in ovarian and/or infertility studies is desired. Ph.D. or M.D. degree and a background in molecular biology are required. Cover letter and résumé to: **John Yeh, M.D., Professor and Chairman, University at Buffalo, 219 Bryan Street, Buffalo, NY, 14222. FAX: 716-888-3833; e-mail: jyeh@buffalo.edu**.

POSTDOCTORAL RESEARCH ASSOCIATE

Position available immediately for anti-Smallpox vaccine research. Send curriculum vitae and names of three references to: **Dr. Paul Gershon, c/o Human Resources Office, The Texas A&M University System Health Science Center – IBT, 2121 West Holcombe Boulevard, Houston, TX 77030. E-mail: pgershon@tamu.edu**. *An Affirmative Action/Equal Opportunity Employer.*

POSTDOCTORAL POSITION available to study molecular mechanism of malaria pathogenesis. Immunology background with expertise in producing and screening monoclonal hybridomas is essential. Send curriculum vitae to: **D.C. Gowda, Department of Biochemistry and Molecular Biology, H171, Pennsylvania State University College of Medicine, Hershey, PA 17033**. *Affirmative Action/Equal Opportunity Employer.*

POSITIONS OPEN

POSTDOCTORAL POSITION

A Postdoctoral Fellowship position is available immediately in the Environmental Carcinogenesis Division of the Environmental Protection Agency in Research Triangle Park, North Carolina, to study the use of biomarkers of response for assessing potential sensitivity of children to adverse health outcomes from exposure to environmental chemicals. The work involves study in both rodent and human cells of the age-dependent differences in expression of housekeeping genes associated with maintenance of growth control and differentiation. Emphasis will be placed on characterization of biomarker responses such as DNA repair capacity and cell cycle control, and overall patterns of gene expression following treatment with environmental stressors. *In vivo* and *in vitro* systems will be utilized. These biomarkers will be used to determine if children potentially are more sensitive than adults to developing adverse health outcomes following exposure to environmental chemicals, and if subpopulations of sensitive children can be identified. The experimental approach is to use indices of DNA damage and apoptosis, in addition to genomic and proteomic methods, to evaluate age-related responses to environmental chemicals of EPA regulatory interest, such as arsenicals or conazoles.

The position requires a Ph.D. or equivalent in toxicology, molecular biology, or related fields. Experience with methods for analyzing DNA damage/repair, apoptosis, and gene/protein expression is preferred.

Candidates must be U.S. citizens or Permanent Residents. Salary will be commensurate with experience. Send letter of interest, résumé, and names and addresses of three references to: **Dr. Kenneth B. Adler, College of Veterinary Medicine, North Carolina State University, Raleigh, NC, 27606. E-mail: Kenneth_Adler@ncsu.edu**.

POSTDOCTORAL POSITION
Beth Israel Deaconess Medical Center
Harvard Medical School
Macrophage Signal Transduction

A Postdoctoral position is available beginning July, 2002, to study macrophage innate immune receptor-mediated signal transduction pathways. These NIH-supported studies focus on alveolar macrophage innate immune responses to opportunistic pathogens, and examine the influence of HIV-1 infection. Ph.D. applicants with at least two years postdoctoral experience in macrophage cell and molecular biology and with published experience or strong interest in HIV virology/cellular immunology and signal transduction pathways are encouraged to apply. Flow cytometry experience is desirable.

The Beth Israel Deaconess Medical Center is an outstanding biomedical research center at Harvard Medical School and provides an exceptional training environment for scientific endeavors and career development. Stipends and benefits are highly competitive.

Applicants should submit a cover letter indicating your research interests and expertise, curriculum vitae, and three letters of reference to: **Henry Koziel, M.D., Division of Pulmonary and Critical Care Medicine, Kirstein Hall Room KS–B23; BIDMC, 330 Brookline Ave, Boston, MA 02215. E-mail: hkoziel@caregroup.harvard.edu**. *BIDMC is an Equal Opportunity, Affirmative Action Employer.*

POSTDOCTORAL POSITION at Beth Israel Deaconess Medical Center and Harvard Medical School is available immediately to study interaction of HCV and cellular immune responses. NIH-funded project will determine role of HCV in inducing apoptosis of T cells and role of this process in tissue injury. Candidates should have a background in immunology and experience with mice; experience in cell culture and cell signaling desirable. Please send curriculum vitae and names of three references to: **Dr. Margaret Koziel, Beth Israel Deaconess Medical Center, Infectious Disease, Harvard Institutes of Medicine Room 223a, 330 Brookline Avenue, Boston, MA 02215. E-mail: mkoziel@caregoup.harvard.edu**.

POSITIONS OPEN

POSTDOCTORAL POSITION
Molecular Mechanisms of Neurodegeneration

Postdoctoral position is available in a productive, well-funded laboratory to study the pathogenic processes of Huntington's disease, with an emphasis on the molecular mechanisms of mitochondrial dysfunction. Applicants must have received a Ph.D. in biochemistry, cell biology, or a related discipline within the last three years. The position offers a highly competitive salary with benefits. University of Alabama at Birmingham (UAB) is one of the top 20 NIH-funded institutions and provides an outstanding, interactive research environment. *Must currently reside in the U.S. or Canada to be available for an interview.* Send curriculum vitae and the names of three references to: **Dr. Gail V. Johnson, Department of Psychiatry, SC 1061, 1720 7th Avenue South, University of Alabama at Birmingham, School of Medicine, Birmingham, AL 35294-0017, e-mail: gvwj@uab.edu; FAX: 205-934-3709, website: http://www.dpo.uab.edu/gvwj/**

A **POSTDOCTORAL POSITION** is available in the Basic Research Laboratory, Center for Cancer Research, National Cancer Institute, National Institutes of Health. The goal is to further develop lentiviral vectors for gene therapy, functional genomics, and DNA vaccination. The studies include the creation of chimeric HIV–1 and HIV–2 vectors and the search for 'drugs' to modulate vector expression. Candidates must have a Ph.D. or M.D. and one to three years of experience in molecular virology or related field. Please send curriculum vitae by **e-mail: aryas@mail.nih.gov** or mail to: **Dr. Suresh K. Arya, Ph.D., Basic Research Laboratory, NCI-Frederick Cancer Research Center, Frederick, MD 21702**.

POSTDOCTORAL POSITION for a study on a newly discovered ion channel which is mutated in a human developmental disease available immediately at the Developmental and Metabolic Neurology branch, National Institute of Neurological Disorders and Stroke, NIH. The project will focus on characterization of the channel activity in artificial membranes and in cell systems. We are seeking candidates with strong background in electrophysiology in single cells. Applicants should send curriculum vitae and list of references to: **Dr. Ehud Goldin, NIH Building 10 room 3D17, 10 Center Drive, Bethesda, MD 20892. Telephone: 301-594-3133. FAX: 301-496-9480; e-mail: goldin@codon.nih.gov**.

POSTDOCTORAL POSITION
Proteomics Of Osmosensing
And Cell Stress Response

Postdoctoral positions are available at the University of California, Davis to study the proteomic and genomic basis of cellular responses to environmental stress. The focus will be on osmosensing in mammalian kidney and teleost gill cells. Signaling in response to UV, heavy metal, and heat stress is also of interest. Experience in basic proteomics or molecular biology and a Ph.D., M.D., or equivalent degree are required. Send applications to **e-mail: dkueltz@ucdavis.edu**. *The University of California is an Equal Opportunity/Affirmative Action Employer.*

A **POSTDOCTORAL FELLOWSHIP** in cancer biology is immediately available to study the transcriptional and translational response of tumor cells to hypoxia. Ongoing projects involve research in HIF-1 regulation, the unfolded protein response (UPR), and the discovery of novel hypoxia regulated proteins. Applicants should have a Ph.D. and/or M.D. Experience in molecular biology, protein biochemistry, yeast genetics, and cell culture are particularly desirable. Please send cover letter, curriculum vitae, and names of three references to: **Albert Koong, M.D., Ph.D., Stanford University Medical School, Department of Radiation Oncology, 269 Campus Drive West, CCSR-1245C, Stanford, CA 94305-5152**. *Equal Opportunity Employer*

POSITIONS OPEN

TWO POSTDOCTORAL POSITIONS
Molecular Cell Biology and Computational Biology of the Eukaryotic Cell Cycle

Join an interdisciplinary team building mathematical models of the eukaryotic cell cycle. Applications are invited for: **MOLECULAR CELL BIOLOGIST** to investigate the dynamics of cell cycle regulation in frog eggs and embryos. A Ph.D. in molecular cell biology or biochemistry is required. Experience with protein expression and purification is preferred. **COMPUTATIONAL BIOLOGIST** to carry out computer simulations of molecular models of cell cycle regulation in frog eggs and yeast cells. A Ph.D. in computational science, applied mathematics, or theoretical chemistry is required. Experience in nonlinear dynamical systems theory is preferred. Please send curriculum vitae and contact information for two references to: **Drs. John J. Tyson and Jill C. Sible, Biology Department, Virginia Polytechnic Institute and State University, Blacksburg, VA 24061. Telephone: 540-231-1842; e-mail: tyson@vt.edu or siblej@vt.edu.**

Virginia Tech is an Equal Opportunity Institution.

MOLECULAR IMMUNOLOGISTS

The Receptor Cell Biology section of NIAID, NIH, is recruiting for Postdoctoral Fellows for studies on natural killer cell receptor expression and function. Emphasis is on the interplay of activating and inhibitory receptors, regulation of expression and signal transduction. Salary based on relevant experience and education. Qualified and interested candidates should send curriculum vitae and three letters of reference. For more information regarding these positions, contact: **John E. Coligan, Ph.D., Laboratory of Allergic Diseases, Receptor Cell Biology Section, NIAID/NIH, Twinbrook II, Room 205, 12441 Parklawn Drive, Rockville, MD 20852-8180. Telephone: 301-496-8247; FAX: 301-480-2818; e-mail: jcoligan@niaid.nih.gov.** *NIH is an Equal Opportunity Employer.*

A **POSTDOCTORAL POSITION** is now available in the laboratory of **Brad Rothberg.** Projects in the laboratory are focused on biophysical and molecular mechanisms of potassium channel gating, using a combination of patch-clamp electrophysiology, fluorescence spectroscopy, and molecular biology techniques. Candidates should possess good communication skills and a strong background in electrophysiology. To apply, contact: **Brad Rothberg, Ph.D., Deptartment of Physiology, University of Texas Health Science Center at San Antonio, TX 78229-3900. Telephone: 210-567-4342; e-mail: rothberg@uthscsa.edu; website: http://physiology.uthscsa.edu/Faculty/rothberg/rothberg.htm.** *The University of Texas Health Science Center at San Antonio is an Equal Opportunity/ Affirmative Action Employer.*

POSTDOCTORAL FELLOWSHIP. A position investigating the immune response to cancer is available. Present research focuses on the cloning of T cell receptor genes and their expression from retroviral vectors. Future directions include neuroblastoma immunity, identification of tumor antigens, and random sequence display. A strong background in molecular biology is required. Send curriculum vitae, statement of research interests, and references to: **Rimas J. Orentas, Department of Pediatrics, Medical College of Wisconsin, 8701 Watertown Plank Road, Milwaukee, WI 53226. E-mail preferred: rjo@mcw.edu.**

POSTDOCTORAL ASSOCIATE POSITION is available to characterize ectomycorrhizal community structure on loblolly pine roots and examine host/fungal genotype interaction with the soil envi-ronment. A Ph.D. in soil or fungal ecology with experience in molecular identification of ectomycorrhizal fungi is desirable. Send cover letter and résumé with names and addresses of three references to: **Dr. M.A. Topa, Boyce Thompson Institute for Plant Research, Tower Road, Ithaca, NY, 14853-1801. E-mail: mat8@cornell.edu.** *Affirmative Action/Equal Opportunity Employer.*

A **SENIOR STAFF FELLOW** postdoctoral position is available immediately in the Division of Therapeutic Proteins, Office of Therapeutics Research and Review, Center for Biologics Evaluation and Research. The laboratory is located on the campus of the National Institutes of Health in Bethesda, Maryland. The incumbent will possess extensive knowledge in the use of NMR for the study of protein structure and drug-protein interactions. A broad background in protein chemistry and biochemistry and extensive experience in applying such techniques to oncologic research are required. The candidate is expected to assist the Center in studies of comparability of biological therapeutics and to participate in the FDA-NCI Proteomics Initiative in defining novel targets for cancer therapeutics. An M.D. and/or Ph.D. is required. Additionally, completion or a previous postdoctoral fellowship is highly desirable. Interested candidates should send curriculum vitae or résumé with names of three references to: **FDA/CBER, OTRR, DTP, 1401 Rockville Pike, HFM-535, Rockville, Maryland 20852-1448** or **e-mail: Rosenberg@cber.fda.gov.** All applications should be received by July 31, 2002.

SINGLE-MOLECULE PROTEIN TRANSPORT

BIOPHYSICAL POSTDOCTORAL POSITIONS available to develop *in vitro* and single-molecule fluorescence-based approaches for studying protein transport across biomembranes. Expertise needed in one or more of the following areas: protein transport, microinjection, planar/supported bilayers, electrophysiology, stopped-flow fluorescence, single-molecule methods, and instrument development. Two three-year funded positions are available immediately (at least $30,000). Background/training can range from physics to cell biology. Send curriculum vitae to: **Dr. Siegfried Musser, Department of Medical Biochemistry and Genetics, 1114 TAMU, College Station, TX 77843-1114. Website: http://pauling.tamu.edu:80/medbiogen/musser.html.** *Affirmative Action/Equal Opportunity Employer.*

POSTDOCTORAL POSITION is available immediately in a laboratory conducting research in the area of signal transduction to investigate the regulation of the multifunctional protein c-Cbl by a novel protein. Strong background in biochemistry and molecular biology is required. Interest in signal transduction is a plus. The position is funded from NIH and can be renewed annually. Salary will be commensurate with experience. Send cover letter, curriculum vitae, and names and addresses of three references to: **Dr. Alexander Y. Tsygankov, Department of Microbiology and Immunology, Temple University School of Medicine, 3400 North Broad Street, Philadelphia, PA 19140. E-mail: tsygan@temple.edu.** *Equal Opportunity Employer; Minorities/Females/Disabled/Veterans.*

POSTDOCTORAL POSITION to incorporate peptide-linked surfactant systems to enrich and purify dilute samples for genomic detection in biodefense applications. *The postdoctoral individual will collaborate with government agencies and must be a U.S. citizen.* Familiarity with PCR methods, cell culture, and/or organic synthesis is plus, but not required. Starting salary is $42,000 per year for two to three years. Send curriculum vitae and names of three references to: **Jim Schneider, Department of Chemical Engineering, Carnegie Mellon University, Pittsburgh, PA 15213-3890** or **e-mail: schneider@cmu.edu. For a full ad, see our website: http://www.andrew.cmu.edu/jamess3/.**

POSTDOCTORAL FELLOWSHIP in antibody genetic engineering. Prospective candidates should have a Ph.D. in Molecular Biology, a solid expertise in genetic engineering, a desire to mentor graduate students, and an interest in complement-mediated treatments for breast cancer. Applicants with the above qualifications should contact: **Dr. Robert J. Boackle, 171 Ashley Avenue, MUSC, Charleston SC, 29425. E-mail: boacklrj@musc.edu; website: http://people.musc.edu/boacklrj/PF.htm.**

THE UNIVERSITY OF ARIZONA MOLECULAR PHARMACOLOGY

Postdoctoral openings are available in the laboratory of J. W. Regan (**website: http://www.pharmacy.arizona.edu/faculty/regan**) to study prostaglandin GPCRs, including their interactions with the Wnt/β-cantenen pathway and Akt/PI3 kinase. Methods include the use of microarrays, proteomics and transgenics. Applicants must have a doctoral degree. Send curriculum vitae and two reference letters to:

AHSC Human Resources
Job #992955
1501 N. Campbell Ave., #2233
Tucson, AZ 85724-5010

The University of Arizona is an Equal Employment Opportunity/Affirmative Action Employer, Minorities/Women/Disabled/Veterans.

PRE and POSTDOCTORAL FELLOWSHIPS
University of North Carolina Chapel Hill

Positions are available immediately to work on G protein-coupled signal transduction in Arabidopsis in two parallel teams. Members of one team require expertise in fluorescent resonance energy transfer and cellular imaging, but experience with Arabidopsis is not necessary. Members of the other require experience with both Arabidopsis and molecular genetics. Postdoctoral applicants must have a Ph.D. in the biosciences and have excellent communication skills. Send curriculum vitae to **e-mail: alan_jones@unc.edu.** Additional information is available at our **website: http://www.plantbiology.unc.edu.**

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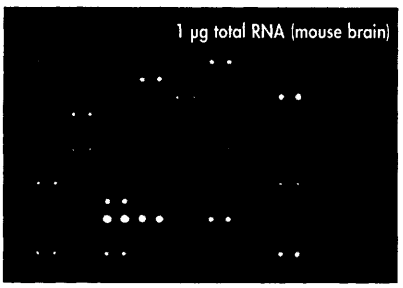

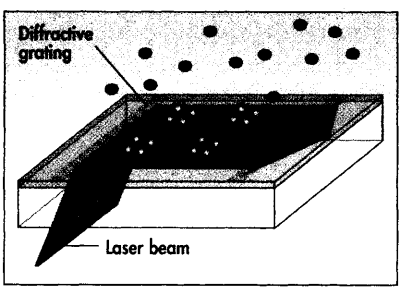

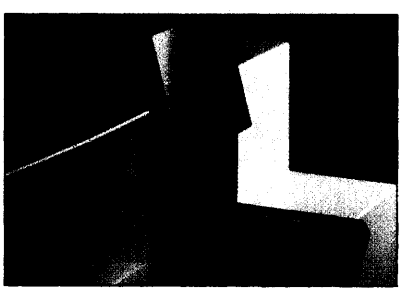

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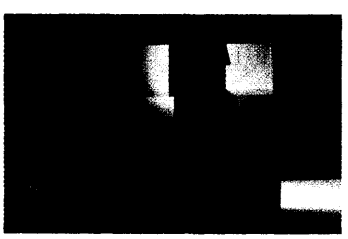

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